FITCHBURG STATE COLLEGE

REPORT TO THE SECOND STAGE ACADEMIC PLANNING GROUP

Forecasting Fitchburg State College New Majors and Socio-economic Trends Impacting New Majors

APRIL 2008

Executive Summary

In early 2008, a research team of three graduate students in the Master's of Science in Applied Communications, led by Communications-Media Dept. Chair John Chetro-Szivos, was selected by the Second Stage Planning Committee to collect data and provide a report back to the committee. Following a review of pertinent literature, the research team convened a series of *Delphi panels* to conduct the interviews.

Eight Delphi panel interviews were held between January and March. Panels included Fitchburg State admissions counselors, two faculty groups, two expert panels, Fitchburg State undergrads, and high school students and guidance counselors from Leominster. The expert panels consisted of elected officials, business leaders and public school education officials. The faculty groups consisted of representatives from departments who have been on staff five years or less. Each group was chosen for its unique perspective on the needs of current and future students, as well as their insight into the educational needs of North Central Massachusetts. With the exception of the Leominster panels, participants met with the research team on campus and were provided with lunch and gifts of appreciation.

The research team completed a review of academic journals and web sites dedicated to higher education to determine trends in the literature.The articles and sources spanned topics such as most popular majors, adult students in higher education, geographic and economic changes, and curricular changes.

The Second Stage Planning Committee suggested that the forecast address the feasibility of twelve possible new majors. Scoring the majors with the highest positive responses from the panelists would indicate the following:

5 Year BS/MS Education
Entrepreneurship Small Business
Environmental Science
Human Resource Management
New Media
Robotics
Broadcast Journalism

Forensic Science
Brain, Behavior, and Cognition
Social Responsibility
Applied Math
EEC Certification

A number of issues consistently received attention throughout the eight panel discussions. These salient issues cover a mix of academic, social and structural concerns that we recommend be examined in order to improve the campus environment and attract new students to Fitchburg State College. These issues are listed alphabetically and not by level of importance. These include changes in student learning, community offerings, confusion regarding concentrations and majors, faculty attitudes and faculty, Graduate and Continuing Education, campus location and physical structure, marketing, Mount Wachusett Community College, and transfer students.

The research team felt that the information generated through the surveys and the interviews provided a rich discussion and critical data for the Committee to consider as it moves forward in its academic planning.

It appears several of the new majors that were put before the panelists are on target for what the students and the community want. We view the proposed Dean structure as essential in addressing many of the issues raised under the salient issues section. Deans could make connections to the community, community colleges, and high schools to forge stronger relationships and partnerships. Deans could also be involved in the design of innovative programs to attract new student populations and to serve the needs of those stake holders.

The potential change to university status offers a unique opportunity for the College to leverage and promote its strong programs, physical plant improvements, and new majors to improve the community perception and relationships. This could create excitement about FSC as vital educational, cultural, and economic resource for the region.

FSC has long been a recognized leader in professional majors such as nursing, education, communication media, business, industrial technology, and computer sciences. As we saw in the literature, professional programs are in increasing demand among college bound students. Professional programs are a niche that FSC has attained and may want to build upon.

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Introduction

As Fitchburg State College looks to its future as a comprehensive institution of higher education, it is clear the College's academic potential is tied intrinsically to its role as a valuable community resource and economic driver in North Central Massachusetts.

In the summer of 2007 three committees met to conceptualize academic planning for the future and, more specifically, the creation of new majors. These committees were the Strategic Planning Committee, Academic Department Chairs, and Academic Affairs. Each committee met separately to develop plans and they came together in the fall to share their reports. Following a process of internal review, the Second Stage Planning Committee recognized the need for a survey of community stake-holders to provide external perspectives on academic needs of the region. Engaging these stake-holders in the process of planning for the future of the College has implications beyond key information gathering. Stake-holder involvement establishes a bridge between the community and the campus and a foundation for further marketing, public relations and academic partnerships.

In early 2008, a research team of three graduate students in the Master's of Science in Applied Communications, led by Communications-Media Dept. Chair John Chetro-Szivos, was selected by the Second Stage Planning Committee to collect data and provide a report back to the committee. Following a review of pertinent literature from scholarly journals, general news sources, and higher education publications, the research team convened a series of *Delphi panels* to be interviewed. Based on the work of Adler and Ziglio (1996) the Delphi Method gathers information from a group through the distribution of questionnaires and controlled feedback. The research team used a modified Delphi approach, along with the application of Circular Questioning (CQ) to facilitate the interviews. Briefly, we presented a series of prepared questions asking panelists to consider possible new majors, and to reflect on social and economic trends

that affect students and graduates. Other questions were asked as discussion evolved. Panelists were presented with a survey to rank the twelve possible majors defined by the Second Stage Planning Committee. The research team collected, assimilated and analyzed the data for presentation in this report.

Eight Delphi panel interviews were held between January and March. Panels included Fitchburg State admissions counselors, two faculty groups, two expert panels, Fitchburg State undergrads, and high school students and guidance counselors from Leominster. The expert panels consisted of elected officials, business leaders and public school education officials. The faculty groups consisted of representatives from departments who have been on staff five years or less. Each group was chosen for its unique perspective on the needs of current and future students, as well as their insight into the educational needs of North Central Massachusetts. With the exception of the Leominster panels, participants met with the research team on campus and were provided with lunch and gifts of appreciation.

The data in this report is the culmination of that research process. We include with our report a review of the literature, our findings and a series of recommendations. We hope the findings will inform the Second Stage Planning Committee as it prepares to initiate new or revised majors. We also hope the report will help position and inform the public face of Fitchburg State College as it enters its next phase of higher education.

Trends in Literature

The research team completed a review of academic journals and web sites dedicated to higher education. The articles and sources spanned topics such as most popular majors, adult students in higher education, geographic and economic changes, and curricular changes. The literature search focused on these topics and by no means is offered as a comprehensive literature review (see appendix).

Example of Trends in Higher Education

Demographic changes, technology changes, and competition for students are some of the challenges that higher education institutions currently face. Many of these readings emphasized that academic programs need to be strengthened in terms of relevance and currency to societal and institutional needs. As demographics change, institutions should encourage cultural diversity so students can compete in a global society. Campuses have begun to reach out into the community and beyond. Institutional initiatives such as making libraries, museums, and laboratories available to the public are some of the newer ideas to engage the community. Establishing relationships with corporate partners to offer internships and to enhance employee training and development. Distance learning offers many possibilities to engage the community. As reductions in funding occur, programs will have to become entrepreneurial to garner new resources that many come from these community relationships.

Collaboration and cooperation is indicated as a must between academic departments, other institutions, and the community to ensure survival of all programs.

Geographic Shifts in Higher Education

Consideration of geographic trends are relevant in academic planning. For example, New England's college graduates exceed the share of the general U.S. population. There is a high percentage of college-educated workers in New England, yet the supply does

not meet the region's demands for graduates in engineering, computer science, nursing, and technology-based careers. Colleges and universities influence their market share of students through tuition and fee. The cost of attending college matters to prospective students, and listing true net costs, including room, board and fees are the most important considerations. The numbers of high school graduates started declining nationally in 1978 and continues to do so. In recent years students from Massachusetts and other northern states have sought colleges in warmer climates.

LA&S Versus Vocationalism

American colleges and universities did not begin as vocational institutions. Instead, colleges were designed to teach the liberal arts that would prepare moral, civic and intellectual public leaders who followed professional careers. Interest in using colleges for vocational purposes became evident in the early-to mid-nineteenth century. By the beginning of the twenty first century, two-thirds of college undergraduates were enrolled in professional majors such as business, health professions, bio-technology, and computer science.

Student choice plays a factor in what majors many colleges offer. At the same time, students are keenly aware of what the labor market holds for college graduates. Students aim to attend colleges with the hope that their degree will lead to professional status.

Some critics fault the professional schools for providing students the wrong kind of skills. In addition, critics also attack the non-professional schools for elevating research over practice, and for the emphasis on academic courses that ignore the demands of jobs.

We found strong recommendations for finding a balance between the traditional liberal arts and the growing vocational/professional trends. This may include finding ways to equitably distribute resources already available. For example, institutions can consider how best to prepare students rather than trying to attract the students they would like to have. Institutions may also consider developing faculty who are enthusiastic about their teaching roles and public service. It may then be possible to strengthen both occupational preparation and liberal learning, particularly by developing programs that in-

tegrate academic and professional learning and that connect classrooms to the workplace.

Non-Traditional Students

With a possible decrease in college-aged students, some institutions have begun to refocus recruitment efforts on non-traditional students. Adult learners have specific challenges such as balancing the demands of family and career, cost of tuition and fees, and time management. They have strong study skills, and their investment in their education and learning is much stronger than younger learners. Woodley (1984) presented evidence that institutions of higher education should have few reservations about increasing the rates of adult students. Adult learners may offer a new market for higher education institutions as many adult learners may be seeking new careers or develop new competencies to meet their goals.

Socioeconomic Perspectives

An important change over the last thirty years is the growth of occupational and professional programs and the shrinking of traditional arts and sciences. The fields of protective services, computer and information systems, fitness, recreation and leisure studies, communication, and business have experienced fast growth since the early 1970s. Business has grown the most with one-fifth of all undergraduate degrees.

Social class is strongly associated with students who major in arts and sciences. Those among middle-and upper-middle classes are more likely to pursue arts and sciences. Periods of economic prosperity are often associated with preferences for arts and sciences study. Economic declines and the creation of college-level credential requirements influence interest in professional degrees. Another trend shows that among elite sectors of higher education, students pursue liberal arts as undergraduates and pursue occupational training later after enrolling in graduate school or pursuing a career.

Historical traditions also have an impact on college offerings. Older colleges, denominational colleges associated to liberal arts, women's colleges, and historically black colleges are expected to focus on arts and sciences. State institutions are influenced by the economy and are more likely to offer professional degrees in order to serve the state.

Nonselective campuses, master's granting institutions, and colleges with weaker academic profiles lean toward occupational education.

Most Popular Majors

The following articles were taken from various sources to show trends on the current, most popular majors.

"Ten Hottest Careers for College Graduates: Experts Predict Where the Jobs Will Be in 2004" www.collegeboard.com/student/csearch/majors_careers.

Government economists predict the following occupations will grow the fastest (increases of 36 to 55 percent) now through 2014:

- Network systems/data communication analysts
- Physician's assistants
- Computer systems/software engineers/applications
- Physical therapists and assistants
- Dental hygienists
- Network administration
- Database administration
- Forensic science technicians

"Today's Hottest College Majors"
www.fastweb.com/fastweb/resources/articles/index/110291

"The hottest majors for today's college students reflect traditional high-paying careers as well as trendy programs in fast-growing industries.

According to the national Association of Colleges and Employers 2006 report analyzing demand the top 10 majors are:

- Mechanical engineering
- Electrical engineering
- Accounting
- Business administration/management

- Economics/finance
- Computer science
- Information sciences and systems
- Marketing/marketing management
- Computer engineering
- Chemical engineering

"Today's economy requires that college graduates be savvy in technology, engineering and computer science and those jobs are always in demand." Liberal arts majors are in demand in the hospitality/tourism industry, counseling and culinary arts. Creative majors find careers in niche markets in jobs such as marketing, design, fundraising, media relations. Internships are important to employers as are strong presentation and analytical skills. Teaching and government is still popular; some schools are moving toward educational technology.

"Most Popular Majors"
http://most-popular.net/majors-college
This report cites the *Princeton Review* as the major source. Business Administration and Management is the most popular college major based on a yearly study (2006) culled from self-reporting from colleges. Other top majors include:

- Psychology
- Elementary education
- Biology
- Nursing
- Education
- English
- Communication
- Computer science
- Political science

Summary of Trends in Literature

From this review of the literature we recommend that the Committee consider these following points:

- The New England region's supply of highly educated workers is not meeting the demands of employers, which can afford our graduates opportunities in several fields. Bio-technology may be one of the emerging fields that the Committee considers.

- As the literature indicated there is a significant number of students enrolled in professional majors and students are seeking a degree for professional status. FSC has a long history of offering professional programs and this is a strength of the institution. The Committee may want to consider building upon its history and this growing trend.

- It is widely recognized that a decrease in traditional college aged students is on the horizon and the Committee may want to consider recruitment efforts focused on non-traditional learners.

- As noted in the literature review, public institutions are influenced by the economy and fulfill the demand for professional degrees. In light of the recent downturn in the economy this point is relevant to academic planning.

Findings

The findings were generated from the eight Delphi groups that were conducted between January 22 to March 11. These groups included forty-four individuals representing both people who are a part of the College community and people external to the College. The following groups made up the eight panels:

FSC Admissions Counselors
Faculty Panel 1
Faculty Panel 2
Expert Panel 1
Expert Panel 2
FSC Students
High School Students
High School Guidance Counselors

The composition of the panels are described in detail in the summary of the interviews. A written account of the discussion among the panel members follows.

A survey was given to the participants to rate the potential majors identified by the Department Chairs and the Strategic Planning Committee. The survey asked the respondents to rank the twelve majors identified in three categories; likely to attract students, career opportunities, and benefit to the community. The respondents were asked to rate these dimensions on a five-point Likert scale with the responses of Strongly Disagree, Disagree, Not Sure, Agree, and Strongly Agree.

Survey Results

The panels identified the following majors as "likely to attract students".

Major	Positive Responses	Percentage of Respondents
5 Year BS/MS Education	43	97.72
Forensic Sciences	43	97.72

Major	Positive Responses	Percentage of Respondents
New Media (Web & Game)	39	88.63
Broadcast Journalism	38	86.36
Entrepreneurship Small Business	36	81.81
Human Resource Management	36	81.81
Robotics	36	81.81
Environmental Science	36	81.81
Brain, Behavior, and Cognition	31	70.45
Social Responsibility	23	52.27
Applied Math	17	38.63
EEC Certification	7	15.9

Positive responses include indications of "agree" and "strongly agree" that the major would be of interest to students. When the scores of "agree" and "strongly agree" are broken out there is a significant shift in the distribution of scores and the ranking of the majors. It can be assumed a score of "strongly agree" indicates a more definite opinion. Listed below is the distribution of "strongly agree" scores for the question of likely to attract students:

Major	Strongly Agree	Percentage of Respondents
5 Year BS/MS Education	34	77.27
Forensic Sciences	28	63.63
Environmental Sciences	21	47.73

Major	Strongly Agree	Percentage of Respondents
Entrepreneurship Small Business	18	40.9
New Media (Web & Game)	17	38.63
Broadcast Journalism	15	34.09
Robotics	14	31.81
Human Resource Management	9	20.45
Social Responsibility	8	18.18
Brain, Behavior, and Cognition	7	15.9
Applied Math	3	6.81
EEC Certification	3	6.81

The group identified the following majors as providing the strongest career opportunities:

Major	Positive Responses	Percentage of Respondents
5 Year BS/MS Education	43	97.72
Entrepreneurship Small Business	39	88.63
New Media (Web & Game)	37	84.09
Human Resource Management	36	81.81
Environmental Science	35	79.54
Broadcast Journalism	35	79.54

Major	Positive Responses	Percentage of Respondents
Robotics	33	75
Brain, Behavior, and Cognition	32	72.72
Applied Math	24	54.54
Forensic Science	22	50
Social Responsibility	16	36.36
EEC Certification	9	20.45

Ranking of the strongly agree scores only are listed below:

Major	Strongly Agree	Percentage of Respondents
5 Year BS/MS Education	34	77.27
Environmental Sciences	18	40.09
Entrepreneurship Small Business	16	36.36
Human Resource Management	12	27.27
New Media (Web & Game)	12	27.27
Broadcast Journalism	11	25
Robotics	10	22.72
Forensic Science	10	22.72
Applied Math	10	22.72
Brain, Behavior, and Cognition	7	15.9
Social Responsibility	5	11.36

Major	Strongly Agree	Percentage of Respondents
EEC Certification	4	9.09

The last dimension of the survey asked the respondents to rate the majors in terms of how beneficial these majors would be for the community in general. The distribution is indicated below:

Major	Positive Responses	Percentage of Respondents
5 Year BS/MS in Education	41	93.18
Environmental Sciences	40	90.9
Entrepreneurship Small Business	39	88.63
EEC Certification	38	86.36
Human Resource Management	33	75
Social Responsibility	31	70.45
Robotics	30	68.18
New Media	29	65.9
Brain, Behavior, and Cognition	27	61.36
Forensic Sciences	27	61.36
Broadcast Journalism	24	54.54
Applied Math	22	50

Listed below are only the ranking of strongly agree:

Major	Strongly Agree	Percentage of Respondents
5 Year BS/MS Education	25	56.81
Environmental Sciences	23	52.27
Entrepreneurship Small Business	19	43.18
EEC Certification	16	36.36
Social Responsibility	14	31.81
Human Resource Management	12	27.27
Brain, Behavior, and Cognition	12	27.27
Forensic Science	10	22.72
Applied Math	9	20.45
Robotics	6	13.63
New Media	5	11.36
Broadcast Journalism	3	6.81

Survey Scores and Summary

Scoring the majors with the highest positive responses would indicate the following:

5 Year BS/MS Education	127
Entrepreneurship Small Business	114
Environmental Science	111
Human Resource Management	105
New Media	105
Robotics	99
Broadcast Journalism	97

Forensic Science	92
Brain, Behavior, and Cognition	90
Social Responsibility	70
Applied Math	63
EEC Certification	54

Scoring the same majors that received strongly agree responses would indicate the following:

5 Year BS/MS Education	93
Environmental Science	62
Entrepreneurship Small Business	53
Forensic Science	48
New Media	34
Human Resource Management	33
Robotics	30
Broadcast Journalism	29
Social Responsibility	27
Brain, Behavior, and Cognition	26
EEC Certification	23
Applied Math	22

It is clear the panelists felt strongly about the 5 year BS/MS Degree in Education, as well as Environmental Science, and Entrepreneurship Small Business. These three brought the most favorable responses. Forensic Science, New Media, Human Resource Management, Robotics, and Broadcast Journalism represent a second level of popularity. Brain, Behavior, and Cognition, Social Responsibility, EEC Certification, and Applied Math appear to be in a third tier of popularity.

The survey also asked the panelists to suggest other majors they felt should be considered. There were many ideas but consistently the panelists spoke about the importance of offering a major or course work in Bio-technology and manufacturing. They pointed to the Governor's Life Sciences Initiative and the emergence of bio-technology manufacturing coming to Devens with the potential for hundreds of jobs for the area. The community expert panel discussed the Massachusetts Life Sciences Center which on February 11, 2008 launched a matching grant program designed to fund research at public and private universities and colleges as well as other recognized research institutions.

The first offering is $12 million in matching grant funds. These panelists strongly recommended that the College explore this opportunity.

There were several other suggested majors which included the following:

Physical Education
Sports Management
Computer Security / Forensics
Journalism
Foreign Languages
Degrees in Allied Health such as Physical Therapy, Speech Therapy, and Nutrition

The surveys were a small part of the work in the Delphi groups. There were extensive discussions with the eight panels lasting approximately ninety minutes each. Through these panels we uncovered many valuable ideas about majors, academic growth, the community's impression of the College, and the relationship people would like to see formed with the community and students. Following the summary of interviews we report on the major issues that the panelists discussed.

Summary of the Interviews

Admissions Counselors Panel

The team met with five Fitchburg State admissions counselors on January 22, 2008. The counselors offer the first impression of Fitchburg State, and must be well-versed in the college's academic and social offerings. The counselors attend multiple college fairs, open house events, and school visits throughout the year across the state and region. Additionally, the counselors field information requests from potential students and have direct knowledge of current and future students' wants and needs.

The job trends they most often see as most desirable among high school students tend to overlap with Fitchburg State's most popular offerings, the majors suggested by the Second Stage Planning Committee, and a few trends not frequently mentioned. These trends include:

- Allied health fields, such as physical therapy; occupational therapy; athletic training
- Nursing
- Teaching
- Broadcasting
- Environmental science
- International business relations
- Communications
- Criminal justice
- Industrial technology
- Psychology
- Study abroad
- Sports management
- Sports broadcasting

When asked about the most attractive fields sought by students today many of Fitchburg State's offerings were mentioned, including communications media, nursing, business, psychology, criminal justice, and industrial technology/construction. Students also seek architecture/technology and a nursing degree for students with a non-nursing bachelor's degree.

If they were to apply to college today, the counselors said they would enroll in a mix of majors:

- Broadcast journalism
- Publicist
- Event planning
- Hospitality
- Night classes for education degree
- Physical education
- Health education
- Human resources
- Nursing
- Film
- Psychology

When asked what the college could do to enhance its academic offerings to the area, counselors listed programs targeted toward retirees, a small business institute, English as a Second Language courses, business classes taught in Spanish, and language classes for area residents.

The counselors foresee a number of changes in the traditional student population. More Boston-area school districts are placing emphasis on technical and vocational schools, and opening more schools geared toward a vocational education. As the Baby Boomer generation retires more adult learners may seek higher education courses to pursue interests or a new hobby. With the economy in a constant state of flux, adult workers may seek training or an additional degree to help with job advancement. They may also look to higher education as a resource when making a career change.

Counselors made several suggestions to improve adult education at Fitchburg State. These included more evening programs and weekend intensive programs, more professional certificates, more online programs, and offering certificate programs online. Counselors also noted the billing differences between the day and evening courses–evening courses are more expensive–and that some adult learners would like the option of taking either day or evening classes toward their degree. Students hoping to become teacher's aides would prefer night classes because they work during the day.

Several comments regarding the social aspect of the adult learning population indicate these students have needs that aren't being fulfilled. They don't integrate into the traditional undergraduate community very well; the panel said these students eat lunch in

their cars, for example. "What do we offer them?" asked a panelist. "I don't think they have the time or desire to be integrated in college. They don't want lifelong friends but maybe professional associations."

When considering future economic and social issues that will impact future students, counselors said that many incoming students have been diagnosed with learning disabilities or mental disabilities.

In addition to the planned topics, counselors discussed college marketing. Many students are confused with the list of majors offered on marketing materials; listing majors in alphabetical order by concentration may be more helpful to students. They would like to see more information included in academic marketing materials so students get a clearer picture of offerings. Students also have trouble with the college's names for majors like industrial technology and the phrasing of concentrations under communications media.

Fitchburg State College Faculty Panel 1

The first faculty panel was convened on February 12, 2008 and it included six faculty members from different departments. The departments included English, Nursing, Criminal Justice, Communication Media, Math, and Computer Science. All faculty were at the Assistant Professor level on a tenure track. One faculty member has been at FSC since 2002, three since 2005, one since 2006, and one since 2007. This group offered many insights into their academic fields and went beyond this to discuss trends that face higher educational institutions and more specifically they offered their impressions about the challenges FSC faces.

The discussion indicated the panel members are genuinely concerned about the institution and want to be active participants in helping it move towards the future. Their insights were consistent with ideas and concepts we found in the literature. Generally speaking, the panelists offered many positive points about the College and indicated areas that they felt the College needed to strengthen. See the appendix for questions that the panel addressed.

The panel felt FSC is currently offering majors and fields of study that are what students are seeking when applying to a college. However, the faculty felt that these offerings could be enhanced by a new marketing strategy geared to high school students, non-traditional students, transfer students, the parents of high school students, and guid-

ance counselors. The panelists noted a trend among students to seek "service conscious" majors, by this they thought students should have more opportunities for internships in industry, government, and the not-for-profit sector.

In terms of new majors, the panelists felt strongly that FSC should develop Biotech majors, which would be consistent with the current economic development trends in the Commonwealth, They also felt that environmental sciences or any major that was ecology friendly would attract many students. The panelists felt strongly that FSC offers exceptional teaching and that should be stressed when reaching out to potential students. They believe that enhancements to the current majors would attract more students, such as an emphasis on economics and business that would lead to careers in the financial service field. The panel agreed that nursing offered a number of opportunities such as offering a BSN program to RNs, a nursing degree with a concentration in gerontology would be a major success, or marketing to non-traditional students who want to become a BSN. Overall, the panel felt the majors that would attract the most interest would be those that led to professional jobs.

The panel offered the idea that FSC should think of ways to combine majors from two departments to offer unique majors or double majors. The idea of more languages was discussed as a way to better prepare students for the work world.

They would like FSC to serve the area better by offering and marketing certificate programs in multiple fields. This led to a discussion about distance learning, which the panelists thought is important for the future, but they think FSC needs to make many improvements and refinements to the current program.

The faculty anticipates changes in the potential student population with the increasing number of Latino students. Reaching out to this group will require a new marketing strategy and marketing materials available in Spanish. All of the panelists have concerns about the degree that students interact and rely on technology. They felt that faculty will have to adapt to this and explore new learning modalities. Although the students are heavy users of technology, faculty pointed out that they do not understand how it works and this is important as the world relies more heavily on technology. The faculty did raise a concern about the number of hours students work in addition to going to school. This led them to think about offering degrees that allow students to take less credits in a semester and remain a full time student. They also stressed that FSC needs to offer many more evening options to day and part-time students. This panel, like other groups, find the day and DCGE distinction too rigid and feel this has made

the process of earning a degree cumbersome. Allowing more flexibility for day students to take evening courses would attract more non-traditional students and address the needs of students who are working.

It is important to the panelists that FSC remain affordable and they saw this as an advantage to private schools. However, the panel felt that marketing the quality of education with affordability is critical to the future success of the institution.

Fitchburg State College Faculty Panel 2

The second faculty panel met on February 13, 2008 and it included five faculty members who came from different departments. The departments included Biology, Education, Business, Geo-Physical Sciences, and Social Science. All faculty were at the Assistant Professor level on a tenure track. One faculty member has been at FSC since 2005, and the remaining four started in the fall of 2007. Like the other faculty panel, the group offered many insights into their academic fields and went beyond this to discuss trends that face higher educational institutions as well as insights into challenges they saw FSC facing. It was clear that these faculty are concerned, but they see many opportunities for the institution. See appendix for questions that the panel addressed.

The panel felt that FSC cannot just expand, it has to deepen and strengthen what it has. This panel also stressed the importance on internship programs as a means to attract and better prepare students for their careers. They felt strongly that any new major must have an internship component and this needs to be advertised and marketed to prospective students. Like the first faculty panel, this group felt that majors with a high likelihood of leading to jobs are what students are seeking. They also stated that students want study abroad programs and FSC should expand what it currently offers and make potential students aware of these opportunities.

The panel felt that majors that emphasize communication and technology are attractive to students as well as environmental sciences, and neuroscience majors. The panelists recommended strongly that FSC find a major that relates to the growth in pharmaceutical companies in the area. The saw five year programs that would award both a baccalaureate and master degree would draw a number of students.

The panelists expressed concern about the current IDIS program. They felt that it has the potential to offer students a unique opportunity to study in new areas, but currently

it is used as "punishment" for students who cannot meet the requirements of their existing majors. They thought IDIS has great potential and should be marketed as a strength of FSC.

The group felt that FSC has to reflect on what makes it unique so it can find its niche and concentrate on marketing that to potential students. They thought that FSC could attract more students by offering more scholarships and opportunities to earn stipends or scholarships by joining with faculty in research, especially during the summer.

The panel pointed out that it is hard for service departments to expand because of the requirements to teach introductory courses. It was also expressed that many of the courses in the catalogue are not offered due to the need to offer multiple sections of introductory courses.

When asked how FSC could better serve the area, the panelists thought the institution should partner with the public library to offer lectures and programs to the community. They saw the city of Fitchburg's Main Street Program as an opportunity for the College to partner with people in the area. They also suggested that the recreation facilities and dining halls are open to the community and that this would be advertised. The panelists thought FSC should offer training and courses to the employees of the expanding biopharmaceutical companies. They felt FSC should have presence in the area schools and promote its dual enrollment program with the local high schools. The faculty talked very highly about he ALFA program and thought this was a good example of how the College could work with the community.

The panel is concerned about the decrease in the eighteen year old population, but thought FSC could make this up by offering classes to workforces such as the NYPRO program, reaching out to soldiers returning from active duty, expanding its evening majors, and offering an evening nursing degree. They saw potential in the distance learning model but thought it needs to be marketed better and to different populations. The panel saw international recruitment as a solution to the declining eighteen year old population and felt it would make the campus a richer environment.

There were a number of concerns expressed about the student population. Faculty felt they do not come prepared from high school and FSC should consider a study strategy course in the freshman year. The "addiction" to technology is troublesome and they felt that the College needs to create a policy on the use of instant messaging and text messaging during class. Many faculty find this and laptops in the classroom as a disruption.

They are concerned about the students' heavy reliance on technology. They felt this has created a passive student body that is not highly motivated to participate in class or learn about the subject in great depth.

Expert Panel 1

The team met with four community leaders on March 5, 2008, in its first expert panel. The members represented education, business and government agencies.

When asked what majors are most likely to be attractive to incoming college students, the panel noted a mix of professional majors and new fields:

- Gaming
- Green majors
- Occupation
- Nursing
- Allied health
- Education
- Industrial arts
- Retraining and professional development
- Biotech

The panel was asked what Fitchburg State needs to offer to students in order to bring them here. The answers focused on two areas: transfer students and the community. Suggestions included improving the articulation agreement for transfers, committing resources to making transfer students feel more welcome, and eliminating the difference between day and evening tuition. "The college can say that it has great articulation with the community colleges for some courses of study," said a panelist. "The reality is when you get to critical courses of study, you can't get credit. That's a huge turnoff. It's a turnoff for the parents, who paid for the courses. It's a turnoff for students who have to go through the introductory courses again."

Talk about the community centered on becoming partners with the city of Fitchburg in community initiatives, and working to ensure safety for students. "Coming here means coming to Fitchburg. We all need to work together to improve the image of the city of Fitchburg. The perception is that it's not a really good place to be, that we don't have a lot of opportunities here. We all need to work together to have a positive message," said a panelist.

If they were to apply for college again, panel members would consider majors that were again a mix of those already offered, those being considered, and some not previously mentioned:

- Business
- Human resources
- Photography
- Engineering
- Languages
- Interior design
- Computer security

The panel was asked for suggestions of additional responsibilities Fitchburg State might consider to help area residents. Responses included offering courses to high school students – and perhaps programs targeted toward minority high school students – that would award college credit. The panelists would also like to see more help for minority students in general, and more civic engagement.

When taking a look at potential changes in student demographics, the panel discussed a variety of issues. Members thought that the college should target non-traditional and older learners, such as those involved in the ALFA program, and adults seeking a career change. Panelists also noted that non-traditional students and visitors sometimes feel intimidated by the campus because of parking and signage. They felt that marketing should be a priority, and messages should include value of a Fitchburg State education, and using prestigious alumni to promote the college.

Panelists discussed economic and social trends that the college should be aware of. These centered on the global community, and targeted the area's increasing immigrant population, English as a Second Language training, teaching others how to communicate with someone from a different culture, and the need for the college to be engaged with local ethnic populations.

When asked what the panelists wish their college would have done better to prepare them for their careers, they said:

- Teamwork
- Collaboration
- Leadership
- Communication skills
- General technology

- Practical skills

Discussion moved to what training and education needs can Fitchburg State fill for their employees. Those needs include:

- How to supervise
- Professional development
- Business writing
- Training the non-profit sector
- Workshops that could lead to certificates in new majors

Expert Panel 2

The team met with the next panel of experts on March 6, 2008. The panel included representatives from local government, education and business.

When asked what majors are most attractive to incoming students, the panel said:

- Majors where they can earn money
- Culinary arts
- Programs with Mount Wachusett
- Environmental majors
- Life sciences – perhaps a partnership with businesses at Devens

The panel was then asked what Fitchburg State needs to offer to encourage students to attend. Answers included more internships, expressing to students what jobs they can get based on their majors, promoting the city of Fitchburg in a positive light, and accelerated bachelor's degree programs, like those at Cambridge College. "I was talking to a student entering Fitchburg State. She 'settled' for Fitchburg State because she wants to go somewhere bigger and better for her master's. I hate it when I hear it because it's so untrue. Can you get beyond that? Is it desirable to really get beyond that and look at it?" said a panelist.

If they were to apply to college again, members of the panel said they would study architecture, environmental science, counseling and human resources.

Discussion turned to what additional responsibilities Fitchburg State could take on to help area residents. The panel suggested:

- More offerings in the campus cultural series
- More speakers

- Less expensive entertainment for families
- Free tickets to events
- Help with tax returns

Like the previous expert panel, the members also noted that the campus can be an intimidating for families and visitors because of parking and signage.

When asked about what demographic changes the college should be aware of, the answers reflected those presented at previous panels, such as potential new adult learners because of the economy or career changes, Baby Boomers seeking classes after retirement, and offering more evening classes and online classes for adult learners.

The panel was asked about future concerns they have about the traditional student population. They noted that many incoming students need help with learning disabilities. They were also concerned about the amount of technology used in the classroom and whether laptops function as a tool or distraction. Members also suggested more collaborative learning opportunities.

In answering a question about what college could have done better to prepare the panelists for their current employment positions, panelists said:

- How to interact with people
- Financial skills
- Perhaps a seminar for high schools students to help them with college
- Occupational awareness

Fitchburg State College Undergraduate Student Panel

As the direct users of our services, current Fitchburg State College students offer practical, consumer-based insights on the breadth of FSC's academic offerings, the ease of use of services, the collegial atmosphere of the institution, and the identity of the College.

On March 6, 2008, the research team met with a panel of four Fitchburg State College undergraduates. The students, all Caucasian females, represented a cross-section of differing levels of education (two seniors, one junior, and one freshman), different majors (history, communications-film/video, nursing, and psychology), different ages and extra-curricular interests. The oldest panelist was 32 years old; the youngest was 19. Two were commuters, two were residents. One was a transfer student and one is a for-

mer Dual Enrollment student. One is a member of the Student Government Association and the student programs group.

The panel offered testimonials and information on what current and potential future students perceive to be the strengths and weaknesses, atmosphere and support offered by their institution.

The students were asked planned questions as well as others that evolved as the nature of the interviews progressed.

We heard several positive things about Fitchburg State from the students, particularly that they find faculty to be knowledgeable and supportive, "beyond spectacular" was the comment from the transfer student, who had attended both UMASS Amherst and Dartmouth. The many cosmetic and aesthetic changes to the campus also received positive comments. Panelists felt FSC has something to a variety of age groups.

Business, engineering, communications and architecture are popular and interesting majors among current and future college students, the panelists said. Occupational and physical therapy, are also rising in popularity, with many students studying exercise science in order to become physical therapists. Panelists would like to see FSC introduce a language major, such as Spanish or Italian, and a major in architecture, not an ITech degree.

Panelists said knowledge about offerings at Fitchburg is fairly limited to nursing, education and communications-media. Other majors are not publicized through College/ Admissions marketing efforts. In order to attract more students, the variety of options in majors available must be made more broadly known, the students said. Students are not interested in the ITech architecture track because it's "just a tech degree," not a degree in architecture.

Panelists also cited concerns for safety on campus and in the city as reasons students do not attend Fitchburg State. Improved security and publicity about such would have to be made to attract more students. "After classes and after events I don't feel safe walking around." "Fitchburg in general is also a drawback – it's just not nice." Fitchburg State is an underrated college among future students from the region and is seen as "the bottom school" in Central Mass. Friends tell our students they are "crazy" to come here and one compared the city to Dorchester. The lack of commercial attractions, such as a Starbucks or a café is also a drawback, students said. The "suitcase school" status of the

College needs to change in order to attract more students. "It's hard when a lot of people who are here live close by and go home on weekends." "There's no life," said another.

Panelists reported that African-Americans have a steady, visible presence in campus life but the Hispanic and Southeast Asian populations do not reflect those of Fitchburg and North Central Massachusetts. The 32-year-old student noted that she has been working on her degree for 10 years and that the number of international students was far greater at FSC 10 years ago.

The number of unavailable courses is problematic for each member of the student group. Many courses are listed in the catalog but are never or rarely taught, the students said. One student ended up with a psychology minor simply because the number of electives was low. Social science is lacking in anthropology, archaeology and philosophy courses, one said, noting that such courses would dovetail easily with the peace studies minor. Innovative and fresh courses are also lacking, one said.

Leominster High School Student Panel

High school students preparing to choose a college or university have the most intimate knowledge of what colleges purport to offer and have insight on what students such as themselves are seeking in a college.

Though a significant number of transfer and non-traditional students attend Fitchburg State, recent high school graduates comprise the bulk of new students at the College. Leominster High School is the top feeder school for Fitchburg State, with 41 new enrolled students in fall 2006*[1], the most recent available statistic. For that reason, the research team chose to interview a panel of Leominster High School students.

On March 11, 2008, the research team met with eight students from Leominster High School at the school. The students were selected by Leominster High guidance counselors who knew them to be interested in attending college. The group consisted of three juniors and five seniors. All were in the process of either researching or choosing to go on to a four-year institution. Three were male, five were female. One was a foster-child who indicated a great need for affordability. Another was a top-tier school candidate

[1] In 2006, the top five majors of new students and transfers at Fitchburg State were Business Administration (143), Communications Media (136), Nursing (102), Industrial Technology (78), and Elementary Education (71). *May 2007 FSC Fact Book*

who appeared less influenced by total costs. Some of the colleges the students had researched, visited, or applied to include Bridgewater State, Endicott, Quinnipiac, UMASS -Boston, Salve Regina and Fitchburg State.

The panel provided insight into the methods used by students to learn about colleges, what attracts them to certain colleges and what turns them away. The panel relied on their own interests and goals for information as well as information they know about their friends. The students were asked planned questions as well as others that evolved as the nature of the interviews progressed.

Throughout the responses, the students highlighted some repeated themes that extend beyond academics that are integral to their process in selecting a four-year college. Those themes are: students want internships to be an early and continuing part of their college program; a campus' aesthetics, physical plant and safety are very important to students. Students want to live on campus. The unavailability of housing for Leominster residents at Fitchburg State is a drawback for potential applicants. Additionally, all said academic program choices frequently depend on a student's ability to transition directly into graduate school.

Majors under consideration by this group and their friends include broadcast journalism, nursing and other medical areas, business, including finance, psychology, and engineering, including civil and mechanical engineering.

While students look at academic offerings when considering a college, they also look for "a safe environment" and a campus that is aesthetically appealing. Students want the environment to look clean and new, and look at dorms, dining halls, libraries and classrooms for the same level of care and up-to-date amenities. Among those, students want internet and electricity access in private and communal areas. They are used to having such access already and expect that colleges will be able to provide that same level.

Students are also interested in a vibrant campus life and look for extracurricular activities that parallel what they are already doing in high school. Athletic facilities also matter. "I'm going to a Division III school. I got offers at other schools but the brand new facilities make me want to go." "I looked at student activities, at the gym and the pool."

Prospective college students look at proximity to off-campus activities and for a school that is "not hard to travel to" such as in Worcester or Boston. Affordability is consideration for most.

The availability of internships and career development are important for prospective college students. "You really need a starting point," said one student. "The whole reason I'm going to Endicott is because they require internships for all four years," said a senior.

The primary resource for students to get information about a school is from the web. Though they do look at schools' websites and campus maps, students do not expect to get the full picture of a college from its web site or from a tour. They expect to be shown the best, newest and brightest and do their own additional research if they are truly interested. "Some schools don't show you everything. Some only show you one building. It's funny how they can manipulate how you feel." Students are turned off by websites that are not easily accessed, or are out of date, or seem to be incomplete. To find out more about a school, during a tour, students will ask the guides about the *real* life on campus. "Administrators promote schools as best they can, they say there is a quiet floor but students will say, 'No way.' When I visit I just talk to students roaming around."

Students cite additional problems in getting information when the listing of majors or concentrations is not accurate or clear or well defined. Some suggested including a sample course listing for majors on the web site.

In addition to a school's own website, students use collegeboard.com[2] for information, though collegeboard.com is not always accurate, they said. Majors listed do not always reflect what the college says is offered. Additionally, students use facebook.com and student blogs to gain information about a school they are interested in.

Panelists said they look at posters, flyers and information in public places, such as libraries, grocery stores. They do not read newspapers. If information was available in guidance offices, they would look at it.

Financial and job security are concerns for current high school students. They want to have careers that are sustaining. However, they also say they should feel passionately about what they do.

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[2] The College Board is a not-for-profit membership association that connects students to college opportunity. It is composed of 5,400 schools, colleges, universities, and other educational organizations. College Board administers the SAT®, the PSAT/NMSQT®, and the Advanced Placement Program® (AP®).

High school students are interested in hearing from college graduates while they are still in high school. Having alumni visit would help promote those colleges to the high schoolers, they said. There are a variety of ways Fitchburg State could attract more students, panelists said, based on their experience in college visits or from information from friends. Having a one-on-one orientation big brother or big sister would be seen as favorable. Having a faculty advisor assigned as soon as someone enrolls would also be seen favorable. "That appeals to me. Colleges that require that, you get an idea that it's valued at the school. When only some faculty are advisors, you wonder if they're just doing it because they're on the bottom of the totem pole."

Fitchburg State is not seen as competitive with other colleges in the state, the panel said. The College should promote its successes more on its web site. For example, one student told us he learned more Fitchburg nursing graduates passed the boards this year than BU's nursing graduates – yet that is not promoted on the web site. Students want to see alumni profiles detailing what kind of jobs and successes they have. Students want to see and believe statistics. "Numbers don't lie."

The city of Fitchburg is a detriment, the students said. It is perceived as full of crime and looked down on as the lesser city next door to Leominster.

If Fitchburg could get more high schoolers onto campus for events and to use the resources, they would be more inclined to consider Fitchburg as an option for college. One student came to use the library and, despite parking problems, said that had she known that the library was available earlier in her high school career she would have used it more often. Others who had been to the campus were surprised by the "campus" feel of Fitchburg State once they got onto the quad.

Panelists would like a seminar at Fitchburg State to introduce high schoolers to what it takes to get into college, with discussions from faculty. Panelists want to interact with faculty. Summer programs for high schoolers would also be seen favorably. Students also asked if Fitchburg State could fill in the blanks of missing curriculum from their high school, for example, they missed AP chemistry and advanced French classes.

The panelists' impressions of Fitchburg State students were noncommittal. They believe our students are like all college students, some are motivated and some are not. "It's what you want to do with your education."

Leominster High School Guidance Counselors Panel

Next to our own admissions counselors, high school guidance counselors may be the most important external advocates. Additionally, they are the motivational bridge between potential students and the College. Their comprehension of the needs and desires of high schoolers provides an unparalleled perspective on trends among potential college students. Additionally, their understanding and knowledge of Fitchburg State's offerings and position in the community provides an important outside perspective on our institution.

The research team met with eight guidance counselors from Leominster High School on March 11, 2008 at Leominster High School. The counselors included one female intern from Assumption College and the long-time director of guidance from Leominster High. All panel members were female, with the exception of one male, who is also an adjunct professor at Fitchburg State. As previously noted, in 2006, Leominster High was the top feeder school to Fitchburg, with 41 new students enrolling as freshman.

The panel was asked planned questions as well as others that evolved as the nature of the interviews progressed.

The Leominster guidance counselors all acknowledged a trend in student interest in majors and careers in business, including marketing, management and administration, and engineering, including computer, biotech and others. Additionally, students are also interested in health fields like nursing, physical therapy, pharmacy; education and psychology; communications including journalism/broadcast journalism, web design and gaming; architecture, interior and fashion design, and forensics and criminology; and sports management.

Most Leominster students who intend to pursue college want to stay in New England. They are influenced by the newness, cleanliness and size of campus facilities, including dorms, the panel said. The counselors use a questionnaire provided by collegeboard.com to help narrow a student's interests and preferences and work from there. Students are concerned about safety and college costs. They want their campus to have vibrant weekend activities and they do not want to attend a "suitcase school." "There is definitely a social piece to it. They ask other kids about what it's like to live there."

The biggest hindrance to students' interest in Fitchburg State is that housing is not offered to students from Leominster. "Dorms are a huge issue. We have kids who look at Worcester or elsewhere because they don't want to live at home."

Many high school students are planning on continuing their education beyond the bachelor's level and of those, many are interested in accelerated degrees. Because of that, students are factoring in a broader range of higher education costs in their four-year decision. Affordability is important.

Students primarily use the web for gathering information about a college. They also attend open houses. Web sites need to be intuitive and a few clicks away from information, otherwise students turn away, the panel said. Information needs to be current as well. "When you log on and you see old records it's frustrating for our kids to see outdated material," said one counselor. "It's important to stay up to date." Students also want the Common Application easily accessible. "They moan and groan about applications, but because Bridgewater had [the Common App] many of my kids applied there because it was easy."

Of significance in this interview was that when asked their opinion of Fitchburg State's virtual tour, not one guidance counselor had viewed it or even knew it existed.

The College needs more marketing of events and information and needs to get kids onto campus and the quad, the panel said. To attract more students, the College should host a "going to college" seminar, similar to the one run by Mount Wachusett Community College, the panel suggested. The high school recently hosted a college info night for juniors and their parents that drew 175 people. Such a session would be a big help to many first-generation parents and students who do not know where to begin when researching and applying to colleges. More family-friendly, lower-cost on-campus activities would also attract students. "Anything you can do to get kids to come to campus, once they get there, they have a different impression." Open houses should feature faculty and other interesting speakers, the panel said. Potential students do not want to hear from administrators. "When a kid talks to a professor, that's a huge selling point."

A distinguished alumni page, highlighting the success of Fitchburg State alumni, will also go far, the panel said. Members noted the television ads of UMASS.

Internships are also important, the panel said, not just for the students, but to create a buzz about the College among local businesses. Students want internships all along the

way, the panel said, and the College should prepare to offer students "practical experience."

The panel foresees more jobs in health fields, biotechnology, occupations that assist elders. Students are more savvy with technology, and expect their college to be equal. Colleges should also be aware of a much more diverse immigrant population, with Africans and South and Central Americans in the mix.

On the whole, the panel sees the change to a university status as favorable, but said a huge increase in awareness and marketing will need to be done in order to distinguish what will be different from college status.

Salient Issues

A number of issues consistently received attention throughout the eight panel discussions. These salient issues cover a mix of academic, social and structural concerns that we recommend be examined in order to improve the campus environment and attract new students to Fitchburg State College. These issues are listed alphabetically and not by level of importance.

Changes in Student Learning

Panelists noted the changes they see in current college students and future college students in their discussions with the Delphi Group. One of these changes focuses on the amount of time this demographic spends using social networking applications or surfing the Internet on their laptops while in class.

One faculty member doesn't like having laptops in her classroom and doesn't allow them, despite the introduction of the Laptop Initiative two years ago. "They're not getting the concepts," said the panelist. Another faculty member is unsure about how to change his teaching style because of technology: "I heard a talk recently about how students interact with technology and how we're going to have to change to keep up with that. How does that affect what we're doing?" Another panelist expressed the need for guidelines: "The college needs professional standards for students, academic and social uses, and students need to be held to those standards. If they don't, the students go out and say you don't get a good education [at Fitchburg State] and we get blamed for delivery."

Comments also included changes in classroom engagement; many students prefer hands-on learning, lessons that translate to real world situations, and community service projects. "Technology in the classroom and teaching methodologies are critical for the millennium group. They don't want the lectures, the talking head. They're looking for more interactive opportunities," said a panelist.

Community Offerings

Every panel had a variety of suggestions to increase Fitchburg State's impact in the surrounding community. The suggestions covered all ages and interests.

- Free or reduced cost entertainment for children/families
- College courses for high school students
- Panels or workshops on college as a resource to high school students
- More academic activities, such as the annual Math Competition
- College day/campus visit day during the school day for high school students
- High school visits by faculty and staff to provide insight on college
- English as a Second Language courses
- Business courses in Spanish
- Courses and programs for adults seeking a career change or recovering from unemployment
- Training for local companies, employees
- Training for government officials
- Increased offerings for the Adult Learning in the Fitchburg Area (ALFA) program

Confusion Regarding Concentrations and Majors

Admissions representatives, school counselors, and students at the high school and college level expressed the difficulty that high school students have in understanding the difference between concentrations and majors at Fitchburg State College. The college literature, brochures, view books and Web pages list the concentrations under each major; if a student doesn't know what major their concentration fits under, they have a hard time making a connection about what exactly the college offers. There is also confusion about the majors themselves – the names aren't clear cut to students. "It looks like we have 27 academic concentrations. It's very confusing to students," said a panelist. For example, Film would be a concentration in the Department of Communication Media, and the student may not look under Communication Media to study film. The student may think that film is not an option and look for another school. FSC students and high school students both discussed how concentrations, as opposed to majors, lends the impression that it is not as rigorous. Architecture Technology Concentration was pointed out by several people as a desirable major, but it is not attractive to students applying because it appears that is not the degree they want.

Faculty Attitudes and Faculty

Creating a meaningful, positive college experience begins at home, with faculty and staff. During the panels, a few comments expressed a pessimistic attitude among some faculty regarding the caliber of Fitchburg State's student body. One adjunct was warned by a faculty member that "You realize you're not going to get the cream of the crop," said the adjunct. "I was pleasantly surprised when I started teaching there ... There are some very, very bright kids." A panelist said the students are not highly motivated and are "lazy brained." At the same time the FSC students were in agreement that the faculty of the College were outstanding and that this should be promoted to incoming students and the community. High school students suggested ways that they could have access to the faculty on panels, opportunities to talk with faculty about projects they are working on, and a chance to meet faculty on the campus. The FSC students were in agreement that the faculty of the College were outstanding and this fact should be promoted to potential students.

Graduate and Continuing Education

Comments regarding graduate and continuing education at Fitchburg State generally focused on how the college could increase its offerings. Panelists would like more graduate degrees and certificates. Repeated suggestions were made about giving GCE students the option to take day, evening, and/or weekend classes without additional payment to create a more flexible schedule.

Campus Location and Physical Structure

Fitchburg State's location and physical campus were seen as both an asset and a deterrent among the panelists. High school students who had been to the campus commented that its proximity to downtown Fitchburg was off-putting, but once they set foot on campus, they felt comfortable. "It's weird saying there's a college atmosphere so close to us. It's not what you expect it is," said a panelist. "It's close to downtown Fitchburg, but it has a college atmosphere. When you walk in, there's students walking around with backpacks. It's the cliché college experience."

Panelists from outside the campus said that parking is often an issue to visitors; they're unsure of where to park during the school day, and during evening and weekend events. The campus size, parking locations, maps, and signs can be seen as intimidating

to outsiders. "It's not an easy campus to navigate. It's in the inner city. The Mount is like the colonial meetinghouse in the middle of the community and I prefer that setting."

We heard from several community members that the campus is "intimidating" and difficult to navigate. When asked about this they attributed this to the lack of signs and the difficulties in parking. While the College has made many recent attempts to improve both parking and signs this issue makes some if not many visitors and potential students feel unwelcome. Some community members stated they do not attend cultural events because of the parking and difficulty in finding buildings. Perhaps the College should consider the use of student workers on the evenings of cultural events to direct guests to parking and to the venues.

Marketing

Higher education is an exceedingly competitive industry. Massachusetts is home to one hundred and eleven public colleges, community colleges, technical schools, and academies, and it's surrounded by colleges in six states. They're all scrambling to attract students from the same pool, and that pool is shrinking.

With that said, colleges must work harder to promote themselves. They must execute effective marketing campaigns with messages that express how their campus can meet students' academic, social, career and life goals. Academic institutions need marketing to tell the public what its niche is, and how that niche can fit into someone's life, whether they're a prospective student, adult learner, community member, visitor or legislator. "I've always been taken with the ads that UMASS used to have with prominent graduates. If the graduates were willing to talk about what helped them here, the capabilities of the staff ... there's a real story to be told. You can get a sense of what a nice environment this is. There's a real environment here that I don't think kids recognize," said a panelist.

FSC students talked about how the College is viewed by many as a "second rate" institution. While the students found this is not true, they feel that the College has not done much to change this impression. High school students echoed this idea and suggested that FSC use its website to feature the strength of its programs and its students, faculty accomplishments, and the accomplishments of the alumni. All of the students have the impression that the College is not competitive and it harms the reputation of the institution. This is an issue that the College should address to improve the impression of the

institution. Once again, this is related to the point about a lack of marketing. A well designed marketing campaign over time could overcome this problem.

Members of all panels expressed that they did not see a marketing effort at Fitchburg State. Not one of the eight guidance counselors at Leominster High School had seen the Fitchburg State virtual tour that took a year and a half to produce and had been posted on the campus home-page for five months at the time of the panel discussion. Several suggestions for campus improvement – such as programs for retirees, courses on government, cultural offerings – already exist on campus, unbeknownst to the panelists, as ALFA, The Institute for Understanding Government and Politics in the Commonwealth and the World, and CenterStage.

Panelists expressed, in short, that they don't know what the college offers. They suggest that the college takes what it does have – quality education, affordability, highly ranked programs, professional programs, its cultural series, and new facilities – and promote it. "A lot of people look at Fitchburg State as not being competitive with other colleges. You need to show you can be competitive and you offer the same majors," said a panelist.

High school students want to hear about Fitchburg State from prominent alumni, faculty, current students, and other campus representatives either through in-person events/visits or via the Web. Parents want their information in the mail, and community members and adult learners want traditional marketing sources.

Marketing higher education in this current environment should be considered as a necessity. One panelist expressed a concern that if the College does initiate new majors it is unlikely that it would have an immediate impact because of the minimal amount of marketing that is done. Fitchburg State must make marketing a focus in order to increase student enrollment and to improve its stature and visibility in the community.

Mount Wachusett Community College

Panel discussions and pieces in the literature review of this report show that Fitchburg State must take a look at what Mount Wachusett Community College is offering the community, and either partner with Mount Wachusett Community College or compete with those programs. The Mount's campuses in Leominster and Devens are successfully capturing the adult learning, certificate program and workplace training market sought by the Graduate and Continuing Education Office. The Mount has a long list of continu-

ing education courses offered year-round. It has several joint admissions programs in place and four-year degree partnerships with other colleges. Reports from the *Gardner News* on March 19, 21, and 27 indicate that Mount Wachusett Community College is offering articulation agreements with four year institutions and these articulation agreements will accept credits beyond the two years at their college. In addition, Mount Wachusett will be providing scholarships through their foundation to their students to attend four-year schools. It is noteworthy that in the report their President mentions several four year schools that their students go on to but not FSC. The Mount will begin its partnerships with four year institutions in the Fall of 2008. In the final report on the 27th, it stated the Mount Wachusett has signed an agreement with Nichols College for business majors that creates a 3 plus 1 articulation agreement (these reports are in the appendix). These efforts by Mount Wachusett could have a detrimental impact on FSC's student population, coupled with a decline in the traditional eighteen year old college student FSC may face significant challenges in the near future.

Representatives from Mount Wachusett who participated in the panel discussions expressed a desire to work as partners and suggested collaboration on the new Biotechnology degree they will be offering at Devens to expand to a four year degree. This is one area among many the Fitchburg State may explore. There appears to be a willingness by Mount Wachusett staff to work in collaboration.

Transfer Students

Transfer students make up a over one third of Fitchburg State's student population. Every academic year, between 300 and 400 students transfer to the college from other schools. While transfer students make up a significant population at FSC, they face a host of issues that create a negative experience. One of the largest problems transfer students have is with the articulation agreements between state colleges and community colleges. A panelist stated: "The college can say that it has great articulation with the community colleges for some courses of study. The reality is when you get to critical courses of study, you can't get credit. That's a huge turnoff. It's a turnoff for the parents, who paid for the courses. It's a turnoff for students who have to go through the introductory courses again."

Anecdotes from Mount Wachusett and Quinsigamond Community College representatives, Fitchburg State students, Fitchburg State faculty and staff, and community leaders indicate that these students feel lost when they arrive on campus. There are no statistics available, but it is highly likely that FSC has lost many more students who have heard

about the negative experience from friends, faculty, and staff of the community colleges. We heard statements such as, "Other state colleges or public universities ... have a point person. They have a name and that person's associated with transfers and that person will guide them. That's their expectation ... More of an individualized approach would ease that transition. It is sometimes the reason we see students leave," said a panelist. This same panelist went on to say the Fitchburg is the most difficult place in the state college and university system for transfer.

The Committee may want to consider establishing a full time office that serves the transfer students by reviewing transcripts, advocating with the registrar for the proper amount of transfer credits, answer questions, orient the transfer students, and ensure that they have a positive experience at our College.

Many of the issues about transfer of credits may be eased by the new Liberal Arts and Sciences program that gives the students 18 credits as free electives as opposed to the previous program which limited the students to 6 credits. This fact should be shared immediately with the community colleges as it will make transfer more attractive for their students.

Summary and Conclusions

The research team felt the information generated through surveys and the interviews provided a rich discussion and critical data for the Committee to consider as it moves forward in its academic planning. Even though there were many issues and suggestions raised in how to improve the College, there are many strengths that the College can build upon. These strengths include that FSC offers the top ten majors students are seeking, some of the majors offer a strong internship experience, FSC students strongly value the FSC faculty, the physical plant is in the midst of many vital renovations, the College is dedicated to the students and public that it serves, and the willingness to undergo an evaluative process such as this project to build a better future.

It appears that several of the new majors that were put before the panelists are on target for what the students and the community want. We view the proposed Dean structure as essential in addressing many of the issues raised under the salient issues section. Deans could make connections to the community, community colleges, and high schools to forge stronger relationships and partnerships. Deans could also be involved in the design of innovative programs to attract new student populations and to serve the needs of those stake holders. We see the Deans playing a role in creating synergy and collaboration among academic departments to enhance academic programming.

The potential change to university status does offer a unique opportunity for the College to leverage and promote its strong programs, physical plant improvements, and new majors to improve the community perception and relationship. This could create excitement about FSC as vital educational, cultural, and economic resource for the region.

If the potential decrease in the population is a concern of the institution, a quick response is available by expanding the current majors with waiting lists such as nursing and the film concentration. This could immediately increase the student population.

FSC has long been a recognized leader in professional majors such as nursing, education, communication media, business, industrial technology, and computer sciences. As we saw in the literature, professional programs are in increasing demand among college

bound students. Professional programs are a niche that FSC has attained and may want to build upon.

We thank you for the opportunity to be of assistance to the Committee and Fitchburg State College.

John Chetro-Szivos, Ph.D. Chair, Department of Communication Media, and Member of the Second Stage Academic Planning Committee

Azure Collier, Public Relations/Publication Specialist and Graduate Student in the Master of Science in Applied Communication Program

Karen Sharpe, Development Writer and Graduate Student in the Master of Science in Applied Communication Program

Shanni Smith, Assistant Director of Admissions and Graduate Student in the Master of Science in Applied Communication Program

APPENDIX

Letters Sent to the Panelists

Articles about Trends in Literature

Questions and Survey for Panelists

Massachusetts Life Sciences Initiative

News Articles MWCC

Presentation to Committee

Resource Report

Delphi Proposal

Letters Sent to the Panelists

January 17, 2008

<NAME>
<TITLE>
<ADDRESS>
<CITY, STATE, ZIP>

Dear <NAME>,

We need your help.

Fitchburg State College is undertaking a visioning process to determine the future of our academic offerings, from creating new majors, to exploring new ways of delivering education, to addressing the needs of non-traditional students.

As the largest employer in the city of Fitchburg and as the only four-year institution of higher education in North Central Mass, the College is in a unique position to play a significant role in the future of the region through our educational offerings.

This is where you come in. We want to learn from you. Whether you are a member of the business community, an alumna or alumnus, a guidance counselor, or in local government, your expertise on the needs of students, families and businesses in the area is valuable.

We invite you to join us for an informal <one-hour? two-hour?> roundtable discussion on <DATE> where you can share your thoughts and ideas and help us look to the future. <A luncheon will be served? And participants will receive a small honorarium?>

Please RSVP to <??> by <?DATE?> . We look forward to hearing from you.

Sincerely,

Michael Fiorentino Jr.
Vice President & Provost, Academic Affairs

Dear ( )

The Second Stage Academic Planning Committee has been meeting to review recommendations by several committees that met last summer to address possible academic expansion. The Committee is calling several groups together for discussions about some of the areas under consideration.

We would like you to join with a group of your colleagues where you can share your thoughts and ideas on Wednesday February 13 at 3:30. John Chetro-Szivos, a member of the Second Stage Academic Planning Committee, will facilitate the discussion. Please RSVP to Dodi Nowan at extension 3185 by Wednesday February 7. We look forward to your participation.

Sincerely,

Michael Firoentino Jr.
Vice President & Provost Academic Affairs

Joshua Spero, Chair
Second Stage Academic Planning Committee

Tom Schoenfeld
Elizabeth Gordon
Wayne Whitfield
Beverly Hollingsworth
Annette Sullivan
Danielle Wigmore
Bornali Bhandari

Dear ( )

The Second Stage Academic Planning Committee has been meeting to review recommendations by several committees that met last summer to address possible academic expansion. The Committee is calling several groups together for discussions about some of the areas under consideration.

We would like you to join with a group of your colleagues where you can share your thoughts and ideas on Tuesday February 12 at 3:30. John Chetro-Szivos, a member of the Second Stage Academic Planning Committee, will facilitate the discussion. Please RSVP to Dodi Nowan at extension 3185 by Wednesday February 7. We look forward to your participation.

Sincerely,

Michael Firoentino Jr.
Vice President & Provost Academic Affairs

Joshua Spero, Chair
Second Stage Academic Planning Committee

Dan Sarsfield
Lauren MacKenzie
Peter Stabb
Ian Williams
Daneen Deptula
Allison Shield
Brandy Chen

March 7, 2008

Dear _____,

On behalf of the Fitchburg State College community, I would like to thank you for your participation in the Roundtable Discussion Group. The discussion was very informative and the information will be helpful as we move forward.

Sincerely,

Michael Fiorentino, Jr.
Provost & Vice President, Academic Affairs

Articles about Trends in Literature

Adult students in higher education: burden or boon?

by John T.E. Richardson , Estelle King

Since the mid-1970s, universities in the United States have recruited substantial numbers of students from the older sections of the population. Indeed, during this period the proportion of so-called adult students (i.e., those who are over the age of 22 at the time of their entry into higher education) has equaled the proportion of so-called traditional students (i.e., those aged between 18 and 22 on entry) (e.g., Lenz & Shaevitz, 1977, p. 4). This influx of older students has been prompted by demographic, economic, and technological developments (see Merriam & Caffarella, 1991, chap. 1). A similar situation has arisen in Australia, where students aged 25 or over on admission are described as "mature-age" students (see Hore, 1992), and in the United Kingdom, where students aged 21 or over on admission to undergraduate courses and those aged 25 or over on admission to graduate programs are described as "mature students" (see Griffin, 1992, pp. 61-63). However, in the United Kingdom, this has been the result of changes in national government policy and funding arrangements.

As these examples illustrate, the definition of "adult" students is somewhat arbitrary and varies both within and across national systems of higher education (Hore, 1992). Solomon and Gordon (1981, p. 2) commented that some U.S. agencies classified all students aged 17 or older as "adults." In many countries, the legal age of adulthood for most purposes is 18 or younger; consequently, even traditional college students are, strictly speaking, adults. In addition, one should beware of treating "adult" students as a single homogeneous group. They are more diverse than younger students in their motivations, needs, expectations, and experiences of higher education (Britton 8,: Baxter, 1994; Hore, 1992; West & Eaton, 1980). An obvious contrast is between the experiences of men and women as adult students (e.g., De Groot, 1980; Maynard 8,: Pearsall, 1994), but there are also major differences between adult students at different stages of the life course (Britton & Baxter, 1994; Clennell, 1984, 1987; Thacker & Novak, 1991). Nevertheless, this article is concerned with challenging stereotypes that are applied generically to adult students.

As Marshall and Nicolson (1991) pointed out, discussions about the role of adult students in higher education tend to stress their supposed needs rather than the potential benefits they can bring (for examples in the U.S. literature, see Lenz & Shaevitz, 1977; Schlossberg, Lynch, & Chickering, 1989; Solomon & Gordon, 1981). In 1993 the American Psychological Association (APA) published a Handbook for Enhancing Undergraduate Education in Psychology (McGovern, 1993), and this contained a chapter by Ware et al. (1993) that included the following remarks with regard to developing and improving advising strategies for faculty:

There is a growing descriptive, and sometimes empirical, literature on the special needs and environments for adult students and the opportunities such environments provide for enhanced learning. . . .

One example of a specific need of adult learners includes adjusting after reentry into the academic environment. Adult students often must confront issues of balancing family and career demands. Some women who reenter the academic scene have to consider the prospect of taking low-paying jobs in clerical or social services areas. Traditional advising strategies can handle some, but not all, of the special needs of such students. . . .

Adult students confront somewhat novel problems in adjusting to a traditional academic setting. They express fears about competing and fitting in with 18-22-year-old students. They question their ability

to understand and retain large quantities of information. Although they may be effective problem solvers for many life demands, adult learners may exhibit fewer skills for coping with an academic environment.

Identifying and discussing reentry concerns can facilitate the reduction of such fears. Encouraging adult learners to find and to discuss their concerns with other adult learners can reveal the common and situational versus personal nature of many fears.

Adults who struggle through demanding courses in study groups with 18-22-year-old students can discover that the two age groups have more in common than they could have imagined. When genuine problems related to study skills or content areas (e.g., mathematics) arise, faculty can clarify that such problems are not unique to adults and can use conventional advising strategies or refer those adults to appropriate professionals.

Many adult learners shy away from advising about job search skills or graduate school. They think that adults should know about getting jobs and that graduate school is only for young people. Exploring and clarifying these and other occupational and educational misconceptions constitute challenges for advisers. . . .

One problem experienced by many adult women (and increasing numbers of men) who major in psychology is balancing the dual commitments to family and career. . . . Development and use of time management skills can be a boon to otherwise overextended women. Adult women can benefit from learning decision-making or planning strategies for careers or graduate school. (pp. 53, 62-63)

We have quoted from this chapter at some length for two main reasons. First, Ware and his colleagues seemed to be characterizing adult learners as a group of students for whom the experience of higher education would be inherently problematic. This might be attributed to the fact that the chapter was written to enhance faculty's advisory role, and so it highlighted the difficulties and supposed special needs of these individuals rather than their strengths or their strategies. Second, however, these limited sections in the chapter by Ware et al. are all that a publication of the APA aimed at "enhancing undergraduate education in psychology" has to say concerning the aspirations and experiences of adult learners. This is in spite of the fact that for this group psychology is a popular academic choice, and adult students are likely to constitute the majority of the students who are majoring in that discipline, especially in metropolitan universities that offer greater opportunity for part-time study outside of normal hours.

A further concern is that these passages arise during the course of a discussion of how advisers might deal with an increasingly heterogeneous student population, and in the space of just a few paragraphs Ware et al. discussed, in turn, "the special needs of adults, women, and ethnic minority group members" (p. 62). This gives the unfortunate impression that these three groups somehow represent three discrete constituencies. However, there is a more fundamental problem with this account. It is entirely right that educators should be attuned to the needs of different groups, but the experiences of adult students in higher education should not be likened to the predicament of women working in a male-dominated organization or of ethnic minority groups living in a majority culture.

Of course, in comparison with the "traditional" student population, the body of adult students does include disproportionate numbers of women and members of ethnic minorities, and they do collectively share a common underpinning with these groups. Taken together, these students constitute a large "nontraditional" student body, and they are subjected to an interactive web of entrenched values from long-standing elitist systems. Nowadays, indeed, there are powerful pressures promulgating change and opportunities for wider access to higher education (although the former has not necessarily resulted in the latter). However, the interest of the "gatekeepers" to maintain the status quo is such that there is as yet little evidence of a more comprehensive and open system (see Fulton & Elwood, 1989).

Nevertheless, for a number of reasons it is problematic to consider the position of adult students alongside issues of gender and culture. Although the majority of adult students in both the United States and the United Kingdom are women (Department for Education, 1992a, 1992b; Lenz &

Shaevitz, 1977, p. x), adult students are not typically underachievers from either ethnic minority or lower social-status groups, as proposed, for instance, by Hopper and Osborn (1975). Indeed, Woodley, Wagner, Slowey, Hamilton, and Fulton (1987) found that many adult students had left secondary school in a position of relative educational advantage and had chosen to defer their entry into a university despite having the necessary qualifications. Given their diversity as a population, consideration of adult students and their needs should take into account a multiplicity of factors and not give credence to simplistic or reductionist notions (see Schlossberg, 1984).

Nor is the foregoing illustration simply an isolated example of the manner in which adult learners have been represented in APA publications. An earlier volume that was aimed at helping students to prepare themselves to pursue a degree in psychology contained just a single chapter covering less than three pages about the "reentry of men and women in psychology." This text was solely concerned with the problems that adult students have to overcome before, during, and after a bachelor's degree (Lunneborg, 1987; see also Lunneborg, 1988). Such accounts diverge markedly from the views of many faculty who have had the experience of teaching older students. According to a survey carried out in Australia by Boon (1980), these faculty members often observe that adult students "perform better overall than normal age students, that they have a positive influence on the course, and that their tutorial contribution is considerably better than that of normal age students" (p. 130).

It would be foolish to deny that the burdens and demands placed upon adult students are qualitatively different from those placed upon younger students. To be sure, adult students often have domestic, financial, and other commitments that make them less able than younger students to take courses at more prestigious or expensive institutions of higher education (see Solomon & Gordon, 1981, p. 115) or at institutions that are geographically remote from their homes (see Edwards, 1993, p. 54). There also appear to be gender differences with regard to adult students' lack of confidence in their abilities and with regard to restrictions on their study time due to domestic commitments (Smithers & Griffin, 1986; Woodley et al., 1987).

In addition, we have found that many adolescents failed to continue their formal education after the minimum school-leaving age because of negative experiences within their families or at school and that these experiences often disrupt their subsequent attempts to realize their intellectual potential by returning to formal education as adults (King, 1993). This is simply one example of how learning may be influenced by the socio-emotional context in which it takes place. Paradoxically, if these adults are to be successful in negotiating their entry into higher education, then compensating for and, to some extent at least, overcoming these disadvantages can actually become a strength for them as learners.

Feminist writers insist that learning should be regarded as a holistic process (Belenky, Clinchy, Goldberger, & Tarule, 1986; Gilligan, Ward, McLean Taylor, & Bardige, 1988; Weil, 1988), and yet most of the mainstream literature on learning neither reflects the experiences of learners nor acknowledges that ideas cannot be separated from experience. Boud, Cohen, and Walker (1993) showed how context and purpose can influence learning; in particular, feelings and personal interests may have a vital role to play. It can therefore be argued that, although adult students encounter a number of barriers to higher education (Smithers & Griffin, 1986), they are capable of more effective and elaborative learning than younger students precisely because they are likely to be far more adept at examining and exploiting their prior experience in order to make sense of new information and new situations (e.g., Knowles, 1984; see also Edwards, 1993, chap. 5; Harper & Kember, 1986; Merriam & Caffarella, 1991, pp. 108,307-309). Our purpose in this article is to dispute the implication of the accounts that are commonly given that adult students will prove to be less effective and less successful as students simply because they are adults.

It is clear that adult students are consistently stigmatized in terms of their capacity to benefit from higher education and that these negative stereotypes are shared by at least some educators, both as individuals and also corporately through organizations such as the APA. Haselgrove (1994) suggested that educationalists have been led to construe the experience of adult students as problematic because it stemmed from roles other than that of learners; in other words, adult students tend to be regarded as having "difficulties" with studying in higher education because the rest of their lives (financial, emotional, and personal) impinges on the only role in which institutions are prepared to

recognize them. As Haselgrove shrewdly commented, "The unacknowledged reality is, of course, that these roles have always impinged on students' experience of higher education but the prevailing culture did not permit its articulation" (p. 6). Nowadays, of course, such "nonacademic" factors affect the lives and experiences of increasing numbers of younger students, too.

Nevertheless, negative stereotypes of this sort seem to be shared by a good many adult learners themselves (Doty, 1967; Maynard, 1992; Smithers & Griffin, 1986, pp. 103-105; Squires, 1981; Woodley, 1981; Woodley et al., 1987, pp. 119-120). The resulting lack of self-confidence may undoubtedly generate appreciable levels of anxiety among adult students. Although this scarcely counts as demonstrating the validity of those stereotypes, it could lead adult students to behave in ways that tend to confirm those stereotypes. In other words, this situation might well constitute a "self-fulfilling prophecy" (cf. Snyder & Swann, 1978).

The basis for these stereotypes is often left wholly unarticulated. However, insofar as they have a serious rationale, it seems to run more or less along the following lines (see, e.g., Percy, 1985; Roberts & Higgins, 1992, p. 16; Woodley, 1984): Adult students do not have recent experience of formal education; consequently, they may be out of practice in the art of learning and lacking in basic study skills. As a result, they will tend to adopt less effective approaches to studying in higher education. They may also exhibit increased learning difficulties as the consequence of age-related impairment in intellectual abilities. In either event, they will be less likely to complete their courses of study than younger students and will demonstrate poorer academic attainment in terms of their final degree assessment. We wish to dispute each stage of this argument.

Study Skills

The idea that studying in higher education relies upon a variety of basic skills is a fairly congenial one. However, the stronger position that there is one specific set of skills that constitutes effective studying and therefore guarantees better learning outcomes has largely been discredited (see Cowan, 1989; Entwistle, 1992; Ford, 1980; Gibbs, Morgan, & Taylor, 1980). Self-reports of studying behavior do sometimes reveal a "study skills" factor, but scores on this factor fail to show any consistent relation with academic performance (Biggs, 1970). Moreover, although manuals and guides intended to promote study skills have a fairly long history, it is also a fairly checkered one (Beard & Hartley, 1984, chaps. 6 & 7).

Gibbs (1981) was one of the first people to emphasize that any skills involved in being an effective learner need to be acquired in the context of students' everyday academic activities rather than taught in a purely mechanistic and general manner. Indeed, the available evidence indicates that formal study-skills courses that are organized apart from the normal teaching program will probably be ineffective or even counterproductive, even if they are taught by teachers of the relevant academic discipline. Genuine improvement can be achieved only by directly addressing students' conceptions of the learning process in a way that is linked to both the content and the context of learning, and even when these conditions are satisfied the amount of improvement is likely to be modest (Gibbs, 1992; Martin & Ramsden, 1987; Ramsden, Beswick, & Bowden, 1986).

Are these conclusions not contradicted by the experience of countless students who elect to participate in study-skills programs and who usually judge them to have been beneficial (e.g., Chibnall, 1979; Hills & Potter, 1979)? Conway and Ross (1984) compared students who had undertaken such a program with others who had been randomly assigned to a waiting list and found that the main reason why the former students reported an improvement in their study skills was that they retrospectively denigrated their previous skills. Although their subsequent academic performance was no better than that of the students on the waiting list, many of them continued to insist that the program had been beneficial despite having been advised to the contrary at their debriefing (Ross & Conway, 1986). This indicated that they had reconstructed their autobiographical memories to fit an implicit but invalid theory concerning personal change (see also Ross, 1989). From our own experience, however, what may be more pertinent to the individual is the enhanced confidence and learner identity that can result from attending such programs.

One domain in which adult students are sometimes said to encounter problems is that of time

management (e.g., Wheeler & Birtle, 1993, p. 85), despite the fact that many adult students have been successfully juggling a variety of domestic and occupational responsibilities for several years. Trueman and Hartley (1996) built upon previous research conducted in the United States in developing a self-report scale on time management for use with British students. Although there were some statistically significant correlations between scores on long-term planning and subsequent academic performance, these relationships were fairly trivial in their magnitude. Moreover, Trueman and Hartley found that students who had been aged 25 or over at the time of their entry into the university reported making more use of time-management strategies than either younger adult students aged between 21 and 24 at the time of entry or traditional-age students. Clearly, this pattern of results does not support the stereotype of adult students being deficient in terms of the skills needed for effective studying.

Approaches to Studying

Because it is questionable whether there is a determinate set of skills that constitutes effective studying in higher education, the idea that adult students are in some sense inferior to younger students in how they go about the business of learning needs to be addressed indirectly by considering the approaches or orientations toward studying exhibited by different students. There is, indeed, a general consensus in the research literature that students in higher education manifest specific approaches to learning that are dependent on the context, content, and demands of the learning task (see, e.g., Marton, Hounsell, & Entwistle, 1984; Richardson, Eysenck, & Warren Piper, 1987):

1. Students may manifest a "deep" approach or an orientation toward comprehending the meaning of the materials to be learned. This outcome is likely if they acknowledge the more abstract forms of learning demanded in higher education and are motivated by the relevance of the syllabus to their own personal needs and interests.

2. Students may adopt a "surface" approach or an orientation toward merely being able to reproduce the materials for the purposes of academic assessment. This outcome is more likely if they encounter an overloaded curriculum or methods of assessment that emphasize the retention of the superficial properties of the materials to be learned.

These approaches to studying were originally identified by the use of semi-structured interviews but were subsequently operationalized in terms of different patterns of responses to inventories and questionnaires. One recent survey of the literature found that this broad distinction between two fundamental approaches or orientations to studying had consistently emerged from research carried out in a variety of different countries, including the United Kingdom and Australia as well as the United States (Richardson, 1994a). Nevertheless, these two approaches or orientations appear to be interpreted in a manner that is distinctive to each cultural context, and their detailed manifestation may well vary from one system of higher education to another.

Those students who may be regarded as objectively deficient in terms of "study skills" insofar as they produce weak academic performance and are referred for remedial advice show a greater dependence upon repetitive methods of studying at the expense of a deep approach (Moss, 1982). Two other studies have found that academically unsuccessful students produced incoherent or "unorchestrated" patterns of responses to questionnaires on study behavior (Entwistle, Meyer, & Tait, 1991; Meyer, Parsons, & Dunne, 1990). It therefore follows from a negative stereotype of adult students as being deficient in study skills that they should adopt less desirable approaches to studying than younger students. In fact, the available evidence obtained from the use of several different research instruments is remarkably consistent in showing the opposite: Adult students are actually more likely than younger students to exhibit a deep approach or a meaning orientation toward their academic studies, and they are conversely less likely than younger students to adopt a surface approach or a reproducing orientation to their academic work (Richardson, 1994c, 1995).

To be quite blunt, as Harper and Kember (1986) pointed out, "Older students, rather than their younger counterparts, display those learning characteristics which traditionally higher education has purported to be striving to develop in students" (p. 220). Harper and Kember put forward three

possible explanations for this: first, that adult students were motivated more by intrinsic goals than by vocational ones; second, that younger students acquired a surface approach to learning in their final years of secondary education; third, that the prior life experience of older students promoted a deep approach to studying in higher education. Richardson (1994c) concluded that there was some support for each of these explanations in the findings of empirical research, although in the United States the primary goals of adult students and of younger students appear to be remarkably similar (Solomon & Gordon, 1981, pp. 113-115).

Intellectual Ability

To justify the negative stereotyping of adult students as deficient in study skills, some commentators even appeal to the research literature concerning age-related deficits in cognitive performance. Thus, Woodley (1984) proposed that the capacity for learning may have decreased in older students, "both in terms of memory and in terms of the mental flexibility required to adapt to new perspectives" (p. 47). Similarly, Wheeler and Birtle (1993) suggested that adult students might be "at a disadvantage compared to younger students with respect to their adaptability, the speed with which they are able to work, and their retentive capacities" (p. 92).

In a recent article, Richardson (1994b) criticized the idea that academic performance in students is impaired by deficits in intellectual ability, and we will therefore mention only the most salient points of the argument here. Age-related changes in intellectual performance are often assumed to result from physiological changes in basic intellectual capabilities, but Dittmann-Kohli and Baltes (1990) argued that they might equally stem from "the pragmatic dynamics and contexts of adult life" (p. 65). In particular, it seems that older people tend to change both their behavior and their self-evaluations as a response to the imposition of societal expectations (e.g., Coupland, Coupland, Giles, Henwood, & Wiemann, 1988; Giles, 1991; Perlmutter, Adams, Berry, Kaplan, Person, & Verdonik, 1987). Although older people are more likely to complain about the deterioration of their memory in general, these complaints may prove to be unsubstantiated in terms of their objective memory performance (Kahn, Zarit, Hilbert, & Niederehe, 1975) and their reports of particular kinds of memory failure (Cavanaugh, 1987; Hultsch, Hertzog, & Dixon, 1987). This suggests that older people may be retrospectively exaggerating their previous memory ability to fit an implicit theory that is based on societal stereotypes about the adverse effects of aging (cf. Ross, 1989). These stereotypes influence the causal attributions made by both young and old subjects, in that they ascribe memory failures in an older person to intellectual impairment, but they ascribe precisely the same memory failures in a younger person to a lack of attention (Erber, Szuchman, & Rothberg, 1990).

Age-related changes in intellectual performance also typically amount to a reduction in "fluid intelligence" or in what psychologists nowadays characterize as the available central capacity for information processing (see Klatzky, 1988). Conversely, there may be little or no decline with advancing age, and even continuing growth, in "crystallized intelligence" and especially in tasks that have to do with expertise and the development of systems of knowledge (Baltes, Dittman-Kohli, & Dixon, 1984) or what in everyday language may be described as "wisdom." Indeed, Hoyer and Rybash (1994) argued that cognitive expertise (or crystallized intelligence), wisdom, and other adaptive competencies may well ensure that the period of adulthood offers the greatest potential and opportunity for utilizing the rest of one's capabilities. More precisely, the analysis of "wisdom" that was proposed by Dittmann-Kohli and Baltes (1990) implies that older people would be more capable of exhibiting the interpretative, contextualized, and relativistic conceptions of learning that other commentators have claimed to constitute genuine intellectual development among university students (e.g., Marton & Saljo, 1984; Perry, 1970, 1981; Saljo, 1979).

A further point to be made is that the performance of older people in cognitive tasks may well depend on the perceived relevance of those tasks in everyday life. In this connection, Baltes, Dittman-Kohli, & Dixon (1984) suggested that older people tended to optimize their adaptation to the demands of everyday life in the face of a reduced central capacity for information processing by deemphasizing irrelevant skills. In a similar way, Perlmutter et al. (1987) came to the conclusion that "in all likelihood many age changes in memory are adaptive and advantageous in most important life situations" (p. 63). However, as Baltes, Dittman-Kohli, & Dixon (1984) pointed out, researchers interested in changes in intellectual capacity across the lifespan have persisted in using tests that

were originally devised for the assessment of children or young adults and are likely to be perceived as being of limited practical significance in the lives of older adults.

When the test performance of older individuals is thus constrained by the research methodology itself, it is not really surprising that it fails to match that of young adults and is consequently regarded as deficient (Coupland & Coupland, 1990). Nevertheless, this suggests that research on intellectual function in older people has been guilty of bolstering ageist stereotypes and of ignoring more positive aspects of human development (see also Schaie, 1988). This criticism applies especially to discussions of the intellectual abilities of adult students that are based upon the supposed findings of that research. Fortunately, growing numbers of researchers are turning their attention to areas of cognitive functioning and intellectual activity in which older people may show little or no reduction in their performance (see Baltes & Baltes, 1990b; Cerella, Rybash, Hoyer, & Commons, 1993).

The final point is that age-related cognitive deficits can usually be demonstrated only in people drawn from the general population who are over the ages of 50 or 60 (see Baltes, Dittmann-Kohli, & Dixon, 1984; Schaie, 1990). In such individuals, a decline in cognitive function is often linked with poor physical health or physical disablement (Steuer & Jarvik, 1981). Of course, poor physical health often requires the greater use of medications that may themselves adversely affect intellectual functioning (National Institute on Aging Task Force, 1980). However, as a recent authoritative account concluded, "Under favorable environmental and medical conditions, many older adults continue to have the potential to function at high levels" (Baltes & Baltes, 1990a, p. 12; see also Schaie & Willis, 1991, pp. 420-422). Even so, this research literature is largely irrelevant to assessing the potential of adult students, because very few universities contain significant numbers of students within this age range.

One exception is the United Kingdom's Open University, which delivers nearly all of its courses by part-time distance learning (using specially prepared correspondence materials plus television and radio broadcasts), with tutorial assistance at a local level. This institution admits people over the age of 18 to its undergraduate program without imposing a formal entrance requirement. Those of its students who are over the age of 60 are atypical of the general population in terms of their abilities and motivation, and one of their most striking features in comparison with younger students is their level of dedication to their education (Bilston, 1989). In assessments, the students in this age range do not necessarily experience problems in the areas of memory and concentration, even if they themselves regard memory as a cause for concern (Clennell, 1984, 1987), nor do they demonstrate objective deficits in the retention of formally acquired knowledge (Cohen, Stanhope, & Conway, 1992).

Nevertheless, the majority of adult students in higher education are between the ages of 25 and 34 (Solomon & Gordon, 1981, p. 5; Woodley, 1984), and the evidence suggests that their cognitive abilities are broadly the same as those of younger students (see Thorndike, Bregman, Tilton, & Woodyard, 1928, pp. 178-179, for an early account). Moreover, within this age range intellectual performance exhibits much greater inter- and intraindividual variability, and this in turn indicates that chronological, biological, and maturational factors are far less important during adulthood than are idiosyncratic influences and experiences (Hoyer & Rybash, 1994).

Academic Performance

If older students were deficient in the basic skills or abilities that are needed for effective studying in higher education, then it would follow, by definition, that their academic outcome should be poorer than that of younger students: (a) Adult students should be more likely to fail their courses of study or to withdraw from them on academic grounds; and (b) those adult students who do manage to complete their courses should show poorer academic performance during their courses and poorer academic attainment.

It is difficult to assess these predictions with regard to the United States, because relevant national statistics are not routinely collected. Early studies indicated that performance improved after the age of 21, but until the late 1970s many older students were returning service personnel encouraged to

undertake higher education under the GI Bill, which acted as a means of promoting equal opportunity but which also prevented them from flooding the labor market (Rockhill, 1985). Eaton (1980) pointed out that such entrants would probably have had access to additional training in the areas of science and mathematics during their periods of military service, and she reviewed a number of studies that tended to confirm the relatively good academic performance of returning service personnel.

Another consideration is that in the United States for financial and vocational reasons adult students may often be pursuing different degree programs by different modes of study. Solomon and Gordon (1981, p. 116) found that adult students were more likely than younger students to be successful in pursuing an associate of arts (AA) or a master's degree within a period of seven years, whereas younger students were more likely to be successful in pursuing a bachelor's degree within seven years. They attributed this to the fact that younger students who were successful on AA programs were likely to proceed to a bachelor's degree, whereas adult students might have seen an AA as sufficient for their immediate career needs, and to the fact that many adult students undertake bachelor's programs by part-time study and are therefore less likely to attain their degrees within a period of seven years.

In the follow-up survey that Solomon and Gordon (1981) carried out, the adult students reported having achieved grade-point averages (GPAs) in their studies that were only slightly lower than those reported by the younger students. They concluded that, "although adult students came to college feeling less prepared than their traditional-age counterparts, this perceived lack of preparation did not seem to hamper their ability to perform almost as well in their college courses as those who were younger and supposedly better prepared" (p. 116). However, retrospective self-reports of GPAs are known to be subject to reconstructive biases (Conway & Ross, 1984), and so these results cannot be accepted as an objective assessment of the academic ability of adult students and their younger counterparts.

Relevant statistics are collected at a national level in the United Kingdom, where the vast majority of undergraduate degrees are awarded as first-class honors, upper second-class honors, lower second-class honors, and third-class honors. A "good" degree is often defined as one awarded with first-class or upper second-class honors. Until recently, degrees were awarded either by the universities as autonomous institutions or by the Council for National Academic Awards (CNAA), which validated programs of study in other institutions (mainly polytechnics and colleges of higher education). However, with the 1992 Education Act, the CNAA was abolished, some of these institutions became new universities with degree-awarding powers, and the remainder had to seek validation of their courses from the older universities.

Woodley (1984) analyzed the aggregated completion rates on bachelor's degrees from the intakes in 1972-1974 of all U.K. universities. He found that 83% of entrants aged 21 and over had successfully completed their degrees compared with 87% of entrants aged less than 21. He commented that there was little variation in completion rates if the students were classified into more narrowly defined age groups and that any tendency for older students to be less likely to complete their degrees than younger students was due to an increase in the proportion of students who had withdrawn for nonacademic reasons (such as ill health) and not to an increase in the failure rate.

Nevertheless, aggregated data obscure differences among individual academic disciplines and departments, and Woodley's findings could well be attributed to a tendency for students from different age groups to follow programs of study in disciplines or departments with different completion rates. Research carried out within particular institutions in the United Kingdom (Richardson, 1995) and Australia (Kember & Harper, 1987) has shown that older students are actually more likely to complete their courses of study when the effects of other factors have been statistically controlled by means of multiple regression techniques. It has, moreover, been confirmed that noncompletion in adult students is normally due to personal or financial factors rather than to academic failure (Lucas & Ward, 1985; see also Hore, 1992), although the former can certainly contribute to the latter and may affect younger students as well.

Woodley also analyzed the degree performance of all graduates from the 1972-1974 intakes of all U.K. universities. He found that 32% of the graduates aged 21 and over on admission had obtained a

good degree (i.e., first-class or upper second-class honors), compared with 33% of those aged less than 21. He concluded that those adult students who graduated were overall just as likely as younger students to achieve a good degree. If anything, adult students tended to obtain better degrees than younger students in the arts and the social sciences, but the reverse was true in science disciplines. Woodley concluded that in the former subjects the extra life experience of adult students could be translated into greater academic success, whereas the break in their full-time education had also resulted in a decline in their mathematical and scientific skills. Of course, it is equally true that the topics covered in the arts and the social sciences may be more relevant to prior life experience.

Here, too, however, there is a difficulty with the interpretation of aggregated data, because Woodley's findings could be attributed to a tendency for students from different age groups to take degrees in subjects within the categories of arts, science, and social science or at institutions of higher education that exhibit different distributions of degree classes. Subject differences in the distributions of degree classes have been noted by several commentators. These are typically discussed in terms of the tendency for proportionately more first-class and third-class degrees to be awarded in the physical sciences and engineering than in the arts, social sciences, and humanities (e.g., Clarke, 1988). Nevertheless, these same data show clear and consistent differences in the proportion of "good" degrees awarded. In one recent analysis, medicine and dentistry had a fairly low proportion of good degrees, but paramedical subjects, languages, biology, and humanities had a relatively high proportion of good degrees (Johnes & Taylor, 1990, p. 112).

In the United Kingdom, adult students are not evenly distributed across different subjects; instead, they are relatively overrepresented in the humanities and social sciences and are relatively underrepresented in science, engineering, and medicine. This can be attributed to at least three possible factors: the entrance requirements prevailing in different academic disciplines; the willingness of the departments that represent different disciplines to consider applications from older candidates; and the perceived relevance of different disciplines to the motivation and aspirations of older candidates (Brennan, Lyon, McGeevor, & Murray, 1993, pp. 30, 39-40, 43-45).

Sear (1983) examined the results of 41,000 students who had graduated from British universities in 1979 and classified them into nine general subject groups. He found that 39.8% of the students who had been aged 24 or older at the end of their graduation year had obtained first-class or upper second-class honors, whereas 42.0% of the younger students had done so. Younger students were more likely than older students to obtain good degrees in medicine, engineering, agriculture, science, and architecture, whereas older students were more likely than younger students to obtain good degrees in education, social studies, languages, and other arts subjects.

Bourner (1987) repeated Sear's analysis in the case of the results of 24,000 students who had graduated from courses validated by the CNAA in 1983. He found that 38.9% of the older students had obtained good degrees, whereas only 33.8% of the younger students had done so (p. 18). As in Sear's findings, however, the older students were less likely than the younger students to obtain good degrees in science, engineering, and health-related disciplines. Bourner concluded that the degree results of older students were better overall than those of younger students, but that the relationship between age and degree results was neither monotonic nor independent of the field of study (pp. 38-39).

Brennan (1986) similarly examined the results of a sample of 2,642 students who had graduated in 1982 from courses in polytechnics and colleges that were validated by the CNAA. He found that 39% of the students who had been aged 21 or older on their enrollment had gone on to achieve first-class or upper second-class degrees, whereas only 30% of the younger students had done so. Moreover, when these data were examined within 31 different subjects or subject areas, it was found that the older students were more likely than the younger students to obtain good degrees in 21 of the 31 subject areas.

Nevertheless, both these findings and those obtained in universities by Woodley (1984) could also be attributed to a tendency for students from different age groups to take degrees at institutions that yield different distributions of degree classes. Variation among institutions of higher education in the United Kingdom in terms of the proportion of good degrees awarded has been documented and

seems to be independent of the particular "mix" of academic disciplines taught at any individual institution (Johnes & Taylor, 1990, pp. 105-108, 114). However, even greater variation can occur among the academic departments that teach each academic discipline in different institutions of higher education. Evidence of this has been obtained in economics (Nevin, 1972), in geography (Chapman, 1994), and in psychology (Connolly & Smith, 1986; Smith, 1990).

In the United Kingdom, adult students are differentially represented among different institutions of higher education for the same reasons that they are differentially represented among different disciplines. (At one extreme, the Open University and the new universities created by the 1992 Education Act have always recruited large numbers of adult students. At the other extreme, in 1995 the University of Oxford announced the first intake of just ten adult students from a two-year, part-time foundation course in English and social studies to its main undergraduate program.) More specifically, adult students are differentially represented across the different academic departments teaching each discipline. Rather than attempt to evaluate data that have been aggregated across disciplines or departments, therefore, it would be more valid and more appropriate to assess academic performance in students of different ages who were taking the same courses within the same institutions.

Three studies carried out in individual departments within British universities have confirmed that the academic attainment of adult students who are taking degree programs in psychology or other social sciences is essentially equivalent to that of younger students who are following the same degree programs (Hartley & Lapping, 1992; Marshall & Nicolson, 1991; Richardson, 1995). One additional study by Hartley, Trueman, and Lapping (1993) matched 324 adult students with 324 younger students at the same university on the basis of both their gender and their major subjects. They found no sign of any difference between the two groups in terms of their degree classifications. Moreover, this result did not depend on the specific academic subjects being studied; rather, the adult students and the younger students both tended to do better in the arts and the social sciences than in the sciences. This implies that adult students have no special difficulty in studying science disciplines when demographic and contextual variables have been controlled.

Conclusions

The idea that adult students are deficient in their study skills is meaningless, because there is no one specific set of skills that constitutes effective studying in higher education. In addition, adult students seem to make more use of time-management strategies than younger students. In fact, adult students generally exhibit approaches to learning that are more desirable than those of younger students in the sense that they are more compatible with the avowed aims and objectives of institutions of higher education. There is also no evidence that adult students are subject to age-related deficits in the intellectual capacities needed for studying in higher education.

Perhaps most important of all, there is no sound evidence that adult students perform less well (in terms of either their completion rates or their academic attainment) than younger students on courses of study in higher education. One can therefore be fairly definite about endorsing the conclusion of Woodley (1984) that universities should have few qualms about increasing their intake of adult students. Elsewhere, we have gone further and argued that the quality of university courses can be enriched by the admission of adult students, because it provides younger students with opportunities to learn by example from their superior approaches to studying (Richardson, 1994c).

Pejorative stereotypes with regard to the capacity of adult students to benefit from higher education can therefore be seen to be unfounded in terms of the available research evidence. These stereotypes are ageist in their content and in their implications, because they obstruct legitimate opportunities for older people to achieve personal development, financial status, and political power. They are also indirectly (although somewhat less obviously) sexist, in that the majority of adult students are female. In the United States and the United Kingdom the latter trend is even more pronounced in students over the age of 35 (Department for Education, 1992a, 1992b; Lenz & Shaevitz, 1977, p. x; Solomon & Gordon, 1981, p. 5).

That such stereotypes should continue to be sustained in the face of the experiences and the clear

achievements of countless adult students is perhaps understandable, given the more fundamental views about the adverse effects of aging that are held in Western society and given what is known about the various mechanisms by means of which erroneous stereotypes are maintained (Snyder, 1984; Snyder & Swann, 1978). Be that as it may, that these stereotypes can still be promulgated in official publications of such organizations as the American Psychological Association is, to say the least, exceedingly unfortunate. If these organizations are serious about enhancing undergraduate education, then they need to reject the stigmatization of older students and to take a more positive view of their potential contribution to higher education.

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Margin Notes:

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Commentary

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From the issue dated February 1, 2008

How to Fight the High Cost of Curricular Glut

By MICHAEL BUGEJA

The faculty owns the curriculum. I've heard that said for nearly 30 years now as a teacher at Oklahoma State and Ohio Universities, and as an administrator at Iowa State University. And I've come to some conclusions: The curriculum tends to expand with little regard to workload or demand; research does not inflate tuition as much as curriculum does, contrary to what many legislators think; and when universities change calendars from quarters to semesters, curriculum preoccupies the professoriate for years to come.

Curriculum management is at the source of issues consuming us in academe, including high tuition, low adjunct pay, shared governance, graduate education, academic calendars, and budgetary models. The issue has the most impact at Ph.D.-granting public universities, but any institution can benefit from analyzing the source of poorly managed pedagogy, for which both faculty and administration share in the blame and figure in the solution.

Simple as it sounds, we sometimes forget that the more courses in the catalog, the more faculty hours we commit to teaching them. Curricular glut occurs when new proposals are approved solely on the basis of pedagogy, rather than on workload, duplication, demand, and dollars. We should ask:

- *Is a similar course being taught elsewhere in any college on the campus?* If so, has the proposal been sent to that department's curriculum committee, faculty, and/or chair for official sign-off, without which the course cannot go forward?
- *Has demand for the new course been documented?* Has it been tested in existing modules (seminars, topics, workshops, independent studies) before even being proposed experimentally for the catalog?
- *Can your unit afford to add the course to its offerings?* Has the department's curriculum committee considered this question before advancing the proposal, with faculty members, the chair, and/or the dean providing documentation to ensure adequate resources?

Unless those issues are considered, before pedagogy is even analyzed, curriculum expands at the expense of people, resulting in these scenarios:

- *Low pay for adjuncts teaching inflated curricula.* Adjuncts teach more sections at cheaper prices than professors do, and so are required to staff the multitude of courses added to the catalog annually.
- *General education that few students generally want.* Departments with low enrollments in majors typically offer many of these liberal-arts and introductory classes under budget models that permit expansion without assessing relevance or demand.
- *Slower graduation rates.* Departments with few majors can cancel electives when staffing issues arise because so many other electives fulfill degree requirements. But when a department with many majors cancels classes because it has too few offerings in relation to demand, students cannot get into required courses and fail to fulfill degree requirements promptly.
- *Obstacles to faculty development.* Curricular expansion not only results in workload issues but also reduces research productivity, frequency of sabbaticals, and acquisition of grants to support graduate education.

In assessing glut, we need to ask: How many courses has each department added to the books in the past decade? How many have been deleted? How many majors does each department have (as opposed to how many students they teach)? How many credit hours did the department require for a degree a decade ago? How many now?

Without those data, departmental curricula can expand on autopilot.

Here's a formula to discern such expansion: Compare the number of majors in a department with the number of courses it lists in the catalog. For instance, the Greenlee School of Journalism and Communication at Iowa State University, which I direct, has about 800 undergraduate and graduate students with 50 course offerings. Our ratio is 16 majors for every active course. In your tally, don't count additional sections of any course, including university electives or general education. Count as one course so-called "yoked" classes (undergraduate and graduate sections that appear to be two offerings but are taught in the same class at the same time). Departments are suspect if they have ratios of five or fewer majors per listed course.

Now ascertain the percentage of its own majors that each department instructs in a given year across its entire curriculum. Anything less than 15 percent is suspect. Such a percentage typically implies that few students are interested in the major, although the department may be teaching thousands of students in general education or electives, often using adjuncts and teaching assistants. Meanwhile professors develop or teach courses required for "quality."

Let's talk about quality, a subjective topic that can inflate curriculum by rhetoric or politics rather than by fact or demand.

I have a doctorate in English, specializing in creative writing and emphasizing medieval through Restoration drama. In my view, a high-quality English department requires a literature course in Lady Mary Wroth (1587-1651), niece of Philip Sidney and one of the best writers of her era. Were I a freshly minted Ph.D., I might make a persuasive case for a Wroth course. Then I would leave my institution for a greener campus, but my class would remain, with colleagues arguing that they require a Wroth specialist because there is no longer any such scholar on the faculty.

The above is hypothetical. I happen to believe that a high-quality English department should teach Shakespeare, Wroth, and a range of diverse voices across the cultural and literary spectra. But that is not the issue. You can't burn the curricular candle at both ends — quality and general education — without also burning out the faculty, as well as tuition dollars.

When you add such courses, it is at the expense of other classes needed by students in other majors. Faculty members in the popular programs are stretched so thin teaching their own majors that they cannot offer sections to nonmajors. Is it fair that colleagues in my hypothetical English department will teach five to six semester-long courses per academic year, facilitating an inflated curriculum, while counterparts in the sciences and social sciences teach half that amount, with adequate time for research? Is it fair that my fictitious English-department colleagues cannot take regular sabbaticals or, if they do, require others to teach more to cover the workload?

We considered those and related issues carefully at the Greenlee School. After an assessment, faculty members opted to streamline curriculum, deleting intermediate-level courses and reducing workload from five courses to four per year, with releases for advising and research. Ultimately, with our savings, we hope to collaborate with other departments in the areas of science and risk communication, in keeping with the university's strategic plan, and to regularly schedule sabbaticals without begging for funds or requiring colleagues to teach extra courses to pick up the slack.

All this enhances research and professional development, which enrich the classroom. That's quality, too.

Glut also tends to occur at institutions that made or are making the transition from quarters to semesters. The faculty may own the curriculum, but the administration owns the calendar.

Periodically, regents and legislatures, too, own the calendar. In the 1960s they recommended that institutions change from semesters to quarters for year-round operation to handle the spike in population of college-age students. In the 1980s, lawmakers fathomed the cost of year-round operations and recommended a switch back to semesters. In 1988-89 alone, 60 institutions made the conversion to semesters. Conversions to the semester system continued in the 1990s, with only about 15 percent of institutions still on quarters, according to one study. More recently, the Minnesota Legislature required that its 36 institutions switch from quarters to semesters.

In each of those moves away from and back to semesters, thousands of courses were very likely added to catalogs. That, in my view, is the chief source of glut.

Iowa State made such a transition in 1980, and we're still finding artifacts of the quarter system: courses with such prefixes as "Beginning," "Intermediate," and "Advanced" and the suffixes "I," "II," and "III."

Quarter systems handle glut more efficiently than semester systems for a simple reason: an extra term in the academic year. The quarter's pedagogical foundation emphasizes diversity of subject matter. The semester emphasizes depth of subject matter, with adequate time for research.

Problems occur when faculties try to maintain their hitherto diverse pedagogical culture by squeezing an extra term's worth of classes into a two-term cycle.

That is to be expected. After all, what faculty can easily make the shift to a different culture on an administrative or legislative time clock? What professoriate wants to cut as much as a third of course work? What dean wants to tell faculty members that without such cuts, professors are looking at workload issues that may linger long into the future?

Instead, what professors are apt to hear is that there is no clear empirical evidence concerning which system, quarter or semester, is more effective as a learning vehicle.

That is the wrong research question.

How about a study exploring these common-sense hypotheses?

- Colleges on semesters that have never experienced a changeover will have fewer courses in their master files than colleges that were on quarter systems and transitioned to semesters.
- Departments making the switch to semesters will tend to (a) expand the content of courses to meet semester credit-hour requirements; (b) preserve four-credit-hour courses by reducing them to three credits to meet semester-hour requirements; (c) add electives to maintain the diverse pedagogical culture of the quarter system; and (d) increase the number of semester hours needed to earn a degree in their major, protecting curricular turf.
- Colleges transitioning to semesters will tend to experience (a) a lapse in research productivity as dozens of hours each week are dedicated to curricular debate and overhaul, new and/or revised course preparations and extra teaching loads; (b) corresponding declines in the percentage of successful promotion and tenure cases because of a preoccupation with curriculum rather than research; and (c) an increase in requests for new positions to handle increases in workload.

Without such studies, all manner of misconceptions endure. Legislators and regents advocating for more teaching and less research will nevertheless tend to support the semester rather than the quarter system, overlooking the fact that quarters require more teaching, with grading (three rather than two midterms, finals, etc.), scheduling, and advising occurring year-round.

Administrators may focus on cost issues associated with calendars, registration, and operations rather than on whether the change strengthens the existing culture, strategic plan, and mission statement. Neither administration nor legislature will allocate sufficient budget increases to offset human-resource costs so that operations proceed smoothly throughout the long transition to a new culture. Finally, professors experiencing the changeover in years to come will not feel as fully informed as they should be about the cost of the transition in terms of workload and related pressures.

Every university should invest in a campuswide curriculum portal, using technology as a vehicle for transparency. The administration should underwrite curricular assessments conducted by the

faculty senate, with data and reports available for all to see. Such a portal also might explain issues of workload and resources; enable downloads of templates and best practices; track course proposals and catalog changes, creating a digital archive; ensure interdepartment sign-off on issues of duplication or collaboration; post agendas and dates of all department and college curriculum meetings with attachments of materials under consideration; and disseminate minutes of those meetings, with votes and rationales.

Keep this in mind, too: We're living in the Internet age, which presumes that people have access to information. Curricula used to be one-way information streams like newspapers, television, and radio. The Internet and convergence changed that. We don't need a new, narrowly defined course on every innovation or discovery. Neither do we need to approve "dissertation" courses of new hires nor keep on the books outdated courses of senior professors. Newbie and pre-emeritus alike should not teach what they demand but where demand exists.

Perhaps the best solution to curricular glut, in the absence of rigorous faculty oversight, already is being instituted across the country: responsibility-centered budgeting. RCB shifts the cost of operations to academic units that pay for space, equipment, and, at some places, even custodial service.

How does that affect curriculum? Typically tuition is tied to enrollment and demand. Departments that teach their own majors or large classes to majors in any field get the lion's share of tuition. Too little demand, and departments have to rethink or streamline the curriculum, canceling classes and focusing on what is and is not essential for quality.

To be sure, responsibility-centered budgeting at times creates undue competition among departments trolling for students and so works against interdisciplinary collaboration. At worst it can threaten institutional priorities such as diversity and multiculturalism. For instance, an African-studies program may rely on low-enrolled history, political-science, or economics courses. If there are too few teachers to staff those narrow but vital classes, or if departments lure students with ludicrously popular ones — "History of Social Networks," "Politics of YouTube," "Economics of Microsoft" — the climate and status of the entire institution may suffer.

But those problems can be managed more easily than can curricular glut. Courses tied to strategic goals and/or institutional climate can be exempt from considerations of student demand. Interdisciplinary offerings can be rewarded when carryover funds are disbursed at the end of fiscal years. To accomplish that, the key is to keep budget authority at the college or program level.

I ran these ideas by an administrator at an institution considering a transition from quarters to semesters and a switch to responsibility-centered budgeting. He had doubts. "The model you propose assumes a great deal of intellectual honesty on the part of the faculty," he said. "That is, once they receive clear information and logically consider the costs of the present system (no sabbaticals, high workloads, etc.) and the benefits of the change (more research, manageable workloads, etc.), professors then will find a way to cut the number of courses. In practice, other forces will also have an effect, such as professors' personal agendas and self-interest."

Agendas and self-interest are at the core of the curricular glut. Thus it behooves all of us, from adjunct to administrator, to consider reform, so that balance is achieved between quality and demand, especially when new budget models are in play. Finally, factor this: Intellectual honesty is nurtured by administrative transparency. You can't have one without the other on issues as volatile as curricula and budgets.

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Planning Failures: Decision Cultural Clashes

Jean Swenk

Focus on Policy and Planning

Ten years ago, higher education boasted about its prosperity and success while at the same time focusing on the problems of the times: changes in the demographics of the college population, the competition, the economy, and our social and political attitudes. The specifics of today's problems may be very different but the challenge remains the same. As George Keller states, "Universities are being pushed and pulled out of their traditional role as teachers of postsecondary youth into a quite different role as educators of people of all ages after puberty" (1983, p. 14).

In light of both the magnitude and rapidity of change predicted for the future, the importance of strategic planning as a method for coping with change has been underscored repeatedly and forcefully in the past two decades (see, e.g., Baker & Markin, 1994; Gilbert, 1991; Hall & Elliott, 1993; Migliore, 1991; Myers, 1996; Shires, 1994; Townsend et al., 1992; Waggaman, 1992; and Weimer & Jonas, 1995). At the same time, the complaints and frustrations associated with planning have not gone unnoticed. How often we hear baffled administrators tell how faculty thwarted their best-laid plans and faculty who complain bitterly about the time and resources used up to **[End Page 1]** do something (planning) that really belongs only in the business sector. As Schmidtlein (1990) notes, "Comprehensive planning processes frequently opened up a broad array of latent as well as obvious political issues, overloading an institution's capacity for resolving them" (pp. 11-12). Nor will strategic planning "erase the inevitable conflict between institutional and departmental goals or between institutional and departmental and personal goals" (Cope, 1978, pp. 14-15; see also Peck, 1983; Schmidtlein, 1990).

Are these complaints valid? And if so, is there any way to mitigate the negativity? Those two questions are the focus of this research. Presenting a conceptual framework that contrasts the decision-making culture of higher education (and within that, the

differences between the administration and the faculty) with the rational focus of strategic planning, supported by the results of a case study of an actual planning process, I argue that the complaints are valid, due at least in part to the failure to implement a strategic planning process congruent with the culture of higher education. The remainder of the paper suggests steps that can be taken to avoid those cultural clashes when higher education institutions implement strategic planning.

Why has strategic planning become so prominent in higher education? One certainly might argue that strategic planning is useless, since accurate predictions are so unlikely. However, the point of strategic planning is not to perfectly predict the future and then plan for it. In fact, the pitfalls of such an attitude are aptly expressed in one of my favorite quotes: "He who lives by the crystal ball will often eat broken glass" (Keller, 1983, p. 106). Instead, the purpose of strategic planning is to give colleges and universities tools with which to manage the process of change, whether expected or unexpected. Administrators are able to direct the actions of their institution more successfully[1] because flexibility and foresight have been incorporated into the institution's decision-making processes. Administrators recognize that institutions cannot respond effectively to change without formalized procedures for comprehensive planning and decision-making. Also, strategic planners believe environmental problems are not just societal or biological problems, but organizational problems. Strategic planners remind administrators that the institution's short-term goals can defeat its long-term goals. Strategic planning is an integrative process during which university leaders can comprehensively analyze the institution's missions, goals, and programs. The members of the institution can become excited about new possibilities and be encouraged to adopt attitudes of rediscovery and reevaluation, thus enhancing the institution's effectiveness in **[End Page 2]** balancing external and internal demands. (For newer, relevant research on this subject, see Baker & Markin, 1994; Crittenden & Crittenden, 1997; Gilbert, 1991; Gioia & Thomas, 1996; Hall & Elliott, 1993; Hurst, 1994; Johnson & Jonas, 1995; Migliore, 1991; Ray, 1997; Robson, 1996; Schmidtlein & Milton, 1990; Townsend et al., 1992; Waggaman, 1992).

With such plaudits, how can we explain the frustrations and battles associated with the process? My research argues that the reason is the failure to acknowledge the inconsistencies between the values of the academic culture and the underlying conceptual basis of strategic planning--its business/rational-based process. An analysis of these cultural differences follows.

Conceptual Framework

This section reviews rational decision-making theory, then explains how that theory is consistent with decision-making when strategic planning is implemented--assuming an idealized description of strategic planning. I then explore assumptions about how decisions are made within colleges and universities and the incongruity of those assumptions with assumptions inherent within rational decision-making theory.

Rational Decision-Making Theory

Organizations characterized by rational decision-making are "oriented to the pursuit of relatively specific goals and exhibit relatively highly formalized social structures" (Scott, 1987, p. 22). Rational choice models presume that, to achieve the desired goals, behavior is purposive and consistent and that autonomous, conscious, and foresightful action can be taken to achieve some goal or value (Pfeffer, 1980; Pfeffer & Salancik, 1978). Rational choices are those which select the one alternative from among many considered to be the most appropriate means for reaching the desired ends (Chaffee, 1983, p. 2; Simon, 1976, pp. 61-62). Furthermore, the link between the decision and the institution's goals and values is critical (Chaffee, 1983, p. 2), as highlighted by the focus on the concept of "means-ends chains" (Cohen & March, 1986; March, 1988b; Simon, 1976). Means-ends chains imply a hierarchy of goals such that actions taken to achieve a goal at one level are selected so that they enhance achieving the goals immediately above it (Simon, 1976, p. 65). This concept assumes that decision-makers have a set of alternatives for action; the alternatives are defined by the situation and are known unambiguously. It also assumes that decision makers know the consequences of alternative decisions--or at least their probable distribution--and that a decision rule exists that will guide the selection of the best alternative on the basis of its consequences for the preferences (March, 1988a, 1988b, p. 371; Chaffee, 1983). Rational decision-making theory, therefore, assumes that optimal choices are made within a highly **[End Page 3]** specified and clearly defined environment (March & Simon, 1958, cited in Grusky & Miller, 1981, p. 135).

Rational Theory and Strategic Planning

The next logical question is about the evidence that strategic planning is grounded in rational decision-making theory (Crittenden & Crittenden, 1997; Liff, 1997; Robson, 1996). A key similarity is that both strategic planners and rational theorists assume that superordinate organizational goals exist and can be specified. Both also assume that alternative courses of action can be identified and evaluated for their potential in furthering goal achievement and that decisions about which courses of action to follow can be reached using logical and analytic procedures. "Because there is goal congruence . . . or enough formal authority to ensure that the selected objectives are pursued" (Pfeffer, 1980, p. 31), strategic planners and rational theorists also assume that implementation is feasible and likely to occur (Chaffee, 1983; Pfeffer, 1980; Schmidtlein & Milton, 1990).

Another similarity relates to the management of interdependencies. Rather than decoupling the links between the organization and environmental influences (Pfeffer & Salancik, 1978; Tolbert, 1985), strategic planners and rational theorists initiate actions aimed at *tightening* the coupling between levels of the organization and between organizational outcomes and the means used to achieve them. For example, like rational decision-making theorists, strategic planners believe that creating a systematic planning structure which limits choices and alternatives is one method by which individual actions become rational and by which organizational performance is enhanced.

Rational decision-making theorists believe that it is important to understand how the organization comes to know its environment (Pfeffer & Salancik, 1978, p. 62; Gioia &

Thomas, 1996). Strategic planners, similarly, do not believe that the organization must be at the mercy of the environment. Rather, since strategic planning is "a conscious process by which an institution assesses its current state and the likely future condition of its environment" (Lorange, 1982, p. 114; see also Baker & Markin, 1993; Drohan, 1997; Hurst, 1994; Johnson & Jonas, 1995; Liff, 1997; Lynn, Carver, & Virgo, 1996), planners and administrators can be more confident that the interdependence between the institution and its surrounding environment is consciously planned for and taken advantage of when decisions are made and strategies implemented (Cope, 1987).[2] **[End Page 4]**

Both strategic planners and rational decision-making theorists are concerned with organizational culture, i.e., the manipulation of meaning and symbols (Pfeffer & Salancik, 1978, p. 62; Drohan, 1997). Evidence of strategic planners' concern with organizational culture is their emphasis on developing a planning culture (Baker & Markin, 1993; Cope, 1987; Meredith, 1985; Peters & Waterman, 1982; Prinvale, 1988; Schmidtlein & Milton, 1990; Shipengrover, 1996).

Another similarity between rational theorists and strategic planners is the concern with effectiveness (Gilbert, 1991; Liff, 1997). "In the current . . . environment, efficiencies are no longer the solution to organizational problems," observe Pfeffer and Salancik (1978). ". . . The dominant problems . . . have become managing its exchanges and its relationships with the diverse interests affected by its actions" (p. 94). It is easy for decision-makers to get trapped in questions of efficiency, rather than questions of effectiveness. Strategic planning, because it requires an examination of the quality of what is produced, helps counter this tendency because it reminds administrators that the institution's short-term goals can defeat its long-term goals.

Higher Education Decision-Making

The argument is persuasive that strategic planning is grounded in the rational theory of decision-making. Unfortunately, an examination of the organization and decision-making culture of higher education reveals significant differences. This examination, like the description of strategic planning, is more uniform than true--size, reputation, presence of graduate students, and financial strength are among many factors which influence the structure and behavior of colleges and universities. Nevertheless, this simplified description below underscores the contrast between how decisions are made in colleges and universities and how decisions are made by strategic planners.

Higher education institutions qualify as professional organizations: at least 50% of the staff are professionals with five years or more of training, the primary goals of the organization are the creation and application of knowledge, and an organizational hierarchy may exist but the professionals are not involved in the hierarchy (Etzioni, 1964, pp. 77-78, 87). This last point is extremely important:

> Universities have some bureaucratic characteristics, such as a formal division of labor, an administrative hierarchy, and a clerical apparatus. But they do not have other bureaucratic attributes; for example, there is no direct supervision

> of the work of the major group of employees, the faculty, and there are no detailed operating rules governing the performance of academic responsibilities. (Blau, 1973, p. 11) **[End Page 5]**

Thus, a "unique dualism in organizational structure" exists: the conventional administrative hierarchy and the faculty (or professionals) (Corson, 1960, cited in Birnbaum, 1988, p. 10). These two structures exist in parallel and have no consistent patterns in structure, delegation, or authority. For example, unlike a business, in which those high in administrative rank direct the activities of others, the professional world of higher education maintains a blurred staff-line structure. The professionals (the faculty) maintain superior authority to decide the major goals, while the authority of the administrators is limited to deciding the means to achieve those goals and to setting performance standards (Birnbaum, 1988; Etzioni, 1964; Schmidtlein & Milton, 1990, p. 28).

Thus, it should not be particularly surprising that this dual system of authority in the university often restricts administrative influence, especially in light of the "built-in rigidities of the faculty personnel system, the difficulty of reallocating funds fast enough, and the resiliency and tenacity of individual academic programs" (Hearn, 1988, p. 251; Schmidtlein & Milton, 1990; Tan, 1995). Further conflict is evident in the fact that "faculty are likely to be influenced more by internalized principles of academic freedom and ethical behavior and recognition of expertise, . . . than by a willingness to acquiesce to an administrator's power stemming from his or her particular rank or position" (Langfitt, 1989, p. 4; Tan, 1995).[3] As professionals, academics insist on exclusive authority over their own work and demand self-regulation without administrative interference (Blau, 1973, p. 159). This "differentiation . . . *simultaneously* creates administrative problems and heightens the division between administration and faculty" (Blau, 1973, p. 153). Conflict is not resolved by recognizing the supremacy of administrative authority. In fact, "the president's total span of control . . . is . . . inversely related to the number of hierarchical levels in academic institutions, just as in government bureaus" (Blau, 1973, p. 57). Since there is not a single line of authority where decisions are made, "the authority of the president of the institution is limited by the need to achieve consensus" and by the need to maintain some semblance of control among "faculty members [who are] capable of making substantial academic contributions [and thus] are more important to their university or college than it is to them, because its academic standing depends on them, and because they have good opportunities elsewhere" (Blau, 1973, p. 163).

Obviously the presence of this dual hierarchy affects decision-making. To understand this, we first must examine more closely how traditional delineations of decision-making models in higher education differ in significant **[End Page 6]** ways from the traditional business/rational-based culture of decision-making. Scholars have traditionally used four models to describe decision-making in colleges and universities: the collegial, the political, the bureaucratic, and the anarchic (Birnbaum, 1988; Chaffee, 1983). The collegial model, for example, is how we traditionally describe decision-making within colleges and universities. This model assumes a shared sense of community and responsibility, consensus, localized responsibility for implementation, and informal feedback systems (Birnbaum, 1988; Chaffee, 1983). Since members of the collegial body

are presumed to be equals, a hierarchy is not very important and no leader is appointed. Even the president is seen as the agent of the faculty, a first among equals, rather than as an independent actor (Birnbaum, 1988, p. 89). Another key factor of the collegial model is that, while consensus may exist relative to institutional goals, unlike rational decision-making, selecting alternatives is governed by the interests and experiences of the participants, i.e., usually the faculty. Faculty, acting together as peers, reason together toward their common goals--and their goals may not be congruent with the whole institution's goals (Birnbaum, 1988, p. 88; Chaffee, 1983; Tan, 1995).

At times, consensus and collegiality may not be apparent and a political model may provide a more accurate description of higher education decision-making. In such instances, power, coalition-building, and negotiation govern decision-making (Birnbaum, 1988; Chaffee, 1983). At first glance, this model sounds very similar to the business sector and rational decision-making. However, unlike many rational-based business structures, actors have multiple and conflicting goals which are defined primarily by their self-interests (Chaffee, 1983), not by the overarching institutional goals. Power does not rest on an appeal to organizational values. Rather, power is diffused, and developing a consensual, coherent culture is inhibited by the competing interests of different groups (such as administrators competing with faculty) within the institution (Birnbaum, 1988, p. 133).

In contrast, decision-making within the administrative component of higher education may be most accurately described by the bureaucratic model. This model has standard operating procedures, a clearly delineated hierarchy, and a systematic division of labor, rights, and responsibilities, all of which are enforced through a hierarchical control system (Birnbaum, 1988, p. 111; Weick, 1976). While this description may be correct for the administrative hierarchy, it is not, however, an accurate description of the organization and culture of most colleges as a whole entity. That is, as noted earlier, the dual institutional hierarchy, the relatively flat hierarchy among the faculty, and the focus on consensus and expertise are clearly in conflict with the rational model of decision-making.

In fact, perhaps one appeal of the final model often used to describe decision-making in higher education is that it captures the presence, within **[End Page 7]** the same institution, of such contradictory features. Certainly it highlights how the decision-making culture within colleges differs from the rational-based assumptions of strategic planning. Called organized anarchy (Birnbaum, 1988; Chaffee, 1983; Cohen & March, 1986), this model describes an institution in which (a) goals are unclear, (b) the means of achieving goals are ambiguous, and (c) time and resources are scarce. An example of lack of goal clarity is the institutional mission statement. Even though the mission statement is supposed to guide the development of the curriculum, the college curriculum "in actuality often reflects primarily the interests of individual departments and faculty members" (Birnbaum, 1988, p. 155). As Clark (1983) notes: "What sort of institution could subsume classical literature and social work, knit together physics and sociology, integrate archeology and zoology?" (p. 18) Mission statements focus on teaching, research, and public service as a "trinity of purposes," but this arrangement still leaves broad scope about what can be taught, researched, or considered public service (Clark, 1983, pp. 18-19).

A second feature of an "organized anarchy" is ambiguity about what technology should be used to achieve the mission and goals. What methods of teaching are effective, and under what circumstances, and, especially important, why? Because we do not have definitive answers to these questions, choices about technology tend to be based on trial and error, previous experiences, imitation, and inventions born of necessity (Cohen & March, 1986). This technological ambiguity is one reason for tolerating the lack of clear goals.

In an organized anarchy, most issues have low salience for most people. Therefore, participation in decision-making is erratic and fragmented. The total system has high inertia so that any action requiring coordination is not likely to be initiated. What items are discussed in the context of any particular decision depends less on the specific decision or problems than on "the timing of their joint arrivals and the existence of alternative arenas for exercising problems" (Cohen & March, 1986, p. 206; Chaffee, 1983). Decision outcomes tend to become separated from the formal decision-making process, a characteristic described by Cohen and March (1986), as "loose coupling."[4] The college or university discovers what it prefers by seeing what it has already done, not by acting on the basis of *a priori* preferences (Cohen & March, 1986, p. 206; Gilbert, 1991). There may be a sophisticated management system in place on campus; but because of the loose coupling between problems and outcomes, and because of the existence of **[End Page 8]** the more powerful faculty hierarchy, that management system may operate at less than optimal effectiveness.

Another reason loose coupling is tolerated is because the resulting flexibility is congruent with the ethos of academic freedom (Lutz, 1982). Since the link between a specific problem and a specific decision is obscure, people can "have their cake and eat it too." For example, the faculty senate will make a decision about grade inflation, yet because the senate does not supervise or control the faculty, their behavior does not have to change. People can substitute belief for action (Birnbaum, 1988, p. 165). Loose coupling is one of the ways "academic institutions cope with the dilemma posed by the incompatibility of bureaucracy and scholarship" (Blau, 1973, p. 2).

Loose coupling is also tolerated because, in a complex and turbulent environment, each individual unit can be more sensitive and more responsive to changes in its external environment without causing conflicts in another unit (Pfeffer & Salancik, 1978; Birnbaum, 1988). In terms of decision-making, then, this means that "at the institutional level [in colleges and universities], gaining commitment to productivity improvement will likely require decentralized budgeting and decision-making" (Mingle, 1989, p. 15; Schmidtlein & Milton, 1990). This pattern is consistent with the academic model which "dictates that many of the tradeoffs between quality and quantity be resolved at the level of the individual faculty member" (Massy, 1990, p. 21; Blau, 1973, p. 60). Volkwein (1986) notes anecdotally that many within higher education are convinced that the "great" colleges and universities have traditionally been the least managed.[5] Coordination is not accomplished by tightening linkages between hierarchical levels or by establishing more formalized control systems (Tolbert, 1985). Rather, "if a college or university is to be effective . . . the looser must be the linkages between the management

subsystem" (Birnbaum, 1988, p. 46).

In summary, then, I argue that strategic planning can be viewed as rational-based decision making for six reasons. First, both rational theorists and strategic planners assume that overarching organizational goals exist and can be specified. Second, both assume that alternative courses of action can be identified and evaluated for their potential in achieving the stated goals. Third, decision-makers assume that a course of action can be chosen using logical and analytic procedures. The fourth similarity between rational decision-making theory and strategic planning is that, when contradictory goals exist, it is assumed that there is enough formal authority to eliminate the contradictions. Fifth, both strategic planners and rational theorists focus on tight links between organizational levels and between the organization and its environment. That is, interdependence is strong and is encouraged. **[End Page 9]** Finally, both believe that rationality is in part achievable by manipulating the organizational structure.

But within higher education, two hierarchies exist: faculty and administration. The members of those two hierarchies frequently do not agree on who should make decisions about goals or what the goals are. Finally, expertise determines how decisions are made, rather than a rational, systematic review of all alternatives; and loose coupling is tolerated, if not encouraged.

In light, then, of the cultural differences between styles of decision-making among strategic planners and higher education, how is the strategic planning process affected if those cultural factors are not considered? This was the focus of the case study of a strategic planning process to create a new school within Western University (a pseudonym).[6] The planning process encompassed the institution's education programs. The case study methodology included an extensive review of the university's planning documents and nearly two dozen structured interviews with college faculty and administrators involved in and/or affected by the planning process.

Results

The planning process at Western University was not labeled "strategic" at the onset; however, during the data collection process, administrators agreed that the label was accurate. Thus, the results underscore how the use of a model, especially if not implemented carefully and thoughtfully, can have very unexpected results.

The planning process for Western University's education programs began in May 1982, when the president appointed an education of the university's Planning Academy. The subcommittee chair was from outside the Education Department; so were six of the eight faculty and staff subcommittee members. After thirteen months' work, the subcommittee transmitted its final report to the president and Planning Academy. The first report specified four principles that guided the subcommittee's deliberations: (a) the elimination of program fragmentation, (b) the pursuit of cooperative, interdisciplinary and systematic education research, (c) a desire to have a significant impact on the serious, identifiable problems of public education, and (d) the potential for significant national distinction within a reasonable amount of time. The subcommittee recommended establishing a

separate school of education, along with research entities and public service groups. **[End Page 10]**

The Planning Academy discussed the report but took no action to implement the subcommittee's recommendations. A year later, the president appointed a second committee, again as a Planning Academy subcommittee. Again, the chair and six of eight members were from outside the Education Department. The president charged this committee with developing plans for implementing the first report. In December 1984, six months later, the committee reiterated the first committee's recommendation to establish a new school of education but recommended against creating the research and public service groups.

Nine months passed, then the president created a thirteen-member implementation committee chaired by the vice president for academic affairs. This committee was "to refine and implement the academic plans" described in the first two reports. Again, only two members were from the Education Department. Seventeen months later, this committee issued a draft proposal recommending again that a separate school be established. The draft proposal circulated widely among campus officials and faculty, including the education faculty, was discussed in meetings with the faculty, and was reviewed by the appropriate campus committees. It was hoped that the board would review and approve the proposal, but it never reached the board. In fact, nothing substantive happened for nearly five years; the report just sat on a desk. At that point, ten years after the process first began, the board finally approved forming a separate school of education with its own dean. The president who had appointed all three subcommittees was retiring at this point, and speculation was rife that the long-awaited creation of this new school of education was to satisfy his wishes, not because the planning was so effective.

Analysis

The interviews and document reviews reveal that Western's planning efforts were marked by frustration, anger, and inaction, among both the education faculty and the various committee members. From my perspective, these negative results stem from Western's failure to implement a process consistent with the decision-making culture of higher education--specifically, one that acknowledged the differences between faculty and administrative styles of decision making.

Perhaps the most important problem in the planning process was the failure to create an environment in which faculty were encouraged or even allowed to participate. Unlike the business/rational-based approach, in which upper administration quite commonly mandates activities, higher education leaders cannot count on positional authority to ensure participation in the process, much less guarantee acceptance of resulting decisions. My analysis showed that regrettably little was done to involve the education **[End Page 11]** faculty, who would be directly affected by decisions, in the planning process's goals and purposes. As I noted earlier, the faculty I interviewed repeatedly mentioned the lack of commitment to the planning activities among the education faculty. Most individuals, especially education faculty, experienced anxiety, nervousness,

disdain, alienation, and anger, though in varying degrees. Several faculty (both education and noneducation) viewed the onset of planning as a way of punishing the education department for not having implemented earlier changes desired by campus administrators. This reaction is not unreasonable; administrators had warned the department several years earlier that failure to implement new initiatives could result in the education program's elimination.

Many campus officials and education faculty believed that the education department needed major changes to achieve its institutional mission. Unfortunately, campus officials and education faculty did not agree on the nature of the problems; in fact, some education faculty members told me during interviews that they were not convinced any significant problems existed.

Obviously, the Education Department was divided, and faculty and administrators held emotionally charged opinions to which there were not necessarily clear answers. Furthermore, campus administrators and planners apparently initiated no activities to alleviate those emotions. For example, they did not explain how planning had improved programs in other units or even how planning, in general, helps colleges and universities achieve their mission and objectives. The sole gesture in that direction I have been able to find is that it promised to return faculty positions, lost to the department over the previous years due to attrition, if the department actively supported planning. The administration did not recognize that this incentive, though significant, was not enough to counter the negative emotions and perceptions caused by the faculty's exclusion from the planning process itself.

The campus administration also apparently failed to recognize the faculty's interest in the process of how a decision is arrived at as much as the content of the decision (i.e., emphasis on collegiality, thoroughness, carefulness, and expert-based review [Birnbaum, 1988; Etzioni, 1964]). For example, some faculty and administrators felt that, despite the directness of the committee charges, the repeated appointment of new committees implied that the administration had a specific goal in mind. When a committee's recommendations did not embody this hidden agenda, the administration simply appointed another committee until one came up with the "right" answer. There was no systematic or formal process of communicating with the Education Department faculty, individually or collectively, during the planning process, a fact that further exacerbated the suspicions. None of the education faculty I interviewed recalled that the planning committees **[End Page 12]** had ever solicited their reactions or views *before* a draft proposal was prepared. Only two education faculty served on each committee, making them clearly a minority voice. Furthermore, neither the committees, the Education Department, nor the education faculty themselves who served on the committees viewed them as official department representatives. In fact, one person I interviewed shared the opinion that the exclusion of the faculty was intentional. The implementation (third) committee conscientiously tried to include the Education Department faculty, but it was too little, too late to counter the department's sense of alienation.

Yet another aspect of cultural differences was ignored: how long it takes to make decisions (Gioia & Thomas, 1996). Within hierarchical, authoritarian structures, decisions

can and frequently are made rather quickly. However, in faculty culture, change tends to be slower and more deliberate. None of the subcommittee assignments included the span of the planning process, so each committee was left on its own to determine how many years into the future its planning should cover. The implicit assumption seemed to be that the planners should recommend changes that could be implemented as quickly as possible. Even though there was no apparent confirmation of this perception, some faculty felt uneasy, believing that the administration wanted to implement a certain course of action without adequate study and deliberation. These interviewees felt that the succession of committees was not because of the need for study but because the committee recommendations didn't match what the administration wanted. It seems reasonable that some of the education faculty's anxiety during the planning process could have been mitigated if the administration had indicated its willingness to implement gradually (or at least study thoroughly) the recommended innovations, thus recognizing the lengthier process associated with faculty-based decision making. In short, a serious obstacle to the planning process was the administration's failure to adapt that process to the university's dual cultures.

In fairness, this harsh critique must be balanced with a discussion of what benefits were expected by severely limiting the education department's participation. First, Western University's administrators hoped that committees composed of people from outside the education department would enhance the legitimacy of the field of education. Increased respect would then enhance the legitimacy of augmenting the level of resources directed to education. They also intended that the participation of noneducation faculty members would emphasize education as an interdisciplinary effort with changes occurring not only in the department but campus wide. As a result, it was appropriate that the committees included representatives from throughout the campus community. As one interviewee who served on one of the three committees observed that sometimes one needs a whole new set of actors in order to implement needed changes. **[End Page 13]**

Next Steps

The case study reveals that Western U.'s faculty shared views regarding strategic planning typical at many colleges and universities (Baker & Markin, 1994; Gilbert, 1991; Prinvale, 1992, Schmidtlein, 1990; Schmidtlein & Milton, 1991). They felt that planning was a waste of time, not a legitimate part of the faculty role. This perception highlights one of the key cultural differences between administrators and faculty. Faculty members consider themselves individual entrepreneurs; they value their independence very highly. Faculty frequently see activities like strategic planning, particularly with its focus on hierarchical decision-making, as conflicting with their own goals and responsibilities. That is, strategic planning, in this view, is a business-based, rational process which has no place in higher education institutions governed by experts. Consequently, because of the institution's failure to acknowledge differences in styles and cultures of decision-making between administrators and faculty, the education initiative, which was expected to be completed within a year, resulted in significant alienation, anger, frustration, and a delay of almost a decade in its final implementation.

Can such problems be prevented? This research reveals three activities by the

administration that might have ensured better alignment between the two cultures: (a) communicating the benefits of and reasons for planning, (b) creating opportunities for appropriate levels of faculty participation, and (c) articulating clear decisions related to the structure, scope, and span of planning.

Action 1: Communicating the benefits of, and reasons for, planning. Those in charge of planning know what they hope to attain, but the goal is not always so obvious to others (Liff, 1997). Nor, because of the traditional view that a college is not like a business, is it clear to others how or why such a business/rational-based process benefits higher education (Gilbert, 1991; Hurst, 1994; Robson, 1996; Tan, 1995). To counter this pessimism, planners should review the history of institutional problems that were avoided as a result of strategic planning and communicate this information to the institution's members. Administration can create coalitions with key faculty leaders in support of the initiative, then conduct workshops and disseminate pertinent information about strategic planning, its benefits, why it is appropriate for colleges and universities, and how it should be done to be effective. An added benefit of such actions is that it provides evidence of claims that the administration (and the faculty leaders) supports the process (Chaffee & Sherr, 1992; Tan, 1995). Even more important, it powerfully communicates the administration's acknowledgement that faculty support--not just the president and board--is essential (Baker & Markin, 1994).

It is true, however, that going through these steps may still fail to convince faculty that strategic planning is needed (Gioia & Thomas, 1996). **[End Page 14]** Therefore, administrators should explicitly state the motives and goals of the strategic planning process (Schmidtlein, 1990; Shipengrover, 1996); if a certain course of action has already been decided, that should be made clear. Offering false choices when none exist does little to engender trust; and ex post facto "legitimization" of an already-made decision through planning may cause more mistrust and alienation than simply imposing the decision by fiat.

While higher education administrators are concerned with the relationship between the external environment and the college as a whole institution, faculty concerns often are discipline based (Baker & Markin, 1994; Schmidtlein & Milton, 1990; Tan, 1995).[7] Another advantage of clarifying planning motives and goals is to put this conflict in perspective. Such a step is certainly preferable to ignoring the conflict and thus perpetuating the perception, as one interviewee stated, that "administrators don't care about what we think."

Action 2: Formulating appropriate levels of faculty participation. The typical view expressed within the planning literature is that, because planning is an avenue for uncovering conflicts, a strategic planning process that expects and encourages widespread participation is most beneficial (Cope & Delaney, 1991; Gilbert, 1991; Hurst, 1994; Johnson & Jonas, 1995; Liff, 1997; Marcus & Smith, 1996; Palola & Padgett, 1971; Weimar & Jonas, 1995). A distinctive feature of strategic planning is that it is a collective process of deciding on "the objectives of an organization, on changes in these objectives, and on the policies that are going to govern the acquisition, use, and disposition of resources" (Salloway & Tack, 1978). Most of the literature agrees that "widespread

participation appears to be necessary for successful substantive planning" (Ringle & Savickas, 1983, p. 649). It certainly also makes sense that, since strategic planning at colleges and universities emphasizes educational policy issues, faculty participation is crucial (Baker & Markin, 1994; Weimar & Jonas, 1995). Finally, the benefits of participatory decision-making, particularly in industrial settings, have been studied extensively and are also relevant for strategic planning (Pateman, 1970).

There also is no doubt that Western University's failure to systematically involve the Education Department contradicted the faculty's decision-making culture and thus seriously undermined the effectiveness of the planning process. If the administration had permitted and encouraged the department's participation, the faculty, arguably, would have more willingly believed that the administration respected its culture. However, full-scale participation of all faculty, although consistent with the collegial model, is not necessarily the ideal. Pateman's (1970) explanation of the differences **[End Page 15]** between full and partial participation highlight why the latter may be preferable in higher education culture. In full participation, two or more people have equal power to determine the outcome or decision. In partial participation, one party can only influence the other party, but the other party has the authority to make the final decision. Partial participation thus appears more congruent with the reality of higher education. First, the hierarchical structure of a university is a reality--whether one likes it or not--that cannot be ignored. Power is unequally distributed within a university (Schmidtlein, 1990). Efforts to foster equality should continue, but ignoring the existence of inequality merely sets up planners and participants for frustration and failure. A partial participatory planning process recognizes that certain parties have greater authority and are unlikely to relinquish that authority willingly. The model also recognizes that decisions made now will affect students not yet enrolled and faculty not yet employed. Thus, administrators may justifiably impose decisions that they are convinced are necessary to protect future constituents.

Another disadvantage of full participation in planning is that such a process may not provide ways to resolve conflicts when consensus cannot be achieved. Within a university, diverse and conflicting goals exist (Schmidtlein, 1990; Schmidtlein & Milton, 1990). Nor does the full-participation model include methods for resolving situations when the administrators cannot convince the participants to modify decisions which the administrators believe are seriously flawed and will undermine the long-range success (defined as achieving the stated goals/objectives) of the institution (Schmidtlein, 1990).

A partial participatory planning structure helps deal with these conflicts, however, by clarifying the existence of the other hierarchy--the administration (including the ultimate authority vested with the president, board, legislature, etc.). As Pateman (1970) notes, the partial participation model recognizes the boundaries of authority and responsibility among the different groups in the institution. It reminds people of their limited authority. While such candor may discourage their participation in planning, being honest about limits also encourages participants to achieve agreement rather than to relinquish what authority and influence they do possess because of unresolved disagreements.

The effectiveness of the partial participation model in planning is closely linked to the level of trust between the top executives and the institution's members. This fact further

underscores the importance of developing a planning culture. If administrators have taken the time to inculcate "planful" attitudes, encourage risk-taking, and help establish a sense that everyone is working together to maximize the institution's achievement of its goals, then a significant step towards developing trust has been taken. (See, especially, **[End Page 16]** Shipengrover, 1996, and Tan, 1995, on why trust is so important.) The participants possess the information needed to make reasonable decisions. When trust exists and participation is encouraged, participants realize their ideas will be considered seriously during the decision-making process. They also understand that every idea will be scrutinized with the same seriousness as long as sufficient justification and documentation are provided. Top management must make it clear that participants should not waste time submitting and justifying ideas which are simply impossible, politically or otherwise, to consider.

Action 3: Deciding on the structure, scope, and span of planning. One reason planners focus on establishing a systematic planning structure is because it improves coordination and integration among the system's separate units. It gives the institution's leaders methods for managing and directing people's actions and for controlling the influence of idiosyncratic and selfish actions which, if left unmanaged, can impede achievements of to the institution's goals and mission. Within the dual hierarchical setting of colleges, however, these assumptions often are inappropriate because faculty and other staff may respond to the focus on control and hierarchy as patronizing. Such a reaction explains why is it very important for higher education administrators to assess carefully the kind of planning structure they create.

Planning literature discusses literally dozens of different planning models and structures. One structural issue to be determined is the scope and span of strategic planning. Creating an institution-wide scope of strategic planning solves the problem of excluding some constituencies but may mistakenly assume that faculty from different disciplines know and/or share the institution's overarching values and goals. The reality is that disciplinary parochialism often prevails--the attitude that one's personal field of expertise is the best arena in which to find solutions to problems (Keller, 1983). Unless steps have been taken to clarify these conflicting goals, an institution-wide planning process is more likely to uncover and/or create conflict than to achieve consensus (Schmidtlein, 1990; Schmidtlein & Milton, 1990).

Planning spans--how many years in the institution's future are the administrators planning for?--is another issue that seems easy to determine; but the cultural differences between faculty and administrators add factors that can complicate this decision (Gioia & Thomas, 1996). For example, market data and budgetary considerations are primary factors influencing decision-making. But faculty members will argue for including issues related to the impact on their own teaching and their own department, their expert opinions on what students need to learn and how society can benefit, and the time needed to engage and complete research. Perhaps this is **[End Page 17]** the arena in which the traditional conservatism (change takes a long time) is prominent. Thus, strategic planning designed to create change within a short period of time will almost certainly expose potential conflicts. One option is to ensure that administrators and planners make it clear that such changes are possible (we will acquire the needed resources; doing this will enable us to acquire extra funds for research, etc.). Another

option is to put constraints on the planning process itself, i.e., set priorities and impose deadlines. In this manner, faculty may be convinced that administrators realize that the expenditure of time and resources necessary for change inevitably conflicts with the myriad other demands on faculty (teaching, research, and service) which are more obviously critical for their own career.

Finally, an important step is deciding who will conduct the planning process. It could be a blue-ribbon committee, an administrative team, subcommittees of existing committees, task forces, or project groups. Will it be headed by an external coordinator or internal personnel? The point is that administrators must recognize that faculty support is often based in part on the perceived legitimacy of those who are involved. To what extent are experts involved in the process? At Western University, the process suffered terribly when participants in the planning process did not include faculty highly respected as experts in the field of decisions to be made, i.e., education department faculty.

Conclusion

This research does not intend to blame administration in general for problems associated with planning. Rather, the point is that, when both administrators and faculty ignore their cultural differences, the results are generally bad for the institution; this negative outcome can happen very easily when a business/rational-rooted process like strategic planning is conducted at an academic institution. Adapting the strategic planning process to the faculty/administration cultures should reduce the chances of repeating the problems experienced at Western University. Planned change is a deliberate process. To be successful, it must be organized and structured. Planners and administrators must take care that their planning process is congruent with the expert-based, consensual faculty decision-making culture. Only then can college and university administrators be more confident that their institution's planning will not generate the frustration, alienation, and anger that occurred at Western University. Only then can administrators be more assured that the goals of the planning process will be achieved effectively and efficiently.

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Notes

1. Definitions of success can vary; but generally, success is viewed as accomplishing the stated goals and objectives. (My thanks to an external reviewer for highlighting this point.)

2. The utilization during strategic planning of a technique called "claimant analysis" (King & Cleland, 1978) or "quadrant analysis" (Lynn, Carver, & Virgo, 1996) reflects this belief.

Claimant or quadrant analysis is a process for determining the demands and needs of external environmental groups.

3. "The better the formal qualifications of the faculty in an academic institution, the less likely are faculty members to express allegiance to it [the institution]" (Blau, 1973, p. 120).

4. An organization is loosely coupled when the linkages between structural characteristics and actual behavior are not present (Meyer & Rowan, 1978; Pfeffer, 1980; Pfeffer & Salancik, 1978; Schmidtlein & Milton, 1990).

5. This article, however, presents data contradicting this view.

6. To protect identities, references to campus documents and titles are masked and all identifying material is excluded from the bibliography.

7. See Gouldner's (1957) landmark article discussing the difference between faculty "locals" and faculty "cosmopolitans"; also see Becher (1987).

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OFFICE OF INSTITUTIONAL ANALYSIS
State University of New York at Buffalo

BRIEF: The 2004 CIRP Freshman Survey: New Trends in College Choice Concerns and Student Expectations

As the University at Buffalo looks to continue attracting the best and brightest high school graduates, it must respond to the various cultural and educational trends that impact freshmen over the years. Each year the University's administrators ask whether the institution meets the expectations and needs of its newest undergraduates and thereby promotes student satisfaction, integration, and retention – not to mention the recruitment of future undergraduates. The present analysis of the Cooperative Institutional Research Program's (CIRP) freshman survey provides a response to this important question. Here we take a longitudinal view of the information provided by our new students, comparing responses from the entering class of Fall 2004 to those from Fall 2000 and Fall 2002, in order to address both the recent changes in student values and the University's success in addressing these changes as they evolve.

The CIRP is a standardized paper-and-pencil instrument that addresses new students' backgrounds and expectations for college. Developed by the American Council on Education in 1966 and currently administered by the Higher Education Research Institution (HERI), it is one of the largest and best accepted longitudinal surveys of undergraduates nationally. The CIRP has been part of UB's institutional research program since 1980 and is administered to incoming freshmen each year during our summer orientation program.

Demographic and Background Trends

In July 2004, 2,649 (82.4%) of the 3,215 freshmen beginning their studies at UB in the following Fall semester completed the CIRP. Our response rate is consistent with those obtained in prior administrations (e.g., 72.7% in 2000; 73.4% in 2002), as is our representation of the freshman population. Some demographic trends have appeared at UB over the past five years, however:

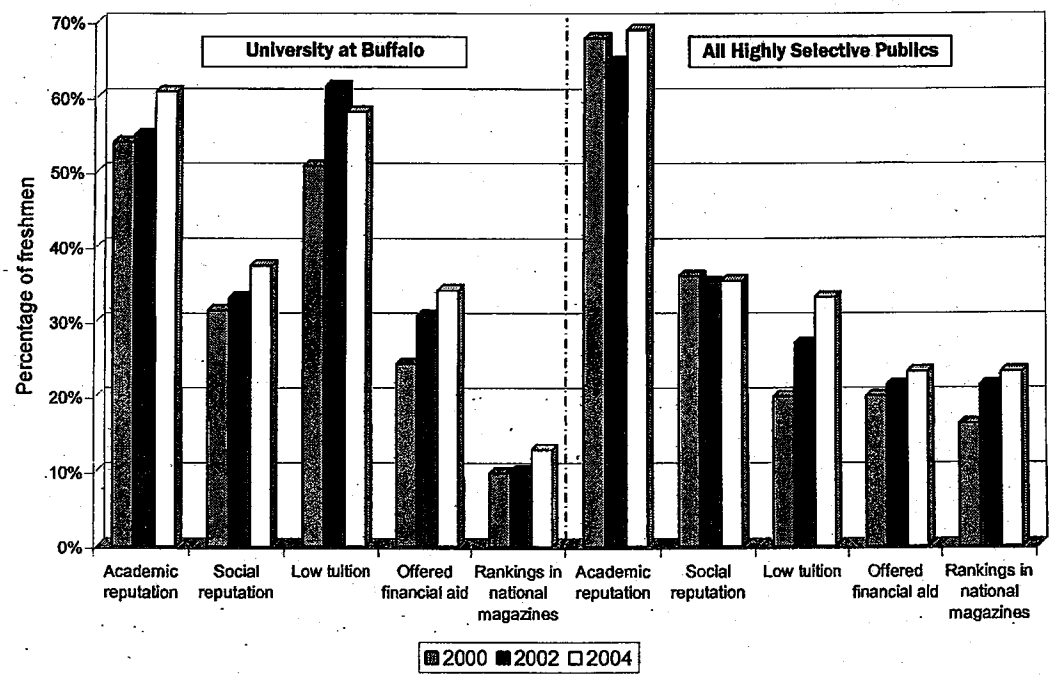
- The proportion of women in UB's freshman classes has risen steadily from 45.1% in Fall 2000 to 48.1% in Fall 2004[1].
- The percentage of UB freshmen with high school averages of 90 or better has grown from 41.2% in Fall 2000 to 57.4% in Fall 2004[1]. However, substantially more UB freshmen anticipate needing remediation in reading (8.7% in 2004 vs. 2.1% in 2000), writing (13.1% vs. 7.4%), and math (21.3% vs. 18.1%).
- More families expected to contribute over $10,000 to the the first year of a UB education in Fall 2004 (24.0%) relative to Fall 2000 (19.3%). This trend was consistent with increments in annual household income and UB tuition.
- Expectations regarding the amount of student contributions and loan debt in the freshman year did not change over time, nor did the degree of student concern about financing a UB education.

College Choice Trends

Freshmen entering UB in Fall 2004 were most likely to cite the University's academic reputation (60.7%), its cost (58.0%), and the ability of graduates to obtain good jobs (49.5%) as very important to their college choice. Interestingly, 33.8% stated that a campus visit was very important to them. Freshmen were more likely to consider the University's academic and social reputations, cost, and the availability of financial aid as very important to their choice than prior entering classes were (see Figure 1) and more likely to cite UB as their first choice institution. For freshmen at other highly selective

public institutions[2], cost was the only one of the aforementioned issues to substantially gain importance between 2000 and 2004.

Figure 1. Percentages of freshmen indicating that specified issues were "very important" to their college choice issues: trends from 2000 to 2004



UB freshmen are also increasingly likely to state that preparation for graduate or professional school or training for a career are very important to their decision to attend college in general. These trends are also visible at other highly selective public institutions nationally.

College Expectation Trends

In 2004, freshmen were more prone to expect satisfaction with UB and slightly less likely to predict that they would transfer than their counterparts in 2000 and 2002 were (see Figure 2). They were also less apt to anticipate changing their major or career choice while at UB. Although the proportion of UB freshmen expecting to work in order to meet their educational expenses has remained level since 2000, a slightly larger percentage anticipated working fulltime in 2004. Expectations regarding other campus activities (e.g., playing varsity athletics; participating in volunteer work; participating in political demonstrations) did not change between 2000 and 2004.

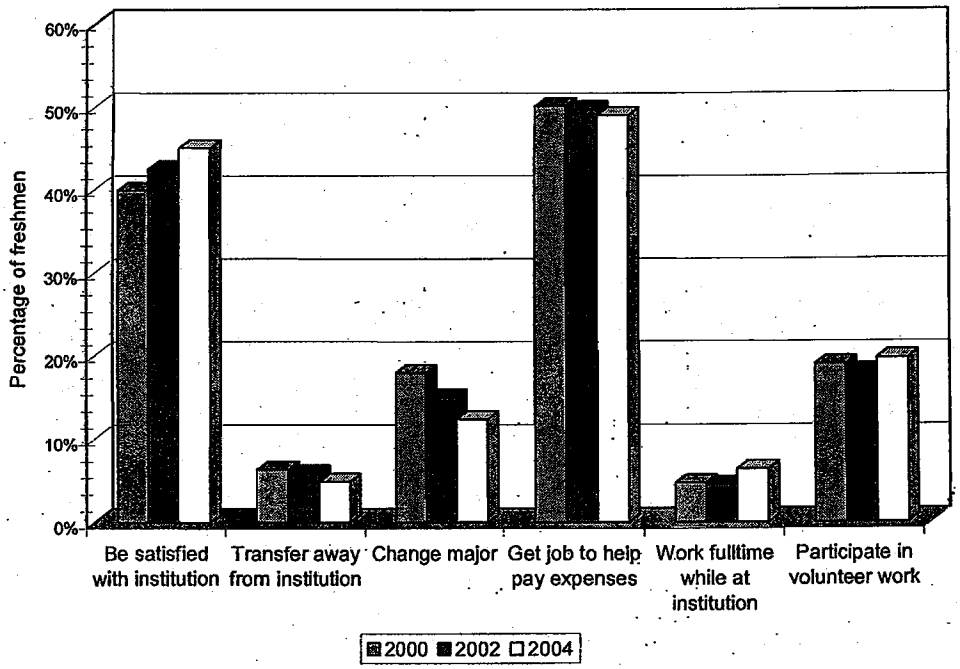
Summary and Conclusions

Our CIRP data suggest that the following trends have become prominent among UB undergraduates since Fall 2000:

- Cost is still a major concern for students choosing UB – much more so than at other highly selective public universities - although it is no longer the primary reason why students choose UB. (Academic reputation is.) Our new freshmen are increasingly concerned with the role of financial aid policies in this context, and a small but growing minority still need to work fulltime while attending UB.

- The ability to obtain a good job after graduation is nearly as important to new freshmen as academic reputation and cost, both at UB and at other highly selective public institutions.
- Most importantly, as UB's selectivity increases, students' perceptions of its reputation and satisfaction with their college choice are growing, both in absolute terms and relative to other highly selective public institutions.

Figure 2. Percentages of freshmen expecting a "very good chance" of specified events occurring at UB: trends from 2000 to 2004



This last finding underscores UB's accomplishments in simultaneously increasing institutional prestige and attracting students who are predisposed toward satisfaction and engagement with the University community. Further research will explore our success among the most talented of our new undergraduates – those in SUNY Selectivity Groups 1 and 2 and in our Honors program.

- Lauren Young, Office of Institutional Analysis, 5/13/05

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[1] These specific figures are based on analyses of institutional data for all new freshmen matriculating in Fall 2004, regardless of CIRP response or nonresponse.

[2] The Higher Education Research Institute defines highly selective public universities as those whose entering freshmen average a combined SAT score of 1140 or greater.

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The Chronicle of Higher Education

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Meeting Employers' Needs

BYLINE: KARIN FISCHER

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In the past year, the technical- and professional-communications program at Western Washington University has expanded its enrollment by 25 percent, increased the number of courses and class sections from 9 to 16, and hired a professional technical writer to teach some upper-level courses.

The changes come courtesy of a grant from the state, part of an effort to enlarge the number of students being trained in fields, like nursing and teaching, where demand has outpaced supply.

To expand their work forces in key areas, states have long given students financial incentives to encourage them to enter specific high-need fields. Forty-three states now offer such career-based scholarships or loans.

But with little research on whether the programs have actually reduced labor shortages or attracted students to careers, officials in a few states, including Florida and Montana, as well as Washington, are beginning to look for new ways to produce more graduates in high-demand majors.

Washington lawmakers have been the most aggressive about creating such alternatives. The lawmakers have decided that in addition to providing financial incentives to students, they would give money to the colleges themselves to start or expand academic programs in fields that both students and industry demand, like special education and computer science.

One appeal of Washington's approach is that it has more flexibility than student scholarships to respond to changing employment needs. It also gives institutions the financial ability to build programs. Universities and community colleges must document both industry demand and student interest before getting money from the state, and measure their success in meeting those goals by tracking enrollment trends and job placement.

Some states, however, are wary of Washington's approach, questioning whether it will work in regions without Washington's mix of high-paying, skilled jobs and a burgeoning student-age population. Even college officials in Washington worry that linking financing to a specific economic-development result could alter the mission of higher-education institutions, valuing training over the liberal arts.

"If funding is only for narrowly tailored technical areas, what's the extent to which you chase dollars and change the fundamental nature of the institution?" asks Andrew R. Bodman, provost and vice president for academic affairs at Western Washington University.

Crafting a New Approach

Washington's program was started in 1999 by Gary Locke, a Democrat who was then the governor. He was dismayed by reports that state employers, particularly in high-paying industries like software development and health care, were having trouble finding qualified applicants locally. Less than 10 percent of employees at the Redmond-based Microsoft

Corporation, for instance, were educated in the state.

Like other states, Washington offered several career-related scholarships, but Governor Locke and his legislative allies were seeking an approach that would encourage the colleges themselves to accommodate more students in high-demand majors.

"We really look at our institutions as economic drivers," says Debora Merle, a higher-education-policy adviser to Mr. Locke, as well as to the current governor, Christine O. Gregoire, a Democrat. "That's where we have to turn."

But for the state's public institutions, already struggling with tight budgets and growing enrollments, paying for the degree programs was another matter. High-demand programs like pharmacology and bioengineering frequently require supervised internships or sophisticated laboratories. As a result, those majors can cost as much as six times per student as traditional "talk and chalk" subjects likes history and sociology, according to officials at Washington State University.

"Legislators would ask, Why are you turning out these English majors? Why aren't you turning out more engineers?" says Karl A. Boehmke, the executive director of budget and planning at Washington State. "They needed to understand that fields in which there is a shortage of skilled workers are fields where costs are considerably higher."

So in 1999, the Legislature set aside $4.7-million to underwrite grants for 550 new enrollment slots in high-demand fields.

The program, which has grown to $28.1-million and roughly 2,460 slots in the current 2003-5 biennium, pays an average of $11,000 per student at four-year institutions, compared with the typical state subsidy of $5,200 per student at Western Washington and $9,800 at Washington State.

Not all the funds have gone to pay for technology or science programs that traditionally are viewed as in high demand. Among the 32 grant recipients in 2003-5 at four-year institutions was Western Washington's English department, for its technical- and professional-writing program.

Besides new courses, the department has used the extra state dollars to update computer equipment, start an internship program, and create an advisory board of professional writers.

The English program has become increasing popular with students like Cherish R. Flint, a 26-year-old senior who worried about what she would do with a degree in English literature after she graduates from Western this June. Nearly a third of Western's English majors now find jobs in technical communications, writing grant proposals and user manuals, and editing software documents. State labor analysts predict employment for writers and editors will grow 7.8 percent this decade.

"I love to write, but I didn't feel like I had applied my writing," says Ms. Flint, who has now taken two courses in the program. "I needed to get beyond campus and put my foot in the door at places."

Still, the technical-writing grant is probably the rare exception to the rule that liberal-arts majors are not in demand. "I don't have another rabbit to pull out of my hat," says Mr. Bodman, the provost at Western Washington, when asked if he would apply for a high-demand grant for other humanities programs.

The relative rarity of grant recipients in the humanities has led to faculty debates on several campuses and kindled concerns that the liberal-arts tradition of producing well-rounded citizens could be compromised.

The debate takes place against a painful economic background. State appropriations per student, adjusted for inflation, have eroded steadily in Washington since the early 1990s, even as enrollment shot up. In November Washington voters rejected a ballot initiative that would have raised the state's sales tax by one percentage point, generating $1-billion annually for a state trust fund dedicated to elementary, secondary, and higher education.

Critics worry that with a tight budget, prioritizing the more politically popular but costlier slots in high-demand majors could come at the expense of colleges' other needs. And they question whether underwriting high-demand slots is the best use of state dollars at a time when the state's public colleges receive only enough money to educate 213,000 of the 228,000 students enrolled.

"There is some value to looking at where we want the emphasis of growth," says Harlan F. Patterson, vice provost for planning and budgeting at the University of Washington. "But the program has the potential to ignore other people in the system."

A Google Major

Few majors meld social sciences and technology as seamlessly as informatics, a five-year-old degree program at the University of Washington that focuses on the intersection among information, people, and technology.

"It's a Google world," says Michael B. Eisenberg, dean of the university's Information School, "and we're the Google school."

Students say they are drawn to the major because of its intensive senior-year research and design project and its success rate in placing graduates -- alumni have landed jobs at technology heavyweights like Yahoo and Amazon.com.

"I didn't want to be some code monkey slogging away at a database all day," says Derek Boiko-Weyrauch, a junior who is interested in exploring the psychology of people who unleash computer attacks.

With a high-demand grant from the state, Mr. Eisenberg was able to nearly double the size of last fall's incoming class, which includes Mr. Boiko-Weyrauch, to 70 students.

Not all the high-demand recipients have such a new-economy ring. One 2003 grant recipient was Western Washington's manufacturing- and supply-chain-management program, which prepares graduates for manufacturing jobs including purchasing and product supervision. With the money, the program has grown from 24 to 60 students and has been able to hire a staff person to manage its extensive internships.

Placing and supervising students in two mandatory three-month internships has been taxing for the program's small faculty, but the hands-on exposure can be critical preparation for work, says Ryan D. Weir, a 2003 graduate who landed a job as a business analyst at Boeing Capital Corporation after an internship at the aerospace company. "I think the most valuable part is the ties to the industry," Mr. Weir says. "You graduate with all these industry connections and exposure."

Industry Needs, Student Desires

To get the grants, colleges submit proposals in high-demand areas identified by the Legislature or in other specialties the institutions believe are in demand by both students and employers in the region. The proposals are reviewed by separate committees for two- and four-year colleges.

From the outset, the Washington State Higher Education Coordinating Board, which administers the grant competition for four-year institutions, has been clear that high-demand fields could not solely be defined by industry desires, says Bruce Botka, director of governmental relations and policy for the board.

He says requiring demand by both students and industry is crucial to properly channel limited resources. Increasing slots in a program could lead to unused capacity if students are not interested. And, Mr. Botka points out, not all worker shortages are alike. Increasing instructional capacity won't remedy deficiencies that stem from low wages or poor working conditions.

Still, some university administrators and faculty members worry that the high-demand program could result in political considerations dictating academic decisions. "I think student choice is superior to a bureaucratic one," says Mr. Patterson of the University of Washington.

Legislative supporters say it is a matter of accountability, especially as the state grapples with a projected budget shortfall of more than $2-billion. "We have a desire to focus on the best return for the dollar," says Don M. Carlson, a Republican who recently left the State Senate, where he was chairman of the Higher Education Committee. "Since we're providing the dollars, we have the right to say how it's funded."

One More Strategy

Programs similiar to Washington's seem to be gaining ground in other states.

The governing board of Florida's public universities is considering a plan to link a share of state dollars to several performance measures, including the number of degrees awarded in areas critical to state job growth, such as teaching and nursing.

The New Jersey Commission on Higher Education in 2000 and 2001 awarded a total of $30-million to degree programs in pharmaceuticals, biotechnology, health care, and information technology, areas of significant employment in the state.

And Montana lawmakers are expected during this legislative session to allocate about $5-million to two-year colleges that develop partnerships with businesses, nonprofit groups, or other educational institutions to expand programs or improve training in areas in which they can demonstrate a significant work-force need.

"We want to tap our institutions to respond to state needs," says Sheila Stearns, Montana's commissioner of higher education.

How well Washington's model can be duplicated in other states is still unclear. A similar strategy might not work in states, particularly in the Northeast or Midwest, where the college-age population is dwindling, or where high-wage, high-skill jobs are limited, says David A. Longanecker, executive director of the Western Interstate Commission for Higher Education.

In Washington, 59 percent of the companies surveyed by the state Workforce Training and Coordination Board reported having trouble finding qualified applicants. At the same time, the state's college-age population is soaring; the number of students graduating from state high schools is projected to increase 9 percent over the next 15 years.

"That's why Washington went to the supply side," Mr. Longanecker says. "They didn't need to worry about increasing demand."

The risk is that states could end up with unused seats at public colleges or, as with tuition-for-work programs, wind up educating students for whom it makes more financial sense to leave the state for better-paying jobs elsewhere. "Well-educated people are the most mobile," Mr. Longanecker says.

Few higher-education analysts expect Washington's college-based approach to replace scholarships in high-demand fields, but they say states could adopt Washington's idea as one more strategy to answer work-force needs.

Public officials "are making it clear to campuses they're going to have to compete," says Travis J. Reindl, director of state policy analysis and assistant to the president of the American Association of State Colleges and Universities. "In general, we're seeing more of that worldview in statehouses."

LOAD-DATE: March 9, 2005

LANGUAGE: ENGLISH

Trends in Higher Education: Implications for Health, Physical Education and Leisure Studies.

by Christopher R. Edginton , Thomas M. Davis III , Larry D. Hensley

The authors discuss some of the changes currently facing higher education and how these changes might affect the areas of HPELS.

Higher education is a major socialization force in American culture. However, like other institutions, colleges and universities will continue to evolve in response to changes in our social, cultural, political, and economic milieu. As in the past, institutions of higher education will continue to rethink, redefine, and reshape their basic mission in light of the changes that are occurring in American society. While much of that change will occur incrementally, there is an opportunity to evoke meaningful change that may, in fact, lead to a redefinition of the way in which the mission of higher education is conceived. Nearly a decade ago, U.S. congressman Newt Gingrich (1985) wrote:

...[the] window of opportunity is open and the optimistic future is reachable, but reaching it will require changes in our current behavior and institutions. This optimistic future will necessitate accepting the possibilities inherent in our emerging technologies and accelerating the transition to a high-technology, information-based society.

Although Gingrich referred to all of society, he addressed a core challenge to American higher education that has become more severe. Herbert London (1987) went so far as to predict the "death of the university" for a variety of reasons including increasing costs that close access to the middle class; alternatives for achieving college degrees including corporate-based, degree-providing programs; and public disenchantment with higher education. Sage (1993) stated that:

...the university is in the midst of a crisis, a large part of which is a fiscal crisis threatening access to higher education as well as programs on campuses.

Spirduso (1993) is even more succinct in her characterization of stressors facing higher education:

Perhaps more than any other period in its long history, the university environment today is one of tumultuous reform, reorganization, retrenchment, and survival. Today the task must be one of reevaluating and reshaping the vision so that it can be fulfilled within a rapidly changing information age society. To do that, it is essential that all faculty understand the resources that are reshaping higher education and changing the face of academia.

For health, physical education, and leisure studies (HPELS), what will be the implications of the changes that are affecting higher education? Will our professional areas continue to be viewed as central to the mission of the colleges and universities?

Will we be required to expand or contract? Will we become obsolete or will there be opportunities to reorganize or transform our bodies of knowledge to meet newly emerging demands in society? What challenges will we face as we move into the twenty-first century?

Looking to the Past, Preparing for the Future

For more than a century, our professions have contributed to academia as well as to society. We are generally acknowledged to have the capacity to influence individual and community life in substantial

and meaningful ways. Yet today, we are challenged to continue to justify our areas of professional study in light of ongoing changes and threats to higher education (DeLoughry, 1989; Eaton, 1991).

There is no question that we live in a period of great change. We are experiencing a basic shift in our values, economic structure, and the way in which our organizations and institutions are structured. This basic paradigm shift--movement from the industrial era to the information era--has been enveloping industrialized countries throughout the world for the past three decades. In the early 1980s, the World Future Society identified a variety of challenges for higher education including bilingualism, "nontraditional" students becoming the norm, home education via technology, and student/consumer advocacy (Renfro & Morrison, 1982). The information era will present many new opportunities for HPELS but will simultaneously threaten the way in which we currently perceive our professional work.

The industrial era provided great impetus towards the professionalization movement, with many fields seeking to define their jurisdictional boundaries. Health, physical education, and leisure studies began to emerge as professional areas. Physical education training programs were established in the 1820s (LaGasse & Cook, 1965; Moore & Trekell, 1981) and intercollegiate athletics became a form of elite sport in the 1850s (Guttmann, 1986). Health programs in public sanitation were initiated in the 1880s, disease control in 1890s, and prevention in the 1920s respectively (Winslow & Winslow, 1952; Green & Anderson, 1982). In the area of leisure services, organized camping (c. 1860s) (Doell & Fitzgerald, 1954), municipal parks (c. 1850s) (LaGasse & Cook, 1965), national parks (c. 1870s), and playground programs (c. 1880s) were founded. Many of these programs and institutions developed as a result of the need for social reform and were built on the challenges and opportunities that emerged during the industrial era.

We live in a new era. It is an era that is punctuated with rapid change, use of technology, cultural diversity, and a basic redefinition of our work and play lives. We live with flex time, flex space, changing family structures and social demographics, and a variety of new problems facing society. Will programs and institutions founded during the industrial era still remain relevant in the information era? Will higher education courses and programs in the HPELS areas be required to transform and reconceptualize basic offerings? Can we survive in a world that seems to be growing more and more hostile?

The assumptions of the past may no longer be relevant for the future. As those who provided visionary leadership to our fields over a century ago, we may need to provide a new paradigm for health, physical education, and leisure studies within higher education. We will need a host of new inventions, approaches, methods, and strategies to meet challenges of the information era. Professional educators in the HPELS will be asked to:

* create new institutions and ways of delivering services.

* develop new strategies for learning in a technologically oriented society.

* redefine existing paradigms to emphasize communalities and points of curricular cooperation.

* create new blends of knowledge leading to new professional areas of study. *

* organize professional education in a responsive manner, consistent with the needs of people living in the information era.

We are currently meeting some of these challenges. The University of Northern Iowa is a partner in the Iowa Communications Network (ICN), a fiber optic system that is being touted as the most advanced communications network in America, linking educational, business, and government agencies through a network of more than 100 sites that places every Iowan within a 20-minute drive of all the resources accessible through the network.

We are currently delivering HPELS-related instruction to students at four remote sites, one being more than 200 miles from campus. The ICN facilitates more than a television broadcast. The network makes it possible for instructors to see and speak to every student, for every student to see and

speak to the instructors, and for every student to see and speak to every other student, regardless of site. Use of this technology requires even the most talented instructors to make adjustments in instructional delivery when surrounded by an instructional "flight deck."

These and other challenges provide exciting new opportunities for HPELS professionals as we move into the information era. As professionals, if we are slow to change, HPELS may be viewed as irrelevant, out-of-date, and unresponsive to changes in society. The challenge is to respond to emerging societal needs in a rapid, yet thoughtful, manner with programs of high quality and influence.

Trends in Higher Education

Higher education in the United States is under attack. Declining financial resources and increased demands are forcing a review of programs and services. HPELS have been targeted for review, and many programs throughout the United States have been reduced, reorganized, or eliminated (Krahenbuhl, 1990; Newell, 1990). Entire programs and HPELS departments have been eliminated at San Diego State University, the University of Oregon, and the University of Missouri-Columbia. Undoubtedly, there are others. This is the fulfillment of Samuel Dunn's (1983) prediction that "Many [programs] will close over the next 20 years, falling victim to demographic changes, new technologies, funding problems, external degree programs, and competition". It is apparent that HPELS must become more responsive to changes occurring in higher education. Many institutions must change to survive.

To what trends in higher education should the areas of HPELS respond? Some of the more important trends in higher education include questions concerning:

1. Access to higher education

2. Restructured, flexible delivery systems necessitated by changing student populations

3. Expanding university boundaries

4. Privatization of public education

5. Curricular innovation

6. Quality and accountability

Access to Higher Education

Projections for the 1990s predict an increase in the number of students desiring opportunities in higher education. The so-called "echo boom" children of the baby boom generation will reach higher education in larger proportions. At the same time, institutions are faced with aging faculty members, reduced staff, and less available qualified personnel--problems that will seriously erode the ability to provide quality educational experiences. There may, in fact, be less access to higher education for many individuals, partly due to increasing tuition costs in public institutions and less federal assistance monies. The accompanying movement from public-supported to public-assisted institutions may make higher education inaccessible to many qualified individuals. London (1987) suggests that, "Universities may already be pricing themselves out of the middle-class market". One of the authors discovered that the cost of his daughter's textbooks for one semester cost more than a year's college tuition for himself little more than two decades ago.

In the areas of HPELS, our fields will be a microcosm of the larger environment--less resources, more students, greater diversity, perhaps restricted access for qualified individuals. In an era of declining resources and greater demand for services, it will be important for HPELS to maintain a very proactive posture. We cannot take for granted that we will be supported in the future at the same level to which we have become accustomed. We will be under close scrutiny in terms of funding and continuation of programs. Therefore, we should work to strengthen our academic programs in terms of their relevance and currency to societal and institutional needs.

Restructured, Flexible Delivery Systems

New students with new agenda are affecting higher education. We have a much more culturally diverse, enriched student population. There is an increasing number of "nontraditional" students compared to past years. Increasingly, students are older, extending their educational experiences over longer periods of time. By the year 2000, one in every three school-aged persons in the nation will be an ethnic minority (Lawson, 1993). Every curriculum will need a component to deal with the topic of cultural diversity. We need to learn how to relate to one another, living within a diverse society and a global community. Encouraging and supporting cultural diversity in our educational environments will enable students to live in a global society.

We will also be challenged to design more flexible and creative instructional formats. Educational offerings in the future will emphasize technology and, increasingly, instructional experimentation. The chalkboard lecture is giving way to the use of "high-tech" hardware. We will have less didactic educational formats, and we will organize more experimental and heuristic learning environments. Our professional study areas will need to continue to evolve and re-organize curricular packages that are offered in intense, short-term, and perhaps even home-based environments. The use of telecommunications, fiber optic technology, interactive video, and other resources will need to be explored to meet emerging needs.

An extraordinary prediction of the future impact of technology on education was provided by Dr. Lowell Catlett, a New Mexico State University agricultural economist who spoke at the Fourteenth Annual Rural and Small Schools Conference at Kansas State University on October 27, 1992. Catlett described the potential educational use of "virtual reality hardware"--audio-video hoods, complemented by gloves and boots to engage the senses of sight, hearing, and touch--that would mentally and emotionally transport learners into the environment about which they were learning. Catlett predicted that students of the future will learn history directly from Thomas Jefferson, hearing him answer their own questions about the American Revolution, his perception of slavery, and the challenges of colonial life. Imagine the impact for the fields of HPELS if virtual reality hardware were used to transport students inside the human heart where they would seem to be a part of the flow of blood from one chamber to another, or if students had the opportunity to directly question the late William O. Douglas, U.S. Supreme Court Justice, environmentalist and outdoor recreational enthusiast, about his judicial role in shaping U.S. environmental policy.

Such technological capabilities will permit learners to engage in the learning process at the time, in the place, and in the form desired by the learners. Such a scenario is not at all consistent with the experiences of HPELS and other higher education faculty. London (1987) asserts that "whether we want it or not, change is here and is likely to accelerate. The university as we've known it is not a likely survivor". That survival depends largely on our ability to provide restructured, more flexible delivery systems in the future.

Expanding University Boundaries

Educational experiences are becoming fluid. Education no longer depends on the participation of learners on the resident campus. We need to be prepared to push boundaries of our work beyond the limits of our campuses. Technology will create an opportunity to speak to distant populations, including international student/client populations, and to engage students with extraordinary distant resources. Pesanelli (1993) describes such an environment in the "plug-in school," a school that uses technology to become literally a part of libraries, museums, science centers, planetaria, laboratories, and corporations to provide students extraordinary first-hand learning opportunities. New markets will emerge and we will have the opportunity to export our educational services via technology and/or faculty who travel to distant sites.

Movement of educational services beyond the boundaries of our campuses will create many challenges. First and foremost, we will need to rethink issues related to quality control. New mechanisms of quality control must be developed and in place prior to the time services are delivered. Jurisdictional issues will emerge. In the HPELS areas, we will be able to influence individuals not just a locally or regionally, but also reach out to individuals in their environments

worldwide. We need to perceive and redefine our boundaries to reflect the opportunities of the information era.

Privatization of Public Education

Declining support for higher education will lead to large-scale privatization in the next century. Cutbacks and reductions in colleges and universities are the norm. As Lively (1993) noted, we are faced with "an era of budget cuts." Currently, many states are reporting cutbacks and reductions in colleges and universities (Edginton & Edginton, 1993). London (1987) reported that "in this day of budget cutting, the halcyon days of guaranteed assistance are over. The once-sacred cow of educational spending is now simply another budget item". The portion of educational costs paid by tuition at public colleges and universities is increasing dramatically. Spirduso (1993) wrote:

...one of the biggest changes in higher education that has emerged over the past two decades is the "privatization" of American state supported universities and colleges. That is, state supported universities have been depending more and more on sources other than state funds.

Even the traditional emphasis on acquisition of federal grants in support of research activities is being challenged. The traditional way of funding colleges and universities is changing, likely to result in significant changes in our modes of operation.

In HPELS, we will be challenged to become more entrepreneurial. We will need to rethink the way in which we seek and find support for not only research and scholarly endeavors, but also innovative instruction. We will need to find ways to create demonstration projects that contribute to the educational process, provide a public service, and are financially sufficient. We must aggressively pursue grants, contracts, endowments, donations, and gifts in support of our endeavors. A faculty member at a public university who waits for state government to be responsive to his or her needs for resources for advanced instructional technology may be frustrated. The entrepreneurial educator will be one who seizes the opportunity to build a resource base using traditional and nontraditional funding sources.

Successful examples of an entrepreneurial posture in HPELS include the marketing of health risk appraisal services using the Centers for Disease Control Healthier People Health Risk Appraisal software and the formation of health promotion consultation centers as extensions of universities' HPELS instructional departments. Another conceptual marriage that has social value and entrepreneurial potential is the development of a delivery system that addresses the many unmet child care needs in each community and simultaneously pursues the development of health, citizenship, and leadership objectives in children. Such a delivery system can genetrate income and at the same time meet the social needs of the community--goals consistent with the revised and expanded vision of the HPELS professions described.

Curricular Innovation

During the past several decades, we have seen a host of curricular innovations in the HPELS areas. Sport management, facility management, health promotion, exercise science, therapeutic recreation, commercial recreation, and others have emerged in response to perceived changing societal needs. Some of these perceptions were accurate, others missed the mark. Curricular innovation can be incremental, or it can be dramatic. Setbacks often breed skepticism that radical curriculum reform may not be desirable and may cause a return to a less dynamic state of "business as usual."

Challenges such as budget reductions are forcing colleges and universities to rethink the scope and organization of curricular endeavors. Lively (1993) stated that:

...public colleges across the country are searching their souls in face of orders to trim programs, rethink missions, and operate more efficiently. The impact of downsizing or retrenchment is finding many programs being merged, consolidated, or phased out.

HPELS professionals must be innovative and rethink ways in which programs can be consolidated with one another or rearranged to reflect the needs of a given institution. Centrality of mission in relation

to HPELS programs is often a key factor in deciding whether or not programs are continued or downsized. Continuous innovation in curriculum designs aimed at linking program offerings to the central mission of the institution will be essential for future survival and/or prosperity.

We live in a phase of entrepreneurial transition. In 1950, 50,000 new businesses were started in America; by the late 1980s, this figure had increased to 700,000 (Naisbitt & Aburdene, 1987, p. 106). Why is this the case, and how does it apply to higher education in the HPELS areas? Clearly, individuals are seeking ways of responding to the new social order. Many of these new businesses will fail. However, others will succeed and pave a pathway to the future. In education, as in business, we need to continue to experiment by blending existing and new areas of knowledge and reconceptualized professional fields. We are on a journey; change is inevitable. It is important to be entrepreneurial and be willing to take risks, even though some ideas may not be successful.

Excellence, Quality, and Accountability

Increasingly, institutions of higher education are being held responsible for the outcomes of their efforts. Inputs such as the number of faculty lines, salaries, research equipment, supplies and services, and teaching loads are increasingly measured against outputs, such as scholarly productivity, grants received, percentage of students hired in their chosen professions, and percentage of students passing licensure or certification examinations. Dunn's (1983) prediction has become reality:

The quality of today's university is generally measured in terms of inputs to the learning process. That is, the quality of the program is judged by the number of faculty members, the percentage of faculty holding doctorates, the student-faculty ratio, the admissions requirements, the number of books in the library, etc. In the future this system of assessment will be complemented and then replaced by an emphasis on measurements of outputs. As consumers, students will demand full value for the investment they make.

The quality and relevance of our programs will continue to be challenged. HPELS faculty will be required to justify not only their individual efforts, but also the impact of their programs in terms of employment of students, contributions to the body of knowledge, and relevance to newer and more dynamic forms of service delivery. We will be challenged to find ways of defining the quality of our efforts.

The field of health education provides a relevant example of this transition with its establishment of a standards and testing system to identify health educators as Certified Health Education Specialists (CHES). Under the inputs system of evaluation a health education program might be judged, in part, by the number of faculty who possess this certification, while under the outputs system of evaluation the same program would be judged by the percentage of its students who earn the same certification subsequent to graduation. We speculate that, in a reformed American health care system, expenses for some health education services will be reimbursed by third-party payers. We also predict that eligible recipients of third-party payments will be limited to certified and/or licensed professionals, placing a substantial burden on professional preparation programs to provide a curriculum that will permit students to meet certification standards.

A much greater emphasis will be placed on rewarding individuals for merit. Merit, as defined by predetermined standards of excellence and achievement, will become a hallmark for guiding the work of the faculty. Less emphasis will be placed on personality and longevity of service, and more emphasis will be placed on ability and performance as measured by predetermined, mutually acceptable standards. Faculty evaluation systems will have to be reformed to reflect merit, rather than gender, age, and other irrelevant criteria.

Responding to the Challenges

HPELS faculty must be proactive in responding to changes that are emerging in the information era. It is not enough to merely respond to existing changes in the educational environment. Rather, HPELS academic units need to move quickly to evaluate their programs in light of the institutional mission,

develop a more effective information dissemination system, seek opportunities for cooperation, execute strategic planning, and generally approach business with an entrepreneurial outlook.

Cooperation

Collaboration and cooperation among the interrelated areas of health, physical education, and leisure services must increase. We must find ways to cooperate and collaborate with one another to ensure our survival and prosperity in the future. We need to discover new blends of knowledge between each of the areas that increase our relevance to societal needs and currency in the marketplace. Territoriality needs to give way to newer connections and points of interaction. The integrity of the whole of the HPELS professions needs to be affirmed.

A focal point that may permit the development of an equal partnership among the related HPELS professions is the wellness movement. By definition, wellness is an integration of many disciplines, including health education, physical education, leisure studies, and many others. Cooperative development and delivery of noncredit wellness programs to students and nonstudents, development of general education electives or required courses focusing on wellness issues, and the preparation of professional education curricula preparing health promotion specialists might all be first steps in creating strong interdisciplinary partnerships that will affirm the worth of all our related professions. Another potential point of collaboration is the well being of youth. Given that Surgeon General Dr. Joycelyn Elders and her predecessor, Dr. Antonio Novello, both list child health issues as a top priority, the political climate is right to pursue programming to serve the well being of youth, and clearly all our related professions are prepared to make meaningful contributions to such programming.

Strategic Thinking

Whereas our programs frequently have lofty and meaningful goals, too often our accomplishments fall short of these goals because a pathway to success has not been defined. Strategic thinkers are proactive, visionary thinkers. Strategic thinking and planning enables one to be a master of change and innovation as opposed to its victim. We encourage participation in the creation of a preferred future, where we are able to emphasize our strengths and manage and overcome our weaknesses. We must create a road map for the future that is based on our strengths, our history, and our ideals, yet uses projected trends in the institutions, professions, and society. With such a road map, we can chart a pathway to a preferred future.

The AAHPERD Board of Governors initiated strategic planning in September 1985 that resulted in the first AAHPERD Applied Strategic Plan Working Draft, distributed in April 1989. Not every institution so fully embraces an organized planning process. The importance of such skills is evident in the following exchange between Alice and the Cheshire Cat in Alice in Wonderland:

'Would you tell me please, which way I ought to walk from here?' asked Alice. 'That depends a good deal on where you want to get to,' said the Cat. 'I don't much care where' said Alice. 'Then it doesn't matter which way you walk,' said the Cat'. (Carroll, p. 78-79).

Corbin (1993) provides a more contemporary expression of that sentiment by suggesting that frequently we engage in actions before we are properly aimed; that is, we "ready, fire, and then aim." Before we can get where we want to go we need to "aim before we fire." HPELS professionals clearly need to define their preferred future, charting the pathway to that future, and then ascertaining the means to achieve that future.

Entrepreneurship

Entrepreneurs engage in innovative, creative behavior. They often take calculated risks, challenging conventional wisdom. Entrepreneurship involves scanning the environment for opportunities that result in the creation of new activities and enterprises and/or the reformulation of existing procedures, methods, or strategies. Entrepreneurs are not afraid of change and welcome the opportunity to meet new and different conditions with dynamic, bold services and products. Sheffield and Mendell (1987) wrote that "innovation, initiative, self-confidence, and self-reliance are the

attributes needed to guide the shared interest of HPERD professionals as they enter the twenty-first century". Discussing entrepreneurial opportunities in health education, Westerfield (1987) noted that:

...the public is in need of and desires services which health educators have delivered....Educational settings provide many entrepreneurial opportunities [including provision of] health assessments or appraisals, weight reduction, nutrition, cardiovascular fitness, substance cessation or stress management.

In the area of physical education, entrepreneurial opportunities such as mobile fitness and health risk appraisal programs, personal coaching, health and fitness clubs, sports and fitness camps, sports tours, computerized skill analyses centers, and innovative sports equipment are recognized as emerging trends (Pestolesi, 1987). Edginton et al. (in press) have noted that the commercial sector of the leisure service industry is its largest, with many entrepreneurial opportunities.

Entrepreneurship is a self-initiated activity. People cannot be appointed to be creative or innovative; however, an environment that blends the necessary resources and encouragement to support entrepreneurial behaviors can be provided. People must have the freedom, discretionary resources, and an environment that tolerates risk and the potential for failure and mistakes (Edginton, 1992).

We must rededicate ourselves to our basic values. We have a very strong ideal--improving the well-being and quality of life of those we serve. We must transform ourselves and our students to a higher level of commitment. We must recognize that change comes from impassioned, committed individuals. The power of our mission must be articulated forcefully and directly. As Theodore Hesburgh, former president of the University of Notre Dame, said, "You can't blow an uncertain trumpet" (Peters, 1987, p. 399).

We live in very dynamic period. As we move from the industrial era into the information era, higher education will be challenged to provide educational opportunities and services that are relevant to the needs of those we serve. In the HPELS areas we are challenged to reshape our curricular offerings, programs, and services. The changes described can provide "food for thought" for those in higher education who seek to be major contributors to the academic community. The journey is inevitable. We must accept the responsibility to manage the journey with integrity, boldness, creativity, and concern for the welfare of our constituent groups. We may not be certain of our final destination, but we can manage the process in a way that is visionary. The future offers great opportunity if we are bold enough to embrace the challenge.

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Vocationalism in Higher Education: The Triumph of the Education Gospel.

by W. Norton Grubb , Marvin Lazerson

At the beginning of the twenty-first century, a widely circulated Education Gospel has achieved worldwide influence. Communicating the good word about education, the Gospel's essential vision goes something like this: The Knowledge Revolution (or the Information Society, or the Communications Revolution, or the High-Tech revolution) has changed the nature of work, shifting away from occupations rooted in industrial production to occupations associated with knowledge and information. This transformation has both increased the skills required for new occupations and updated the three R's, driving work skills in the direction of "higher-order" skills including communications skills, problem solving, and reasoning--the "skills of the twenty-first century." Obtaining these skills normally requires formal schooling and training past the high-school level so that some college--though not necessarily a baccalaureate degree--will be necessary for the jobs of the future, a position that we and others label "College for All." The pace of change means that individuals are likely to find their specific work skills becoming obsolete. They must keep up with advances in technology and expect to change their employment often as firms and industries compete globally, adopt new technologies and new forms of work organization, and individuals must be able to engage in "life-long" learning. And, because no country wants to lose out in the global marketplace, every country is under pressure to increase its commitments to its educational system. (1)

In American higher education, the Education Gospel has led to a dramatic expansion of access and to a greater emphasis on vocational purposes. As higher education became a mass institution in the last half of the twentieth century, it simultaneously exalted its public purposes--benefits to the nation's economy, protection of the national defense, the creation of new knowledge, and the promise of equality of educational opportunity--and its private benefits in giving individuals access to income and professional status. Increasingly, the latter has come to dominate. Higher education is now the clearest embodiment of the American dream of getting ahead, especially getting ahead through one's own labor (Lazerson, 1998).

In this essay, we show how higher education converted to occupational education--called professional education to distinguish it from lower-level vocational training. The vocationalization process has always had dissenters, those who complain that the dominant focus on vocational goals undermines education's moral, civic, and intellectual purposes, a point of view that we suggest has become marginalized over time. More active forms of dissent, we argue, have come from those concerned about the inequities built into vocationalism, the differentiation of higher education institutions by occupational purposes with inequitably provided resources. A different kind of debate has occurred around what constitutes a genuine professional education, one that is inextricably linked to the vocationalism of formal schooling. We conclude the essay by arguing that vocationalism is now so deeply embedded in American higher education that it cannot be wished away and that reforms need to focus on ways to integrate vocational purposes with broader civic, intellectual, and moral goals.

From Moral to Vocational Purposes

America's colleges and universities did not begin as vocational institutions, at least not in the way we currently use the term. Instead there existed a deeply held conviction that the classical liberal arts were essential to prepare moral, civic, and intellectual public leaders who followed professional

careers. (2) Interest in using college for explicitly vocational purposes began to be evident in the early and mid-nineteenth century, with the founding of West Point (1802), Rensellaer Polytechnic (1824), and some agricultural colleges in the 1850s. Passage by the U.S. Congress of the Morrill Act in 1862 formally recognized the role of higher education in preparing people for vocations. Each state received federal land to establish at least one institution "to teach such branches of learning as are related to agriculture and the mechanic arts ... in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The emphasis on "the liberal and the practical" was important, for it suggested that traditional notions of higher education--that it teach intellectual, moral, and civic values--should coexist with the newer expectation that learning be practical and vocational and that the state institutions had a responsibility to serve public needs (Eddy, 1957).

In practice, most of the land-grant institutions developed curriculums that paralleled those of existing colleges and universities, thereby leaving little to distinguish the Morrill Act schools from others. Many Americans doubted that college was the place to prepare for employment; college-based preparation for work was viewed as "academic," irrelevant, even sissified. For their part, the land-grants' leaders saw their institutions' future less as technical and trade training schools and more as universities with broad public responsibilities. In his inaugural address, President of the University of Wisconsin, Charles Van Hise (1904) articulated the fundamental rationale that would ultimately shape American higher education.

> Be the choice of the sons and daughters of the state, language, literature, history, political economy, pure science, agriculture, engineering, architecture, sculpture, painting or music, they should find at the state university ample opportunity for the pursuit of the chosen subject ... Nothing short of such opportunity is just, for each has an equal right to find at the state university the advanced intellectual life adapted to his need. Any narrower view is indefensible.

The public universities were not alone in expanding the curriculum in the interests of public service and vocational purposes. During the nineteenth century a number of small "multipurpose" colleges adapted their curriculums to local labor market needs so that they would increase their students' job opportunities and would serve regional and local economic development. Often competing with one another in the same geographic area, the colleges established separate schools and departments of science, engineering, and agriculture, instituted short courses for commercial occupations, and prepared women for teaching (Geiger, 2000a). Still, even as more vocationally oriented courses entered the curriculum, most colleges and universities continued to view their responsibilities in terms of broadly intellectual, ethical, and public service goals, for knowledge had a moral purpose. As new subjects, especially in the sciences, claimed greater weight, they were almost always justified as being congruent with the traditional values of moral and civic education. During the first three decades of the twentieth century, this view became attenuated and virtually disintegrated at the research universities that were fast becoming the cutting edge of American higher education. In simple terms, the search for scientific truth was best accomplished when scholars removed ethical concerns from their research. This separation meant that increasing numbers of faculty began to abide by formal research methodologies that required advanced professional training. And these same professors became more and more influential in preparing those who would enter the professions, training individuals to possess expert knowledge and a specialized vocabulary learned in college and in graduate school (Reuben, 1996).

The Rise of the Professions

Between 1880 and the 1930s, American higher education came to define itself in terms of its direct application to specific occupations. Nowhere was this more apparent than in the explosive growth of professional schools, in law, medicine, business, engineering, education, social work, nursing, and dentistry. What Joseph Kett (1994, chaps. 7-8) calls "quantum leaps" in the number of professional schools made clear that vocational education was the dominant mode of preparation for the professions and that the way for an occupation to become a profession was by connecting it to higher education.

Through the end of the nineteenth century, no profession--not medicine, law, or engineering--required college graduation to practice. The primary form of professional preparation took place on the job, sometimes under apprenticeship arrangements, but often on one's own, as individuals starting working in an occupation and moved in and out of formal schooling as necessary. Lawyers might attend lectures, but they were also likely to train by clerking; many physicians acquired degrees from medical schools after they began to practice medicine, and some never received any degree. In sharp contrast to the twentieth century pattern of spending extended periods of time in schooling before entering a profession, the basic pattern was to go to school as one found it necessary or thought it useful, but the lack of schooling did not stand in the way of practicing (Douglas, 1921, chap. I; Kett 1994;).

The pattern of interspersing school and work was partially due to a relatively dim view of school-based preparation, but it also reflected the absence of clear differentiation among educational institutions. Colleges, academies, and high schools were often interchangeable, and a high school diploma was rarely required to enroll in college. To reduce institutional chaos and to improve their status, a number of colleges and universities in the last decades of the nineteenth century established admissions agreements with local high schools. In return for meeting certain academic standards, the schools' graduates would be certified to enroll in college, formalizing a sequence that made secondary schools preparatory to college, a phenomenon that grew rapidly in the twentieth century (Johanek, 2001). A clear trajectory was being crafted, from high school to college and then on to a professional occupation, a sequential rather than interspersed pattern of school and work.

The movement of the professions into colleges and universities was also closely tied to the growing authority of science, in a broad sense (Reuben, 1996). Every profession created a liturgy about the importance of specialized knowledge. In turn, scientific knowledge brought with it the ability to benefit society and to serve one's clients better. While these claims seem self-serving in retrospect, they also had considerable substance. The requirements of structural engineering in building the modern city went beyond what could be learned on the job. As human anatomy and the nature of disease became more widely understood, treating patients required more than day-to-day practice could teach. Understanding economic principles and the techniques of accounting enhanced decisions among those responsible for assessing corporate balance sheets. The expansion of occupational preparation training in higher education--always called professional education to distinguish it from lower-level vocational education--had a substantial rational basis.

Since professional expertise required greater scientific understanding, school-based knowledge came to be more highly prized than work based knowledge. In an example with widespread parallels. Cornell's engineering school, which began with a "shop" orientation and was originally named the Sibley College of the Mechanic Arts, was modified after 1885 to an academic model with higher admission standards and two years of required course work. The conception of the professional rooted in specialized knowledge and formal schooling rather than practical on-the-job experience stressed a deep conceptual understanding, not merely the manual skill or the procedural knowledge of vocational education. While the professions continued to stress the importance of character--many adopted a code of ethics, for example--increasingly success in school-based subjects became the necessary condition of entry (Bledstein, 1978; Geiger, 2000b; Sullivan, 1995).

Higher education provided the necessary expertise and increasingly standardized it by using easily recognized criteria to certify professional knowledge--entrance examinations, formal courses of study, degree requirements, and (in conjunction with national and state oversight boards) licensing examinations. Between 1870 and 1918 the scientifically trained mechanical engineer inexorably displaced the unschooled mechanic, as the proportion of engineers graduating from engineering schools grew from 11% to 50%. This shift, repeated in all the other professions, effectively changed America's traditional faith in self-education, or education on the job, into a belief that going to school was the most important form of education (Brown, 1995; Labaree, 1997).

By World War II, the essential elements of a mass higher education system were in place, with a large number of institutions emphasizing professional preparation to attract students, a majority of students in professional rather than liberal arts programs, and a quasi-market in higher education, with "consumers" choosing among competing institutions on the basis of the advantages they could confer.

The growth in high school graduation rates, the monopoly that higher education could claim over routes into the professions, and the increasing adaptability of the college curriculum to labor market needs combined to give higher education a new prominence. The fact that going to college was becoming the route to greater earnings and higher status was muted because higher education was still relatively small, but that was about to change.

The Great Transformation

The expansion of higher education after World War II was nothing short of astounding. Following the G.I. Bill, the Cold War allowed higher education to claim a national purpose requiring federal investments. States rushed to create low-tuition public universities and community colleges (Douglass, 2000; Lowen, 1997). The clearest result of this was the expansion of public rather than private institutions. In 1947, 49% of enrollments were in public institutions; by the end of the century 76% were in public institutions, the overwhelming majority in public community colleges and in second-tier public colleges and universities. (3) The process of the expansion depended on the interaction of demand and supply: legislatures supplied increasing public funding to build them, and students began enrolling in public institutions because of their lower tuition relative to private colleges, forcing still further public investments.

While the post-World War II expansion drew upon a rhetoric of public purposes, the drive by students to attend college was overwhelmingly based upon the possibilities for individual gain. At the end of the century, some 74% of enrolled freshmen reported that it was very important or essential that they be well-off financially, a sharp change from the politically and socially involved 1960s, when less than 45% rated financial well-being that high and 80% rated developing a meaningful philosophy of life as their most important goal (Astin, 1998). Few today question a student's rationale to the New York Times that multiple majors is a good idea.

Vocationalism's success is most obvious in the prominence of explicitly occupational majors (Brint, 2002; Brint, Riddle, Turk-Bicakci, and Levy, 2002). While the 1960s, with its idealism and economic expansion, created a slight fall in the proportion of occupational majors, from 62% in 1959-60 to 58% in 1970-71, since then the proportion has gone back up to about 65% in 1987-88, before declining slightly during the expansionary period of the 1990s. These figures are probably underestimates; (4) at the beginning of the twenty-first century at least two-thirds of college undergraduates are in professional fields, with clearly vocational goals dominating their progression into higher education. Indeed virtually every field of study that grew over the last few decades has been occupational, including business, health professions and biology, computer systems, and various recreation studies. The only exceptions have been psychology and the life sciences, both closely linked to health occupations, and two small fields labeled "liberal/general studies" and "interdisciplinary studies." No liberal arts fields grew relative to other fields. The result, as Brint has emphasized, is a substantial shift in higher education: "During a period in which the system grew by 50 percent, almost every field which constituted the old liberal arts core of the undergraduate college was in absolute decline as measured by numbers of graduates" (2002, p. 235).

The vocationalization of higher education has given students enormous power. For the most part student choice drives what colleges and universities offer. They are not the only voices, to be sure; faculty still exert some control over what is taught, particularly in general education and in the majors, and professional organizations impose requirements on occupational majors. But the choices among institutions, and the choices of majors within institutions, determine most of the curriculum. The enormous expansion of student choice is consistent with the bewildering variety of occupations needing specialized preparation. It is also consistent with notions of development growth; students progress through levels of education with expanding choices until they become (supposedly) more sophisticated choosers, capable of making life decisions on their own behalf. But the dark side of student choice is the power it has given to vocational aspirations to mold higher education. (5)

The vocational transformation has also led to the expansion of a relatively new type of institution: the second-tier, comprehensive public university, especially attentive to regional labor market demands and to those occupations that gain social status by being embedded in a university program. Most of these universities emerged from teacher training colleges or technical and agricultural colleges, and therefore

originated in explicitly occupational institutions; others emerged from multipurpose colleges, or junior colleges adding additional years of study. (6) They are overwhelmingly comprehensive institutions, providing a vast array of academic and professional offerings; almost none of them in the public sector has recreated the old liberal arts colleges (except for Evergreen State College in Washington and St. Mary's College in Maryland), and none of them has been a specialized professional school, like the schools of art, psychology, engineering, or culinary arts in the private sector. They are much less selective than the first-tier universities, often accepting 80-90% of students who apply; perhaps reflecting this fact, their graduation rates are often abysmally low, in the range of 25-50%. Every state has established such institutions: they are the California State Universities rather than the University of California system, the state colleges in Texas rather than the universities, the Universities of Western and Northern Illinois rather than the flagship University of Illinois at Champaign-Urbana, members of the American Association of State Colleges and Universities rather than the Association of American Universities. These regionally oriented comprehensive institutions account for about 57% of enrollments in all public four-year colleges and universities and about 37% of all public and private enrollment. (7) And, these institutions are explicitly occupational (or professional), with the majority of enrolling 60% or more of their students in professional fields. These are now the modal institutions of higher education.

Among private institutions, the great transformation has been the evolution of most liberal arts colleges into vocationalized institutions. When Breneman (1990, 1994) went in search of liberal arts colleges, he found that most had become "small professional schools with a liberal arts tradition, but little of the reality of a traditional liberal college." Defining liberal arts colleges as residential institutions awarding the baccalaureate degree in largely academic subjects, he concluded that only 212 of the 540 colleges classified by the Carnegie Commission as liberal arts colleges deserved the distinction. Of the liberal arts colleges as defined by Carnegie, the proportion of professional degrees increased between 1972 and 1988 from 11% to 24% in the elite colleges, and from 41% to 64% in the less-selective colleges. He concluded that "we are indeed losing many of our liberal arts colleges, not through closures but through steady change into a different type of institution"--driven, we should point out, by the combination of student choice and vocational pressure.

Even the elite liberal arts colleges, the Swarthmores, Wellesleys, and Amhersts, all private, all expensive and selective, have been transformed, since a high proportion of their students continue on to graduate school where they get their formal occupational training. The academic curriculum of the elite colleges thus also serves vocational purposes, even though it is a respite from immediate vocational pressures.

The development of the post-World War II mass system of higher education has been inextricably tied to its occupational purposes. Students come in order to get ahead, to get a credential and licensed, and be valuable in the labor market. Many believe, rightly, that they have no choice; the deterioration of the labor market for high school graduates, who have to settle for low-skilled, low-paid, and insecure work, has meant that going to college is a much better bet than finding a job right after high school. The dominant force that propels students to college is the belief that they can exchange a degree for professional status.

The Fragility of Liberal Education

The dissenters from rampant vocationalism have almost always concentrated on making the curriculum serve intellectual and civic purposes, particularly through general education courses, the re-creation of the humanities, and restatements of the case for civic purposes. (8) These efforts have generated little enthusiasm, partly because they have had to battle against the overwhelming trends we have already reviewed. The plain fact is that civic, intellectual, and moral purposes are not what most students think higher education is about.

The professoriate is itself divided on what higher education means. Business faculty vote along with philosophers, and medical faculty have equal standing with the English departments--indeed, in most institutions, the occupational faculty outweighs the academic faculty, and in many colleges and universities they have greater status and higher pay. Without faculty consensus, it is unclear where the defense of liberal education can come from--not from students with their increasingly utilitarian goals, not from policymakers with their concern with benefits compared to costs, and certainly not from the

community of employers with its emphasis on the bottom line. When faced with the conflicts of trying to define a liberal education in a pluralist society, with competing interest groups and understandings of what knowledge matters, the tasks of constructing a liberal education seem almost insurmountable, and it is not surprising that universities have virtually abandoned the effort. As a committee of the Stanford University faculty put it in 1968,

> the University cannot in any event impress upon its students the total content of present knowledge, and it is impossible to choose what exactly it is that every student should know without imposing arbitrary constraints on the range of free inquiry.

Instead professors teach their specialties and students have the freedom "to discover new interests ... and to explore the many fields and endeavors" available to them (Levine, 1996, chapter 3). Patterns of student choice have further weakened the commitment to a coherent program of liberal education. Both the traditional college-age population and older students have shifted toward "swirling," taking courses in a variety of institutions and accumulating degrees credit by credit. Public postsecondary systems have even encouraged swirling by requiring common course numbering systems and transfers of credits among institutions. When this process works well, it leads to a consistent set of requirements in the major, plus general education requirements, that match the student's desires and culminates in a coherent degree. More often, however, the result is a patchwork of courses with little consistent rationale and little progress toward a degree, and a potpourri of general education courses from several institutions where the consistency that might emerge in a single institution has been destroyed (Smith, 1993).

The intellectual and moral traditions most closely associated with liberal education are still alive, of course, but they are most vibrant in those institutions in which occupational pressures are easily postponed, in the elite private and public colleges--Harvard and Stanford, Berkeley and Michigan, Swarthmore and Amherst. These institutions have the luxury of avoiding explicitly vocationalized undergraduate curriculums since for many of their students, a vocational curriculum awaits them in graduate school. For the most part, however, the defenders of intellectual and civic traditions in higher education have been reduced to sniping at the margins.

The Equity Effects of Vocationalism

A quite different challenge to vocationalism comes from the perspective of equity. The American system of higher education has become endlessly differentiated, along largely vocational lines. At the bottom level are the community colleges, with open access allowing second chances for students who did poorly in high school, who made mistakes in their earlier plans, or who have come to this country and need to start anew. With relatively low rates of completion, community colleges prepare students for the middle-level labor force--even though some students transfer to four-year colleges, preserving the option of moving to the next level. One step up are the second-tier public comprehensive universities and similar less-selective private universities for students with a little more money and somewhat better high school records, universities with minimal admissions standards and a great variety of occupational majors. These comprehensive universities prepare students for middle-level managerial positions in businesses and for the less prestigious, lower paid, and often predominantly female professions (like teaching and social work); like the community colleges, they have low graduation rates. The public universities and flagship campuses stand above them, and the elite research universities--most of them now private, with a few public institutions among them--rise triumphant at the apex, preparing their students for professional and graduate schools and access to well-paid, high-status professions. This system has simultaneously opened up college access for millions of Americans, while it has also allowed for a variety of elite institutions; equity and meritocracy can coexist within the same system. The repeated call for "College for All" does not mean that all colleges are the same nor that every one has the same shot at the best colleges.

The state systems of higher education created in the post-World War II period have reflected this duality of expansive opportunity and inegalitarian differentiation. California has one of the most formalized delineations. (9) When its Master Plan was developed in 1960, the California state system

was divided so that the universities were designated for the top 12.5% of graduating high school students, and their graduate schools were responsible for professional education and Ph.D.s. The state colleges (now state universities) admitted those in the top 33% of the graduating class and provided baccalaureate degrees and a few master's degrees, but no PhDs; and community colleges were accessible to all, virtually without cost, and offered both occupational preparation and academic transfer to four-year institutions. The students in each of the three segments vary by design in the quality of their high school preparation, and because of the tight link with school achievement and income, they vary as well in their family backgrounds, with community college students most likely to come from low-income families, from families without a history of college, and from Latino and black families. The evident differences in status among institutions are reflected in sharp differences in spending: the public universities spend roughly $19,720 per student, the state colleges/universities spend about $10,116, and the community colleges--the level with the greatest variety of students and the greatest teaching challenges--spend about $4,557 per student (CPEC, 2000). California provides College for All, though now under substantial challenge, but not equal opportunity as measured by fiscal resources, by the likelihood of receiving a degree, or by the occupational destinations targeted by the different institutions. Other states have to a greater or lesser extent emulated California; even if the numbers of different institutions differ and the boundaries between elite and second tier universities are less precise, the three-part structure with different admissions standards, different levels of public support, and different occupational goals is typical. States thus provide equality of opportunity only in the sense of access to some form of postsecondary education for all.

The consequence is that debates about access and funding are pandemic. The most obvious point of conflict is affirmative action, which pits conceptions of meritocracy against equity, and clarifies our ambivalence about a relatively mass system of higher education, as individuals and groups struggle for entry into the preferred institutions and the preferred professions. Vitriolic debates have also taken place over outreach programs, standardized testing (especially the SAT) used in admissions, the extent of public funding and the levels of tuition, federal funding for grants, and loans and now its extension to the Hope and Lifelong Learning Tax Credits. Indeed, the funding issues are perhaps the ones where the gap between older conceptions of college--with high tuitions readily paid by the upper-middle class--and newer conceptions of College for All, of college as an entitlement, lead even the modest tuitions of public colleges to seem excessive and set off incendiary headlines--"Skyrocketing Public-College Tuition Renews Calls for Better Policies" (Heber, 2002). These are the issues where public policy takes the clearest stand on who will win and who will lose--or who will and who will not have access to college and postgraduate degrees, with the highly differentiated status and employment benefits.

These battles all depend on the triumph of vocationalism: if higher education was not the gateway to professional positions and higher individual status, little of this would matter. Little wonder that the bucolic and largely irrelevant college of the nineteenth century has become a battleground in the twenty-first Higher education's role in providing access to the American Dream is simultaneously its foundation and its burden, and conflict is the price it has to pay.

Professional Preparation, For and Against

Given the dependence of the Education Gospel upon assumptions of the Knowledge Revolution and the power of professional preparation in shaping higher education, we might expect schooling and employment to be most congruent at the level of professional education. However, the content of professional education has almost always been a source of unending complaint. In one profession after another, including both the high professions and the semiprofessions, there have been amazingly identical attacks on the quality of professional preparation.

Most obviously, critics have faulted professional schools for providing the wrong kinds of skills--plagued by a bloated curriculum, a surfeit of facts, an emphasis on rote memory and on the technical aspects of profession. Medical doctor and nursing education have seen almost the exact kinds of complaints (American Medical Colleges, 1998; Ludmerer, 1985, 1999; O'Neill and the Pew Health Professions Commission, 1998). In all cases, the remedy called for is to teach broader "higher-order" and interpersonal skills: "critical thinking, reflection, and problem-solving skills"; the use of "communication and information technology effectively and appropriately"; the ability to work in interdisciplinary teams; and the capacity to recognize "the multiple determinants of health in clinical care," rather than seeing

health care as narrowly responsive to specific diseases or injuries. The legal profession has faced similar criticism. A 1981 report sponsored by the American Bar Association on "curricula for change" (Dutile, 1981) noted the lack of attention to competence in written and oral expression, analytic skills, and the kinds of interactive abilities with other people in such processes as interviewing, counseling, negotiation, and arbitration. A decade later, another report of the American Bar Association (MacCrate, 1992) restated the case for problem solving, legal analysis and reasoning, communication, counseling, and negotiation.

In business education, critics emphasize the need for "creative analytical power," including imaginative thinking and creative synthesis; interpersonal abilities like sensitivity to individuals, ability to work with people, and awareness of group loyalties; communications skills; the capacity to plan, organize, and delegate; willingness to take responsibility and risks; and sound judgement over the kind of rote approach taken in many business schools (GMAC, 1990; Gordon and Howell, 1959; Pierson, 1959; Porter and McKibbin, 1988). Teaching has faced the same kind of criticism for being narrowly vocational. The Holmes Group (1986) called for making the preparation of all teachers intellectually more demanding and creating standards of entry in the profession that are intellectually defensible and professionally relevant. Similarly, the field of social work is embarking on a period of self-examination to clarify the skills required for a changing world of practice. (10)

Another strand of critique has pointed in quite different directions, persistently attacking professional schools for elevating research over practice and for emphasizing academic courses in which the demands of the job are virtually ignored. Again these views cut across all the professions. The American Bar Association regularly complains that new lawyers cannot draft contracts, have never seen a summons, cannot write in the forms required by courts, and have been taught by professors who have never practiced law (McCrate, 1992). In teacher education, the complaint about overly academic teaching--the teaching of theory, with few applications to the classroom, and with new teachers poorly prepared for issues like classroom management and discipline--has been common. The National League of Nursing has called for more collaboration between nursing programs and practice. In engineering education, the Olin Foundation was so disgusted with the distance of education from practice that it set up a new engineering school--Olin College--rather than trying to reform any existing schools (Marcus, 2002). The antidote in these and other examples has included efforts to have more practitioners teaching in professional schools, to incorporate more practice-oriented coursework, and to introduce early and more intensive internships in professional programs. (11)

The responses to these critiques have been quite similar, reflecting the structural limitations on educational institutions. The dominant change has been curricular reform, adjusting to changes in knowledge, updating the specific content of classes, but leaving the basic structure of professional preparation relatively unchanged--the reliance on classes, the lack of practice-based learning, the emphasis on cognitive abilities and particular forms of knowledge, the greater prestige of research over practice, the inevitable distance between educational institutions and the conditions of practice. Reformers have tended to blame the faculty--entrenched, conservative, in love with their research rather than teaching or the "real world" outside the academy--for the slow pace of change. But other institutional factors are also to blame: the unwillingness of much of the employer community to participate actively with colleges and universities; the system of funding higher education institutions, which supports enrollments within classes but not work-based learning or service learning outside the academy; the incentive structures of the research university, which reinforce the unwillingness of faculty to invest much in revising their teaching. Finally, what appears as conservatism and entrenchment is often allegiance to prevocational ideals of the university--to learning for its own sake rather than for instrumental reasons, to student development in broader forms other than employability, to public values rather than individualistic gain, to the value of the university as a haven from the acquisitiveness of commerce. The basic conflicts over the effectiveness of professionalism in the academy stem from the inherent logic of lodging occupational preparation in educational institutions with different values, different rhythms, and different goals compared to the employers they serve.

The similarity in the critiques of professional education is stunning. The same complaints have emerged about the need for new "skills for the twenty-first century" rather than narrow technical skills and a greater integration of schooling with practice as have occurred for more than a century. A mismatch

between school skills and job requirements appears pervasive. Higher education thus faces what America's public elementary and secondary schools have faced for more than a century: the familiar process of "reforming again and again and again" in order to achieve greater integration between school and work (Cuban, 1990; Tyack and Cuban, 1995).

Renegotiating Higher Education

There has been no lack of recommendations for reforming higher education. Few, however, recognize just how powerful the vocational roles of schooling have become. Calls to resurrect the liberal arts almost always are undermined by faculty inability to define what they mean, by the reality of student choice, and by unwillingness to bring academic and vocational learning together.

The most common recent reform efforts have stressed the need for greater accountability, usually through calls for mandated assessments of learning, post-tenure reviews, state-by-state report cards, and greater commitments to teaching. These have tended to be more rhetorical than practical, and they thus far have produced little if any substantial change in the quality of teaching and learning (Lazerson, Wagener, and Shumanis, 2000). Efforts to create new kinds of institutions, e.g., the recent creation of Olin Engineering College by the Olin Foundation, and the expansion of new institutions like the University of Phoenix and National University have achieved a great deal of media attention. But these successes still remain only a small part of the higher education enterprise, and they almost invariably stress the narrower forms of vocational training that is regularly attacked and always in the process of being reformed. When new public institutions are created, they almost always follow the standard model of a comprehensive university. In the California system, for example, the attempt to establish Santa Cruz as a liberal arts institution with a series of smaller "colleges" and unconventional instructional practices (like the absence of grades) has given way to a much more conventional institution, and there has been no clamor for the new University of California at Merced to be a different type of institution.

Perhaps the strongest development of the last two decades has been the growing segmentation of higher education. In the process, the system of higher education has become dominated by market driven segments that don't compete or interact with one another, even as there is intense competition within each segment. Although there is a certain amount of integration--e.g., through transfer agreements between community colleges and four-year colleges--American higher education is essentially divided into a segment of highly selective private colleges, a segment of national private and a few public research universities, a segment of regional second-tier comprehensive universities without much local competition, a segment of low-quality private universities for those students limited in their choices, a segment of very localized public community colleges, and number of institutions oriented entirely to vocational training (Kerr, 2002). This trend, if it continues or accelerates, would leave most colleges and universities intensely professional and occupational, with a few remaining liberal arts institutions whose primary vocational role is to prepare students for graduate professional schools. The power of markets and choice would thus completely take over and most institutions of higher education would become high-level trade schools. This is vocationalism in extremis, and it is an unappealing vision, one that stands as a warning of what might happen if current directions continue (Kirp et al., forthcoming).

We propose an alternative approach. It starts by acknowledging the vocationalization of American higher education and asserts that it is too late to reverse the developments of the past century. Failing to understand the occupational goals of most students, the segmentation of higher education around vocational goals, and the many faculty devoted to occupational preparation can only lead back to old, stale debates. By acknowledging the professional education trends of the past century, we can more readily turn to efforts to integrate nonvocational ideals with vocational realities. Taking a page out of John Dewey, trying to reject the new in order to go back to the old makes no sense, and simply adopting the new because it is the reality abdicates our aspirations for a better way. (12)

We deplore the tendency toward "narrow vocationalism," both because it undermines genuine occupational preparation and because it impoverishes the intellectual and civic roles that higher education can play. But professionalism broadly understood provides its own avenues back to liberal education. Ethical issues, central to every profession, provide a hook for the deeper study of ethical and philosophical issues. An understanding of the development of specific professions, and of

professionalism in general, provides an approach to history, to the development of occupations and ideals in American society, to the conflicts over technological and social change, to the responsibilities of different groups (including professional groups) within society, and to conceptions of work and occupation and profession relative to other spheres of life. And students in colleges and universities become the middle class, with some responsibility for the political culture and the moral tone of the country as a whole. A frank introduction to civic responsibilities that incorporates their vocational responsibilities can and should be part of their education. Professionalism--the vocationalism of higher education--thus provides a logical entry to many elements of liberal education, one that can be exploited through interdisciplinary courses and general education courses that acknowledge the professional aspirations of students. (13)

At the same time it is important to recognize the complexity of work preparation. The critiques from professional associations criticize work preparation as too narrow, too concerned with facts and procedures without deeper understanding, too academic, too research-oriented, and too disconnected from the world of professional practice. These surprisingly consistent and contradictory criticisms, historically repeated, indicate some ways in which professional education needs to be reshaped. A first step is to make sure that students have a broad understanding of underlying theories and conceptions so that they can organize and understand "the rich confusion of ordinary experience," distinguishing professionalism from trade training. The constant complaints about university-based preparation drifting too far from the world of practice suggests a second necessary step, obvious in outline if difficult to execute: to integrate the concerns of practice more thoroughly into the professionalized university, through internships, co-operative education, and other forms of work-based learning that provide antidotes to the excessively "academic" elements of professional preparation. In many fields there are also ways of redirecting research so that it is less divorced from practice (Boyer, 1990). If the canons of what constitutes research were broadened, then the gulf between research and practice, the "academic" and the "vocational," might be more readily bridged.

Such modifications are likely to improve the quality of pedagogy, a chronic concern among those interested in professional education. One goal is to teach in more constructivist, meaning-centered, and contextualized ways, following the idea that students need to be better prepared to understand the deeper constructs underlying practice. Another goal is to incorporate nonacademic" and nonstandard competencies into professional curricula--visual competency for architects and graphic designers, interpersonal skills for the helping professions, diagnostic abilities for engineers and computer scientists, problem-solving abilities for those in policy-oriented fields and many scientific areas, and nonstandard applications of reading, writing, and mathematics in many professional areas. As obvious as these pedagogical goals seem, little attention is directed to the preparation of instructors in professional fields, and therefore no clear way to improve the quality of instruction except through trial and error. Taking the nature of professional teaching more seriously, as a subject in its own right, would help diminish the distance between the academy and practice which remains so prevalent. (14)

Achieving the integration of the academic and the vocational, the intellectual and the practical, and creating the pedagogies necessary to achieve these ends will also require a much more substantial commitment to learning than currently exists in higher education. The multiple goals of colleges and universities are more easily approached when students are part of communities of learning. After a long period of increasingly large, impersonal, and anomic educational institutions, the ideal of smaller scale has begun to take hold--in high schools where there are major efforts to create small schools within larger settings; in community colleges, which celebrate their small classes and now are creating more learning communities and linked courses; and perhaps also in four-year colleges, which have been experimenting with freshman-year experiences, colleges-within-colleges, intellectual activities within residential settings, more seminars and tutorials, house systems, and other ways to break the large comprehensive university into smaller-scale learning communities. Doing so is more expensive, of course, since it is no longer possible to pack 500 freshmen into large lectures, and it is made more difficult in institutions where students are commuters. But there are good reasons to think that smaller learning communities enhance retention and progress toward degrees and that students themselves value the support and the intellectual exchange possible in smaller learning communities. (15)

Finally, we as a society must confront the huge structure of inequality we have created in postsecondary

education. The endless differentiation of postsecondary institutions, with their varied admissions standards and status differentials, leading to substantial homogeneity within most four-year colleges, constitutes the most extensive system of tracking in the entire educational system. In itself, there is clearly a place for more focused, mission-driven, differentiated educational institutions, and American higher education has probably been too disdainful of such differentiation. But the current forms of market-segmentation have had the pernicious effect of a differentiation among institutions in which resources flow in highly disproportionate ways to different types of institutions. Community colleges, which the neediest students attend, require more resources to make good on their promises to be teaching institutions and to provide more support to their nontraditional students. While the second-tier comprehensive universities receive more funding, they are still not equipped to provide the academic and social support (including smaller learning communities) and the student services that their students need. Some of the differentials among institutions will not be eliminated unless the distribution of income and wealth in the United States narrows considerably: high-income families will continue to seek advantages for their children (just as low-income families do and should), and if they want to spend more than $35,000 a year on an elite colleges, or a second-tier private university with the trappings of "college" that will remain their prerogative. But the public support of higher education should substantially narrow the differentials in revenues, as well as improving the support provided students in community colleges and second-tier public universities--income support, guidance and counseling in new forms, improvements in basic skills instruction, access to a broader array of community-based services.

While higher education has changed remarkably over the past century, our conceptions of "college" have changed remarkably little. Even as Americans created a mass higher educational system, the dominant conception of college remains embedded in the nineteenth century, in the image of 17 to 22 year olds in manicured residential colleges taking liberal arts courses for entry into professions, while engaging in wholesome and character-building extracurricular activities. This vision, artificial from the start, describes only a minority of students today, one which is almost certainly going to become proportionally smaller tomorrow. For substantial numbers of faculty hoping more prestigious universities will recruit them, and for countless administrators and trustees hoping to emulate the major research universities, the pot of gold at the end of the rainbow is to become like the selective colleges and the major research universities by ratcheting up admissions standards, creating honors programs, dropping remedial programs, adding doctoral degrees, and expanding research. (16) While it may be too late to undo this kind of institutional competition, a clear alternative is for institutions to be as good as they can in their own terms, creating multiple conceptions of excellence, based on more equitable distributions of resources. This would allow regional institutions and second-tier universities to focus on what they do well instead of trying to emulate the elite, to examine how best to serve their regions, to expand conceptions of applied research and useful knowledge, to see how best they could prepare the middle-level students they have rather than the students they would like to have, to develop faculty who are enthusiastic about their teaching roles and public service (and have possibly been prepared through teaching-oriented doctorates) rather than feeling like wannabe researchers. Then it might be possible to strengthen both occupational preparation and liberal learning, particularly by developing programs that integrate academic and professional learning and that connect classrooms to the workplace in mutually beneficial ways. By being honest about what higher education has become, it might be possible to acknowledge that not all occupations require a baccalaureate or graduate degree, and that preparation might be effectively done in a year or two. But without this kind of institutional redefinition, then all of higher education will continue to be dominated by the pressure at the top of the occupational hierarchy. This is a race that very few can win.

This essay is drawn from W. Norton Grubb & Marvin Lazerson, The Vocational Roles of Schooling: Believers, Dissenters, and the Educational Gospel, forthcoming.

Notes

(1) See Kwon's (2001) contention that "the idea of a knowledge-based economy is enthusiastically treated like a gospel among Korean people." See also Immerwahr and Foleno (2000) and on College for All see Boesel and Fredlund (1999) and Rosenbaum (2001).

(2) Three excellent studies developing the changes we describe in this section are Reuben (1996) and

Geiger (2000a, 2000b).

(3) Digest of Educational Statistics, 2001, Tables 172-173, pp. 206-207.

(4) See Brint, Riddle, Turk-Bicakci, and Levy, 2002, Table 1. On the reasons that these are underestimates, see p. 7. Obviously, almost every aspect of post-baccalaureate schooling is professional education.

(5) The parallel in secondary schools is explored in Powell, Farrar, and Cohen. (1985). The Shopping Mall High School: Winners and Losers in the Educational Marketplace. Boston: Houghton Mifflin.

(6) Dunham (1969, p. 28) provides a useful table showing the origins of state colleges and universities belonging to the American Association of State Colleges and Universities: 59% originated as teachers' colleges, 14% as technical or agricultural colleges, 10% as multi-purpose colleges, 8% as junior colleges, 6% as academies, and 3% as religious or YMCA institutions.

(7) There is some disagreement on these numbers. We have used data from the American Association of State Colleges and Universities (AASUC, Findings and Trends, 2002). If we rely instead on the Carnegie Classification of Institutions of Higher Education, then between 38% and 54% of all enrollments are in these second-tier institutions, depending on how one counts doctoral universities. The research and writing on these institutions is exceedingly sparse, but see Dunham (1969), now out of date because of the subsequent rapid expansion of the comprehensive universities; Kanter, Gamson, and London (1997), who call these colleges "non-elite, unselective, and neither research institutions nor true liberal arts colleges" (p. 2); and Selingo (2002).

(8) For recent statements of the importance of general or liberal education in postsecondary education, see Bloom (1987); Gaff (1991); Westbury and Purves (1988); Kantor, Gamson, and London (1997). Many of these follow a similar pattern, bemoaning the decline of liberal education without acknowledging the rise of professional goals.

(9) See Douglass (2000) on the historical background to the California Master Plan.

(10) See especially the Journal of Teaching in Social Work during the 1990s.

(11) Other efforts to overcome the separation of professional education from practice include calls to incorporate social and ethical dimensions, in place of an exclusive emphasis on scientific and technical dimensions, and to teach professionals to recognize the constellation of diverse economic, social, and cultural conditions in which their clients live.

(12) Dewey's advice (1938, p. 22) was "the problems are not even recognized, to say nothing of being solved, when it is assumed that it suffices to reject the ideas and practices of the old education and then go to the opposite extreme."

(13) We are not calling for all education to be rooted in work, a point we make more fully in our book. But in a vocationalized educational system, it is imperative to take work in its fullest dimensions into account.

(14) Many of the professions have a journal devoted to pedagogical issues--for example, the Journal of Teaching in Social Work, Journal of Engineering Education, the Journal of Nursing Education, Journal of Legal Education, Journal of Management Education, Management Learning, and American Medicine. Our own work on the pedagogy of vocational education (Achtenhagen & Grubb, 2001) and occupational teaching in community colleges (Grubb & Associates, 1999, Ch. 3) indicates how little attention has been given to the pedagogy of occupational instruction, at least compared to instruction in conventional academic subjects.

(15) See Tinto (1993), Tinto and Goodsell-Love (1995) and Tinto, Russo, P., & Kadel, S. (1994), as well as Tokina (1993) and Tokina and Campbell (1992).

(16) See Dunham, 1969, p. 155. His conclusion is similar in spirit to ours, arguing that the state and

regional colleges and universities should create a unique role for themselves instead of trying to emulate the elite institutions.

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Margin Notes:

Geographic shifts in higher education.

by Yolanda K. Kodrzycki , Matthew P. LaPenta

Human capital is acknowledged to be a highly productive resource in the "knowledge-based" economy of the late twentieth century. In addition to being a key driver of national economies, it has been recognized as a factor in determining regional fortunes. Discussing New England's economic success in the past quarter century, for example, a recent study issued by this Bank concluded as follows: "The coincidence of the rapid growth in the 1970s of high technology industries and the entry into the labor force of the highly educated baby boomers seems more than pure coincidence. The baby boomers provided the state-of-the-art knowledge, the drive, and the imagination that were necessary to make fledgling companies international competitors" (Browne and Sass 1998). The authors point out that New England institutions' share of college graduates exceeded the region's share of the U.S. population, and that "once exposed to New England's scenic attractions and cultural amenities, many [of the new graduates] wanted to stay," resulting in a high share of college-educated workers in the New England work force.

The New England economy of the late 1990s is even more heavily oriented toward higher education than it was a quarter century ago. Nevertheless, concern is mounting that the supply of highly educated workers has not been adequate to meet the demands of the region's employers. The situation has worsened over the course of the 1990s, as economic recovery has created more job opportunities but the absolute number of bachelor's degrees awarded in New England has fallen, particularly in engineering and computer science (Kodrzycki 1998; Massachusetts Technology Collaborative 1998).

The skill requirements of New England employers, and their ability to draw on local colleges and universities, are not necessarily typical of other parts of the country. Nevertheless, a common complaint of businesses nationwide is that they have not been able to hire as many highly educated workers as they would like to employ, resulting in unfilled vacancies in professional and technical positions. Regardless of the traditional relationships between employers and nearby universities, many states now are reexamining how their higher educational institutions can play a larger role in the development and growth of "knowledge-based" industries (see, for example, Southern Technology Council 1998).

Colleges and universities have an effect on the availability of labor in their local area in a variety of ways, most notably in educating students who may develop work relationships with local companies and in sponsoring research and development that leads to local job opportunities.(1) This article focuses on what is arguably their largest role: supplying new graduates at the bachelor's degree level.(2) Even though the national rate of growth of college degrees has been fairly steady over much of the past 25 years, their geographic distribution has changed noticeably. In 1972, Florida institutions granted about 22,800 bachelor's degrees, two-thirds of the number graduating from Massachusetts schools and about half the number graduating in Ohio. In 1997, Florida graduated 47,500 students - approximately 7,000 more than in Massachusetts and just 1,000 shy of the total in Ohio.

Colleges and universities in different locations directly influence their "market share" by setting tuition and other student costs, offering financial aid, and establishing a variety of policies influencing both their selectivity and their quality. However, the geographic distribution of college degrees also reflects decisions made by others. Prior family location decisions determine the number of high school students in each state, and the resources of these families as well as the quality of the primary and secondary schools influence how many of these students are prepared for college. Government policies affect the affordability and accessibility of college, through tuition, fees, and other policies at public institutions. Graduation patterns may also be affected by local economic conditions that alter family finances or the attractiveness of work options for students. The article discusses these influences in greater detail, documents key trends for major states (where possible, back as far as 1972), and demonstrates their relative importance using regression analysis.

relatively high shares in the 1990s (last two columns of Table 2).(6)

II. Explanations for Geographic Shifts

The geographic distribution of college graduates is the result of decisions made both by students and their families on the one hand and colleges and their financial backers on the other - in other words, the demand and supply sides both play a role. Individual students' demand for higher education is influenced by their perceived return to education (which may be inferred by their propensity to take college entrance examinations or, alternatively, gleaned from earnings of existing college graduates), the costs (out-of-pocket expenses plus the opportunity cost of spending time in school), and the financial resources available (both while applying and during the course of their time in college). Total demand depends on the number of applicants; therefore demographic fluctuations matter, especially with respect to the size of the age group most likely to attend college. Finally, demand for higher education in a particular location reflects geographic variation in these determinants of demand. All else equal, many students prefer to remain in-state to attend college because of factors such as low tuition costs at public institutions and, in all likelihood, relatively good information about nearby institutions, both public and private. Such information may be helpful in developing expectations of the benefits of attending college. Regardless of demand, however, the final pattern depends on supply-side responses - how much institutions adjust their capacity for undergraduate education, as well as whether and how they attempt to gain market share or to limit their expansion.

Existing studies have examined college attendance from a variety of perspectives, emphasizing to different extents individual and aggregate demand for a college education, institutional objectives, and federal and state policies. Several of their key findings are useful to bear in mind. First, it is clear that institutional history matters in determining current geographic patterns of higher education. Goldin and Katz (1999) note that "almost all of today's noteworthy U.S. universities and colleges were founded before 1900" (p. 38) and that "many of the differences in state support for higher education [as of the early 1900s] persist today" (p. 52). Therefore, rather than explaining why some states have larger concentrations of colleges than others (which Goldin and Katz and various other studies address), this study concentrates on changes over time. Factors potentially influencing college graduation - such as the number of high school students preparing for college - have not moved uniformly across states in recent decades, and these changes may have reinforced or offset fundamental advantages or disadvantages that certain states have compared to others.

Second, the costs of attending college matter to prospective applicants. Many researchers have concluded that higher tuition deters college attendance, particularly for low-income students (see Leslie and Brinkman 1988; McPherson and Schapiro 1991; Kane 1995; and references therein). The available literature has not reached consensus, however, on which measures of costs or benefits are most influential in decisions to enroll in and graduate from college. One issue is the difference between "list" tuition and "net" tuition (that is, subtracting out financial aid). Net tuition is the actual cost paid by the student; however, list tuition is more visible and hence perhaps more likely to affect prospective students' decisions about where to apply. Another issue is that all students are subsidized as a result of government grants and private charitable contributions to educational institutions; that is, list tuition falls short of college expenditures per student. This "general subsidy" often is larger than financial aid for both public and private institutions (Winston and Yen 1995; Hoxby 1997b). Additionally, the value of a college education ultimately depends not only on the resources expended, but on the return to these expenditures. Some researchers have found that labor market conditions, both during college enrollment and upon graduation, affect college attendance. Finally, it is possible that students have become more aware of the relative costs and benefits of different colleges over time, particularly as they consider a greater array of options. Hoxby (1997b) found that 43 percent of applicants to four-year colleges in 1992 applied to at least one institution that was outside their home state and its adjoining states, almost double the share in 1972.(7)

Finally, existing studies find that colleges are quite heterogeneous in the makeup of their student bodies and in the strategies they pursue. Public universities, by their nature, are more committed to expanding access to higher education for in-state residents than are private institutions. Using a sample of individual institutions, Hoxby found that, on average, private colleges drew only 55 percent of their students from in-state, compared to 84 percent for public colleges. In the sample period examined in this study, it seems likely that as the number of in-state high school students applying to college increased, public colleges responded by expanding enrollments. Private colleges that draw from a wide geographic base would be more likely to adjust enrollment to national or regional rather than local demographic trends, and highly selective private institutions might simply tighten admissions criteria rather than expanding. However, rising numbers of high school graduates in a

The study finds that three factors have served to change the geographic distribution of college degrees since the 1970s. First, states differ widely with respect to demographic trends. Nationally, the number of public high school graduates declined about 13 percent between 1972 and 1997. However, some parts of the Sunbelt have seen increases while the rates of decline in some parts of the Northeast and Midwest have been twice the national average. Second, although greater fractions of high school graduates nationally now enroll in college than was the case in the 1970s, the degree of change in the academic orientation of high school students has been different in different parts of the country. In particular, some states that had very low percentages of high school students taking college entrance examinations in the 1970s now have exam-taking rates that are above the national average. Finally, large and persistent tuition differentials across states have led to shifts in where students attend college. Tuition differences have become more important in light of the substantial increase in the costs of attending college.

The analysis also points to some remaining challenges in understanding the geographic patterns of college degrees. The regressions do much better in explaining patterns for public colleges than private colleges. This is probably because private colleges on the whole draw smaller proportions of their students locally, and because their strategies are more diverse than those of their public counterparts. For the nation as a whole, about two-thirds of all bachelor's degrees are granted by public institutions. However, public colleges continue to have only a minority share in many states in the Northeast, including Massachusetts.

In addition, the interpretation of tuition differentials remains somewhat ambiguous. Undoubtedly, students take tuition into account in deciding whether and where to enroll. However, it is also likely that, to some degree, colleges (or state college systems) offering [TABULAR DATA FOR TABLE 1 OMITTED] low tuition are those that are more willing to accommodate growth.

I. Geographic Patterns of Bachelor's Degrees, 1972 to 1997

In 1997, U.S. institutions awarded almost 1.2 million bachelor's degrees, compared to fewer than 900,000 twenty-five years earlier. The rate of increase over this period has been remarkably steady, except for a surge in the late 1980s and early 1990s (Table 1).(3)

The geographic location of degrees has changed over the past quarter century. To illustrate, Table 1 shows bachelor's degrees awarded in the top 12 states, which collectively accounted for slightly over half of all bachelor's degrees awarded throughout the period and individually accounted for at least 2.6 percent of the total in 1997. Although the list of top states remained similar, individual states showed very disparate rates of growth.(4) The number of bachelor's degrees approximately doubled in Florida and Virginia. North Carolina and Texas also had growth substantially in excess of the 31-percent national figure. Meanwhile, the number of new graduates increased by less than 25 percent in Illinois, Massachusetts, Michigan, New York, Ohio, and Pennsylvania. In the period since 1992, among the top states, only Florida, Virginia, North Carolina, and Texas have experienced any increase in the number of graduates. Massachusetts had the greatest proportional decrease between 1992 and 1997 - 10.5 percent.

The most pronounced pattern overall has been a steady shift to the Sunbelt: Texas, Florida, North Carolina, and Virginia gained share in almost every five-year period, while Pennsylvania, Illinois, and Ohio tended consistently to lose share. The varying patterns for the remaining states, however, suggest that influences other than broad population shifts may be at work. For example, Massachusetts colleges and universities grew at more than double the national rate from 1972 to 1982, then slowed considerably. Virginia's very modest expansion since 1992 contrasts with much stronger growth in the prior 20 years. California's path has been the most variable of all, showing below-average changes in the 1977-82 and 1992-97 periods but above-average changes in other five-year periods.

In contrast to the geographic shifts in college degrees, changes in the mix between public and [TABULAR DATA FOR TABLE 2 OMITTED] private institutions have been relatively minor. For the nation as a whole in 1997, public colleges granted about two-thirds of all bachelor's degrees, very similar to their share at each 5-year interval going back to 1972. The public-private proportion varies considerably across states, however. Public colleges accounted for less than one-third of all degrees granted in Massachusetts in 1997 and roughly one-half in New York, Pennsylvania, and Illinois (Table 2). In California, Texas, Michigan, and Virginia, their shares were about three-quarters. Unfortunately, a historical breakdown of degrees is not available state by state but enrollment figures indicate that the differences in the public-private mix over time within a state are small, compared to the differences across states.(5) States that had high public enrollment shares in the 1970s also had

given state may lead to the establishment or expansion of locally oriented private colleges. Moreover, even within the public sector, individual states might show different degrees of responsiveness to growth in the number of high school graduates. Some states may be more committed than others to universal access, by operating a lower-tier college system and a selective state university (or several selective universities). Furthermore, over a short-term horizon, resource constraints may lead public institutions effectively to tighten admissions standards rather than accommodate demographically induced growth in the applicant pool (see Quigley and Rubinfeld 1993).

III. Evidence on Changing Demographics, Secondary School Student Quality, and College Costs

This section presents evidence on key influences on college attendance over the past 25 years, concentrating on the variation among the 12 states that have the largest numbers of college graduates. The following section uses these data and additional indicators to perform regression analyses for all states.

Demographics and Secondary School Quality

For the nation as a whole, the number of students graduating from public high schools started declining in 1978, after the largest baby boom cohorts passed high school age (Table 3). The supply of high school graduates resumed a sustained increase only in 1995. Thus, nationally the number of graduates in 1997 was almost 13 percent lower than in 1972. That the number of bachelor's degrees continued to increase is a reflection of the higher fractions of secondary school graduates who went on to attend colleges and universities.

Table 3 also indicates the number of high school graduates for the top dozen degree-granting states at five-year intervals. Reliable high school figures are available only back to 1971. Most bachelor's programs take four years to complete. However, some students delay or interrupt their college studies or pursue them part-time. Thus, if the average lag is assumed to be five years, the next-to-final column of Table 3, showing percent changes in high school graduation figures for the period 1972 to 1992, is the relevant comparison for the college graduation figures for 1977 to 1997 (last column of Table 1).

On the whole, the geographic shifts in high school graduates are positively correlated with the geographic shifts in college patterns. Only two states of the top dozen had more students graduating from public high schools in 1992 than in 1972: Florida and Texas, and they were in the top third in terms of growth in college degrees. Similarly, New York, Pennsylvania, Ohio, and Massachusetts experienced sharp declines in the size of high school graduating classes and low increases in college graduates. However, in some other states, high school and college trends are less correlated. For example, North Carolina and Virginia had larger increases in college graduates than Texas, and Michigan had a greater increase than other states with similar drops in high school graduates.

One source of discrepancy may be that the high school graduation figures do not include private schools. Although private school enrollments are influenced by the same basic demographic patterns as public school enrollments, the mix of the two could change as a result of social, economic, and legal changes. Comprehensive, reliable annual data on private high school graduates are available only for the period 1989 to 1995. Table 4 presents a summary of this information. Nationally, private high schools accounted for 9.7 percent of total graduates in 1995. Their share is highest in the Northeast and Midwest. Although desegregation arguably caused the large influxes into private schools in the South, as of 1995 Virginia graduates included about 7 percent from private schools and North Carolina only about 5 percent in private schools, not enough to explain why these states experienced such high growth in their college graduate figures. This is confirmed by comparing the 1995 private high school graduation shares with private enrollment shares in grades 9 through 12 from the 1970 Census of Population (last column of Table 4). [TABULAR DATA FOR TABLE 3 OMITTED] To the extent graduation and enrollment data are comparable, the figures indicate that the share of graduates from private secondary schools rose only 2.0 points in Virginia and 2.6 points in North Carolina. [TABULAR DATA FOR TABLE 4 OMITTED] California, Texas, and Florida also had increases from 1970 to 1995.

Perhaps the best measure of how many high school students potentially are interested in attending college is the number taking college entrance examinations. Information on the Scholastic Aptitude Test (SAT) by state is available for the high school classes of 1972 and later. Some universities, especially those in the Midwest, favor the American College Testing Program (ACT); these data are available starting only in 1994.

which has had rapid growth even though its average tuition and fees have been comparable to those in states such as Ohio and Michigan.

The table also indicates some major swings. Average public tuition and fees in Massachusetts went from 98 percent of the national average in 1987 to 175 percent of the national average in 1992 (and recently was at 143 percent). California had a very large increase in the 1990s. In both cases, the increases coincided with severe economic downturns that prompted state governments to reduce spending. By contrast, public college tuition and fees in Florida fell from an already low 75 percent of the national average in 1987 to only 60 percent in 1997.

Average private sector costs also vary across states, but less so than public costs. To a great extent, these costs are correlated within states - for example, Massachusetts has high costs for both public and private colleges while Florida and Texas have low costs in both sectors. However, in some other states, this is not the case. North Carolina's private schools charge seven times the tuition and fees of its public schools; in Michigan, tuition and fees differ by a factor of only 2.4.

As noted above, the actual net cost of education to students depends on financial aid, while the total resources expended on education include government grants and charitable contributions in addition to the tuition and fees paid by students. Table 8 estimates these figures per student at public colleges in 1992 for the major states (the calculations are described in the Appendix). Longer-term historical data for public institutions were not available; nor was comparable information available for the private sector.

The overwhelming majority of state government support for public higher education comes in the form of expenditures that benefit all students rather than needy students in particular. The general subsidy averaged over $11,000 per student in 1992, the largest share of which came from state governments. By contrast, state-provided need-based financial aid averaged less than $200 per student. Among the top dozen states, only New York contributed average student financial aid in excess of $1,000. Thus, net of state-provided need-based aid, average tuition and fees in New York were about as low as those in Texas, even though list tuition and fees were considerably higher. All the top states provided a general subsidy of at least $8,000 per student. The most generous support was provided in California, Illinois, North Carolina, and New York.

Table 8

State-Provided Need-based Aid and General Subsidy per Student at Public Colleges, 1992

Dollars

	Financial Aid	General Subsidy	Memo: Net Tuition and Fees
California	205	16,474	1,237
New York	1,222	12,989	1,110
Texas	41	9,407	1,102
Pennsylvania	578	9,010	3,223
Illinois	804	14,145	1,760
Ohio	165	8,353	2,674
Florida	90	10,861	1,394
Michigan	238	10,604	2,641
Massachusetts	223	9,717	3,482
North Carolina	13	13,393	1,211
Virginia	30	10,946	2,994
Indiana	238	9,348	2,002
U.S. Total(a)	172	11,126	1,939

a Unweighted average of the 50 states and the District of Columbia.

Note: States listed in order of number of bachelor's degrees granted in 1997.

Source: Author's calculations as described in the Appendix.

As expected, even though the total numbers of students graduating from high schools fell over the past 25 years, the numbers taking the SAT rose (Table 5). In Illinois, Ohio, and Michigan, the majority of graduating seniors take the ACT, so trends in SAT-taking may be an unreliable indicator of high school students' interests in attending college in these states. Among the other states, those with very low proportions of high school students taking the SAT in 1972 (Texas and Florida in particular) subsequently had the highest increases. Students graduating from North Carolina in the 1990s also were much more likely to [TABULAR DATA FOR TABLE 5 OMITTED] have taken the SAT than those who graduated in the 1970s.

Another relevant indicator may be scores on college entrance examinations. Presumably, higher scores indicate better preparedness for college and should have positive effects on both college acceptance and college completion. Ideally, one would want to examine how many students scored above certain thresholds, but what the College Board provides is the mean score. In any case, this average should be considered in connection with data on the percentages of students taking the exam. All else equal, one would expect average test scores in a state to fall as greater percentages of students take the exam. Table 6 presents state math SAT scores relative to the national average. As much greater fractions of Texas and Florida high school students took the SAT, relative average scores slipped somewhat. However, in North Carolina, the preparedness of applicants appears to have increased over time, since scores improved at the same time that the percentages taking the exam rose.

Table 6

Average Math SAT Scores Relative to the National Average, 1972 to 1997

Percent

	1972	1977	1982	1987	1992	1997
California	101.6	100.0	101.4	101.2	101.4	100.6
New York	102.0	101.6	100.2	98.8	98.2	98.2
Texas	98.6	99.0	97.6	97.0	98.4	98.0
Pennsylvania	99.0	99.8	99.2	98.0	97.2	96.9
Illinois	103.9	106.7	108.7	107.8	110.8	113.1
Ohio	102.0	106.5	106.5	104.0	104.4	104.9
Florida	99.8	97.4	99.6	99.2	98.6	97.7
Michigan	101.6	106.9	108.5	106.4	108.2	110.8
Massachusetts	99.4	99.2	99.4	99.8	99.6	99.4
North Carolina	91.9	91.9	93.7	93.4	95.6	95.5
Virginia	98.4	98.4	99.2	99.6	98.6	97.3
Indiana	97.8	98.0	97.6	97.2	97.2	97.3

Note: States listed in order of number of bachelor's degrees granted in 1997.

Source: College Board.

[TABULAR DATA FOR TABLE 7 OMITTED] Much larger increases in scores were observed in Illinois and Michigan, where the ACT came to replace the SAT for all but a small proportion of college-bound students.

Costs of Higher Education

As is well known, college costs have continued to increase rapidly during the 1990s, even as general inflation has subsided. For both public and private institutions, 1997 tuition and fees were triple their levels in 1982, while the overall consumer price index rose only two-thirds (Table 7). However, on average, public education continued to cost only 23 percent as much as private education. (The data in the table refer to average list tuition at four-year schools. The public institution figures refer to in-state rates; tabulated information on out-of-state rates is not available.)

Some of the most rapidly growing public university systems - Texas, Florida, and North Carolina - charge far lower tuition and fees than the national average. In general, the highest charges are in states that show slow growth in the number of graduates. The most significant exception is Virginia,

Another way in which states foster college attendance is through two-year (community) colleges. In addition to granting associate degrees, these low-cost institutions may serve to increase access to higher education in general, thereby enabling more students eventually to earn a bachelor's degree at another institution. On the other hand, it is possible that students who attend community colleges are unlikely to have the qualifications or resources to graduate from four-year degrees or that the possibility of earning a two-year degree actually deters some from trying to earn a four-year degree. Thus, the role of community colleges is ambiguous: They could serve either as feeders or substitutes for four-year schools or have no impact at all.

Table 9

Number of Full-Time Equivalent Public Two-Year College Faculty in 1991 per 100 Public High School Graduates in 1992

California	6.6
New York	6.7
Texas	9.3
Pennsylvania	3.7
Illinois	7.5
Ohio	6.3
Florida	7.9
Michigan	5.4
Massachusetts	4.5
North Carolina	11.9
Virginia	1.2
Indiana	4.6
U.S. Average	6.2

Note: States listed in order of number of bachelor's degrees granted in 1997.

Source: National Center for Education Statistics and author's calculations.

As a measure of each state's community college capacity, Table 9 shows the number of full-time equivalent faculty at public two-year colleges and branches per 100 public high school graduates. Considerable variation exists across the states, and even within regions of the country. North Carolina ranks first among the states shown (and in fact first in the nation), followed by Texas, Florida, and Illinois. The lowest-ranking states are Virginia and Pennsylvania. IV. Regression Analysis

The regression analysis attempts to explain changes in four-year college degrees for all 50 states and the District of Columbia. Because of changes in data availability over time, two separate groups of regressions were estimated. First, pooled regressions examine changes in the numbers of public plus private bachelor's degrees granted for the periods 1977-82, 1982-87, 1987-92, and 1992-97. The second set of regressions focuses on the 1992-97 period and separately examines changes in bachelor's degrees granted by public and private colleges.

The regressions use the explanatory variables described above and detailed further in the Appendix.(8) College admissions standards are not included in the regressions, for lack of adequate information. The regressions in effect assume that all states raised or lowered admissions standards in tandem. To the extent that colleges in any given state raised (lowered) their standards more than the norm, this will tend to show up as a fitted increase in bachelor's degrees that is higher (lower) than actual.

Pooled Regressions

Table 10 indicates the results from regressions for all the states pooled across the four time periods.(9) As discussed further in connection with the results, all the regressions include dummy variables for time periods; those summarized in the second and fourth columns also include dummies for regions. The inclusion of regional dummies alters the coefficients for the other variables very little. List tuition was measured in log constant 1992 dollars, using two different specifications to account for the blend of public and private colleges by state. The first specification (shown in columns 1 and 2) used a weighted average of public and private tuition and fees, with the weights in each state corresponding to the full-time-equivalent enrollment shares for public and private four-year colleges for an arbitrary base period (fall 1984).(10) In the second specification (columns 3 and 4), public and private tuition and fees

entered as separate variables. Public tuition and fees are expressed as log constant 1992 dollars, analogous to the specification used in the first two columns. Average public and private charges are correlated within states. To avoid the problem of multicollinearity, the private tuition and fees variable refers to the percent difference between the actual average list tuition and fees charged at private colleges and the expected charges if private and public tuition within the state followed the "normal" pattern observed across all states.(11) Because of data limitations, this calculation was not performed for 1977; therefore the results in columns 3 and 4 refer to the percent [TABULAR DATA FOR TABLE 10 OMITTED] change in the number of college graduates since 1982. The public college share was entered as a separate variable and was measured using the same full-time-equivalent enrollment numbers used to weight tuition in columns 1 and 2.

In all cases, the regressions account for almost 50 percent of the variation in college graduation shifts across states. According to the estimates, holding all else constant, a given percentage increase in the number of students graduating from high school during a five-year period resulted in about one-half that rate of increase in the number of college graduates in the same state during the subsequent five-year period. Increases in the proportion of high school students taking the SATs and improvements in scores also boosted the number of college graduates with a lag (although the proportion taking the test was a more statistically significant predictor than the average score).

To some extent, increases in the number of students taking the SATs and in their scores reflect changing characteristics of the resident population in each state, which in turn are affected by the health of the local economy and in-migration. A higher proportion of affluent or highly educated families would tend to lead to a greater focus on college preparation on the part of high schools. However, alternative regressions failed to find positive effects from either levels or changes in personal income per capita or the proportion of residents with a college degree.

Tuition is highly significant statistically. However, numerically the effect is rather small, at least for modest differences in tuition. According to the estimates in columns 1 and 2, 10 percent higher tuition and fees within a state led to only 0.5 to 0.7 percent fewer graduates five years later.(12) Other versions of these regressions investigated whether tuition and fees changes prior to or subsequent to enrollment mattered. These variables were never significant.(13)

The results in the final two columns indicate that the growth in college graduates in a state is related to the mix of public and private institutions and to some extent to the tuition and fees charged at both public and private colleges. The supply of college graduates was higher where the share of public institutions (which charge lower tuition and fees than private institutions and perhaps adjust their capacity more in response to the number of applicants) was higher. The supply of college graduates also was higher where public tuition and fees were low relative to other states and where private tuition and fees were unexpectedly low relative to charges at public institutions. The estimated coefficients for the two tuition variables were greater than their respective standard errors, yet not statistically significant by conventional standards.

The regressions indicate that a contemporaneous rise in the rate of unemployment tends to increase college graduation, all else equal. Higher unemployment may add to the difficulties of continuing to finance a college education. However, it also makes dropping out of college a less attractive option, given the scarcity of job opportunities. Additionally, during periods of rising unemployment some job losers may decide to return to college. According to the regressions, these latter effects dominate.

To save space, the table does not report the coefficients for the time dummies (included in all specifications) and the regional dummies (included in the specifications summarized in columns 2 and 4). The purpose of including time dummies is to capture secular shifts in the demand for college as well as any other factors such as business cycles that are national in scope. The estimated coefficients (for the 1982-87, 1987-92, and 1992-97 periods relative to 1977-82) are all positive and significant, consistent with rising college attendance over time. The largest coefficient is for the 1987-92 period, indicating that the nationwide surge in college attendance at that time was not due to changes in the included variables. Instead, it may have reflected a growing perception of high returns to a college degree, as the differential between the earnings of college graduates and non-graduates began to widen considerably in the 1980s, after showing little movement in the 1970s.

The purpose of including regional dummies is to capture the effects of any fixed, omitted factors that are correlated with geographic location. The omitted region is East South Central (defined by the U.S. Bureau of the Census to encompass Mississippi, Alabama, Kentucky, and Tennessee). All the regional coefficients are positive except for the West South Central (Texas, Oklahoma, Louisiana, and Arkansas). The highest coefficients (and the ones that come closest to being statistically significant) are for the two

Midwestern regions (East North Central and West North Central). This suggests that omitting high school students' participation in the ACT may lead to biased results for this region.(14) However, the result could also reflect the attractiveness of Midwestern colleges, because of their perceived high quality or their centralized location.

Regressions for the 1992-97 Period

Table 11 shows the results of separate regressions for public colleges (columns 1 to 5) and private colleges (columns 6 and 7) in the 1992-97 period. For comparison, the last column indicates the results of estimating the combined public plus private regression specification from Table 10 for the 1992 to 1997 period. Each independent variable in the separate regressions enters with the same sign as in the pooled regressions for 1977 to 1997.

The regression presented in column 1 explains the percent change in bachelor's degrees awarded at public colleges using list tuition, as in the pooled regressions. [TABULAR DATA FOR TABLE 11 OMITTED] However, the coefficients for most of the variables are now larger than in the pooled regressions for 1972 to 1997, indicating that the structure of decisionmaking about college attendance has changed over time. The higher coefficients for high school graduation and SAT-taking are consistent with the growing tendency of high school students to attend college.

The regression indicates that 10 percent higher public college tuition and fees in a state in 1992 produced 1.5 percent fewer bachelor's degrees five years later; this is two to three times the estimates in the pooled regressions (though still not large in an absolute sense). This growing sensitivity to cost is consistent with the fact that real tuition has increased over time, as well as with the evidence that high school students are now more likely to apply to out-of-state colleges.

The remaining public college regressions consider alternative measures of cost per student - net tuition (column 2), list tuition and financial aid (column 3), list tuition and the general subsidy (column 4), and net tuition and financial aid plus the general subsidy (column 5). Each of these regressions has an adjusted [R.sup.2] between .53 and .57, similar to that in column 1. Thus, none of the alternative cost measures provides clearly better explanatory power than list tuition. In column 3, the adjusted [R.sup.2 is relatively high] but financial aid enters with the wrong sign (negative). The general subsidy (in columns 4 and 5) enters positively but its standard error is about as large as the estimated coefficient.

A new variable included in the regressions is the number of public community college faculty relative to the number of public high school graduates. The coefficient enters with a negative sign. Thus it appears that greater community college capacity leads to lower growth in bachelor's degrees (though presumably to a greater number of students earning associate degrees).

Alternative versions of the regressions (not shown) included measures of private tuition and the percent change in public tuition. Contrary to expectations, higher private tuition within a state did not lead to substitution of public college enrollment. Nor did changes in public tuition matter, after controlling for its level at enrollment.

Columns 6 and 7 show the regression results for the percent change in bachelor's degrees awarded at private colleges from 1992 to 1997. In column 6, the included variables explain very little of the state-to-state differences in growth rates in bachelor's degrees from private institutions. As hypothesized above, private colleges do not regularly adjust enrollments in response to state-specific demographic shifts. The only variable that is significant is list tuition and fees. The coefficient indicates that 10 percent higher average private tuition would depress the number of degrees by 2.2 percent - about one and one-half times as much as an equal percentage increase in public tuition. However, in 1992, private college tuitions on average were four and one-half times as high as public college tuition. Therefore an equal dollar increase at the two types of colleges would have, on average, triple the percentage effect on degrees granted at public colleges.

Column (7) shows somewhat improved results from making several changes. First, four states (Arkansas, Arizona, Nevada, and North Dakota) were dropped.(15) The estimated errors for these states were very large, and making this change alone raised the adjusted [R.sup.2] from .07 to .23. Second, regional (rather than state) high school graduate growth rates were used. This reflects the fact that private colleges on average draw substantial proportions of their students from other states. The regression hypothesizes that these out-of-state students come disproportionately from the same region rather than being representative of college applicants nationally. The adjusted [R.sup.2] in column (7) is .33, and the growth in high school graduates becomes statistically significant. The other change is the omission of the SAT variables; these are insignificant if measured on a state basis and enter with the

wrong sign if measured on a regional basis.

Implications

The regression results can be used to shed light on the question posed at the outset of this study: Why has the geographic distribution of college degrees changed over time? Since many of the determinants enter with a lag, the regressions can also be used to form predictions for the next several years.

Table 12 decomposes the percent change in bachelor's degrees granted in each of the top 12 states during the years 1977 to 1997 into five components: the change in the number of high school graduates, the change in SAT rates and scores, the change in list tuition and fees, all other factors included in the regression (the constant term, time dummies, and the change in unemployment), and the portion not explained by the regression. Table 13 repeats this exercise for bachelor's degrees awarded from public colleges during 1992 to 1997. In each case, the "tuition effect" refers to the estimated impact of having tuition [TABULAR DATA FOR TABLE 12 OMITTED] and fees differ from the national average.(16) Therefore, the effects of rising national tuition are subtracted out in computing the entries in the "all other" column. The regressions used are those shown in the first columns of Tables 10 and 11, respectively.

The highest total growth rate from 1977 to 1997 was in Florida, while the lowest growth rates were in New York and Massachusetts. Table 12 indicates the average five-year growth rates for the four subintervals used to estimate the regression: Florida, 14.4 percent; Massachusetts, 2.3 percent; and New York, 2.1 percent. The predicted college graduate growth rates for these states were all slightly lower than the actual growth rates. Almost one-half of the disparity between Florida's and Massachusetts' growth rates (5.5 out of the 12.1 percentage points) lies in demographics - the faster growth in the numbers of students graduating from high school in Florida than in Massachusetts. The second most important factor, accounting for 3.6 points, lies in these states' persistent differences in college tuition. As indicated above, the regression coefficients indicate that a given percentage difference in tuition is associated with a much smaller difference in college enrollment and graduation. However, when the costs of attending college in different states differ by a large percentage, this can cause significant responses in student demand. In addition, the tuition differentials may also be proxying for differences in college strategies: Florida's lower-cost colleges may have been more willing to expand, while Massachusetts' higher-cost colleges may have been more interested in preserving their selectivity. Third, the relatively sharp increase in SAT participation among Florida's high school graduates (from a low level at the beginning of the period) accounted for another 2.1 points. The "all other" column contributes little to explaining why college graduate growth was so much greater in Florida than in Massachusetts - or, indeed, to cross-state comparisons in general. The entries in this column mostly reflect the increasing national demand for a college education, even in the face of rising costs; the only factor in this column that varies by state is the change in unemployment.

New York's decline in high school graduates was steeper than Massachusetts', while its average college tuition has been lower. Therefore, in comparing New York with Florida, the weights on the individual explanations are somewhat different than in the case of Massachusetts, although the rankings are the same.

For three of the states shown - California, North Carolina, and Virginia - an increasing degree of college [TABULAR DATA FOR TABLE 13 OMITTED] orientation among high school graduates more than offset the negative influence of declining high school numbers after 1977. (The data for Virginia refer to 1982 to 1997, since college tuition data were unavailable for 1977.)

Growth in Texas bachelor's degrees fell considerably short of the regression prediction. It is hard to pinpoint the particular reasons in this case, but various reports point to educational barriers historically for Texas's large, rapidly growing minority population.(17)

In the 1992-97 period, as Table 13 shows, Florida also had the greatest increase in public college graduates (18.6 percent) while Massachusetts had the greatest decrease (15.0 percent). The regression analysis explains this divergence fairly well, although Florida's growth is somewhat underestimated. As in the aggregate regressions for the longer time period, the most important factors were the difference in growth rates for high school graduates and in average tuition. Florida had a large increase in the number of public high school graduates between 1987 and 1992, which tended to raise college enrollments and (eventually) college graduates by 11 points, whereas in Massachusetts the very large decline in high school graduates accounted for a 14-point drop. In the early 1990s, the average tuition and fees at public colleges in Massachusetts was two and one-half times that in Florida. This large disparity accounted for a 14-point difference in the growth in the number of college graduates between

1992 and 1997.

Offsetting these factors, the changing interests and preparation of high school graduates were negative factors for Florida and positive factors for Massachusetts. Between 1987 and 1992, a decreasing proportion of Florida high school students took the SAT and the average SAT score declined relative to the national average. In fact, Florida had the sharpest deterioration in high school student preparedness among all the states in the country in this period. Meanwhile, Massachusetts had an increase in the proportion of high school students taking the SAT and only a very small decrease in SAT scores. These circumstances accounted for an 8-point difference in the rate of growth in college graduates - in Massachusetts' favor.

Among the top 12 states, Texas had the largest positive effect from high school student preparedness in this time period. This served to amplify the positive effect from low tuition and the relatively positive effect (compared to other states) from numbers of high school graduates. However, the 1992-97 regressions continue to overpredict the growth in bachelor's degrees in Texas.

In California, the regression estimates a large increase in the number of public college graduates, in contrast to the actual decline. The early 1990s brought sharp cuts in state appropriations for higher education in California. Aside from the increases in tuition and fees (which the regressions take into account), the funding reductions caused large numbers of faculty departures and widespread elimination of course offerings, which in turn contributed to reductions in enrollments and delays in college completion (Breneman 1998).

The regression results in Table 11 can also be used to project changes in the number of public college graduates through 2002, given already observed changes at the high school level as well as college tuition and fees in 1997. Such an exercise cannot yield exact figures: Aside from the fact that the regressions fit the past far from perfectly, there is the question of how circumstances may change in the future. Policy changes such as state-specific shifts in admissions criteria and the new federal tuition tax credits enacted as part of the Taxpayer Relief Act of 1997 undoubtedly will have an impact, as will changes in public perceptions of the desirability of obtaining a college degree and of the relative value of particular higher education systems.

Examining nevertheless what the regressions imply for the top 12 states, the most striking conclusion is that many of the Northeastern and Midwestern states are likely to show more of an increase in new public college graduates through the year 2002 relative to their trends between 1992 and 1997 than is the case for the Southern and Western states. (See Appendix Table 1.) That is, in an absolute sense, states in the South and West generally will continue to show higher rates of growth than states in the Northeast and Midwest. But the disparities will become somewhat smaller as the states that had declines or only small increases in the 1992-97 period show more positive trends from 1997 to 2002.

The analysis shows the sharpest turnaround for Massachusetts; after experiencing a decline in the past several years, the state's public higher education system may now show a modest increase in the number of graduates - all else equal. The most important reasons are that the decline in number of high school graduates has moderated (from -17.5 percent in 1987-92 to only -2.8 percent in 1992-97) and the number of SAT takers has risen. In contrast to most of the other large states, Massachusetts tuition and fees remained constant in real terms between 1992 and 1997, thereby not discouraging college attendance. According to the analysis, other states that are expected to show substantially higher growth in public bachelor's degrees - relative to their recent history - are Ohio, Illinois, New York, Michigan, Virginia, and Pennsylvania. The only state among the top dozen that is expected to show a substantial slowdown, absent offsetting changes, is Indiana, where the number of high school graduates continues to decrease and the measures of high school graduate preparedness used in the regressions show a decline.

V. Conclusions

This study has demonstrated the importance of demographics, high school students' interest in and preparation for college, and college tuition in explaining changes in where students have earned their bachelor's degrees over the past two decades. Although a greater share of college degrees are now earned in Southern and Western states than in the 1970s, this development reflects more than just population shifts. Many of these states graduate a much higher share of college-oriented high school students than previously, and they have kept their college costs low relative to the national average. Looking forward to the next several years, however, public colleges in the Northeast seem likely to show some pickup in the number of graduates, as the pipeline of students coming through high schools is not quite so constricted as it was earlier in the 1990s.

In interpreting geographic shifts in higher education, it is important to bear in mind that the analysis addresses only one part of the larger question of whether the supply of college students in different locations is "adequate." Ultimately, the answer depends not only on the numbers of graduates (or even the numbers of graduates relative to the population), but on the skill requirements of local employers and their ability to recruit the employees they need. Skill needs and recruitment opportunities can change over time, depending on the nature of economic development. Furthermore, the role of higher education varies from state to state. For some states, expanding higher education opportunities to reach a greater number of residents may be the best way to build up a skilled work force, particularly if some segments of the population are underserved. Other states may focus on attracting more out-of-state students. Still others may lack a large higher education establishment but have other attributes that enable them to attract skilled workers from other locations. Thus, the optimal policy responses to shortages of college-educated workers may differ in different regions and over time.

For states trying to increase college attendance rates in an effort to augment the supply of educated workers, one implication of the research is the need for coordination of educational policies at the high school and college levels. States that are trying to improve public high schools should also reexamine the capacity and competitiveness of their public college systems. Expanding capacity or lowering charges would entail extra public expenditures, since public college students are subsidized even with current tuition and fees. However, such changes may be consistent with broader economic development goals.

Another key aspect of the findings is that the most important influences on college graduation rates are in place at the time students enroll, if not earlier. In the aggregate, subsequent changes in costs and economic conditions matter relatively little. Thus, states interested in increasing the supply of entry-level, college-trained workers should plan ahead. Barring the possibility of quick increases in the pipeline of college graduates locally, the states' other option is to try to influence where college graduates choose to locate. Evidence on these location and migration decisions will be the subject of follow-on study by the author.

Appendix

by Matthew P. LaPenta

Most of the education data used in this study were taken from tables in the National Center for Education Statistics (NCES), State Comparisons of Education Statistics and Digest of Education Statistics. These tables were constructed primarily from the Higher Education General Information Survey (HEGIS) and Integrated Postsecondary Education Data System (IPEDS), which are based on information provided by individual institutions. The tables were used instead of the IPEDS and HEGIS data sets because not all years were readily available at the time this article was prepared. As of the date of publication of this article, these data sets are in the process of being transferred from the NCES to the Inter-University Consortium for Political and Social Research (ICPSR). Data for some years are already available online, and the ICPSR is currently in the process of making more readily available online.

IPEDS was the source for bachelor's degrees conferred in 1992 and 1997. For earlier years, the data came from tables in State Comparisons of Education Statistics. Individual institutions are reported by the state where they are located, regardless of the location of their parent institution. U.S. service schools are not included. The variables used in the regressions were the five-year percent change in the total number of bachelor's degrees conferred.

The source used for public high school graduates was "Statistics of Public Elementary and Secondary Day Schools," as provided electronically to the author by the NCES. The regressions used the five-year percent change in the number of public high school graduates.

The SAT data were furnished to the author by the College Board. The SAT participation rate is defined as the number of high school graduates who participated in the SAT program during their high school years. Students who participated prior to their senior year were counted only for their senior year; students were counted only once regardless of how many times they took the test. The number of students was divided by the number of public high school graduates in each year; this ratio was then multiplied by the share of public high schools in the overall graduation numbers for 1992. The SAT scores were recentered to a consistent scale by the College Board. Students were assigned to states according to where they attended high school. The SAT variables used were the five-year difference in the percentage of participating seniors and the five-year difference in mean math SAT scores relative to the national mean.

Appendix Table I

Estimated Contributions of Selected Variables to Change in Bachelor's Degrees Granted by Public Institutions in the Top 12 States, Predictions for 1997 to 2002 Relative to 1992 to 1997

Percent

	High School Graduates	SAT Takers & Scores	Public College Tuition(a)	Sum
California	5.5	3.9	-4.3	5.1
New York	15.7	-4.6	-2.2	8.9
Texas	11.6	-7.1	-3.4	1.1
Pennsylvania	15.2	-6.4	1.0	9.9
Illinois	14.6	1.4	.4	16.4
Ohio	12.5	-.5	.6	12.6
Florida	-12.1	14.7	2.3	4.9
Michigan	11.6	4.8	.3	16.7
Massachusetts	11.5	4.4	3.0	18.9
North Carolina	1.0	2.9	.7	4.5
Virginia	15.3	-8.5	1.1	7.9
Indiana	4.8	-18.2	-.2	-13.6

a Relative to the national average.

Source: Author's calculations explained in the text.

The source for tuition and fees in 1987, 1992, and 1997 was State Comparisons of Education Statistics. The source for 1982 was Digest of Education Statistics. Tuition and fees by state were not available for 1977, so they were estimated for that year using the unweighted average of tuition and fees for the largest schools in each state in 1979, which was the closest available year to 1977, as reported in Digest of Education Statistics. Tuition and fees were converted to 1992 dollars using the national CPI. In some regressions the tuition variable refers to the average for private and public colleges. The weights used are the public and private shares of full-time equivalent enrollment in fall 1984. The source for public and private enrollment is Digest of Education Statistics.

Average net tuition and fees at public four-year institutions is measured as average list tuition and fees multiplied by one minus the ratio of state-provided need-based scholarships and grants to the revenue generated by tuition and fees. State-provided need-based scholarships and grants refer to all undergraduates and the revenues from tuition and fees refer to all public higher education programs. To make these data consistent, the revenues from tuition and fees are weighted by the undergraduate share of total enrollment in higher education. To be consistent with the measurement of per student tuition and fees, the ratio should pertain only to four-year undergraduate programs, but the requisite data to make such an adjustment were not available. Also, some states provide financial assistance to students attending private institutions, but it was not possible to separate out these amounts. Finally, no separate information was available on merit aid.

The financial aid variable is equal to the difference between average list tuition and fees and average net tuition and fees. The general subsidy variable attempts to capture the per-student cost of four-year undergraduate education that is funded by government, the private sector, and endowments rather than through tuition and fees. It equals average list tuition and fees for four-year undergraduate institutions multiplied by the ratio of the sum of revenue from tuition and fees, government appropriations, grants and contracts, private gifts, grants and contracts, and endowment income to the revenue from tuition and fees, less average list tuition and fees. Excluded from the calculation of non-tuition revenue are three categories that are largely unconnected with undergraduate education: auxiliary enterprises, hospitals, and "educational activities and other." Nevertheless, some of the non-tuition revenues included in the calculation encompass activities associated primarily with graduate education - notably government grants and contracts. As indicated above, for tuition revenues, it also was impossible to separate out payments associated with four-year undergraduate from other programs.

Because of data limitations, the number of full-time equivalent faculty at public two-year colleges refers to 1991 (not 1992). The source is Digest of Education Statistics.

The unemployment rates come from the U.S. Bureau of Labor Statistics. The BLS no longer releases unemployment rates by state for 1977; thus the study uses information published in the 1980 Handbook of Labor Statistics.

Finally, Appendix Table 1 presents the estimated contributions of several key variables to the growth in the number of bachelor's degrees granted by public institutions for the period 1997 to 2002. The entries present the difference between these variables' effects in this period and their effects in the prior five-year period. The final column provides the summed effects from the listed variables; it does not encompass any additional national or state factors that may influence the total growth in the number of college degrees granted.

1 See Beeson and Montgomery (1993), Field et al. (1996), Gibbons (1997), BankBoston Economics Department (1997).

2 In 1996, bachelor's degrees accounted for 52 percent of all degrees conferred in the United States. The next largest categories were associate (25 percent) and master's (18 percent). See New England Board of Higher Education (1999).

3 During 1989 to 1993, the increase in bachelor's degrees averaged over 3 percent annually, compared to 0.5 percent annually in the preceding five-year period.

4 The only changes in the list of top states between 1972 and 1997 were that Virginia moved onto the list and Wisconsin fell off the list.

5 It will become possible to construct fuller historical evidence on public versus private degrees once additional years of the Integrated Postsecondary Education Data System (IPEDS) files are released to the public.

6 On the whole, enrollments at private colleges rose slightly faster than enrollments at public colleges during this time period. As indicated in Table 2, in California, Illinois, Michigan, Massachusetts, and Virginia, the public share fell between 41/2 and 7 points between 1976 and 1996. In the remaining large states, the changes in the share were smaller. Florida had the greatest increase in the share of students enrolled in public institutions, 2.2 percentage points.

7 In a study of whether students attend in-state or out-of-state institutions, Hoxby (1997a) also investigates non-schooling costs, such as travel and communications. These have fallen over time, thereby contributing to the growing national competition among colleges.

8 1977 tuition (missing from Table 7) was estimated using information on selected colleges in each state.

9 The total number of observations is less than 204 (4 time periods times 50 states plus the District of Columbia) because 1977 tuition data were unavailable in some cases.

10 For 1977, owing to lack of data, the variable used is simply the unweighted average of tuition and fees charged at major colleges and universities.

11 Private tuition in each state was regressed on public tuition, public tuition squared, and a constant. Separate regressions were estimated for 1982, 1987, and 1992. The adjusted [R.sup. 2]values were .24, .15, and .28, respectively.

12 Since the dependent variable is measured as a percentage change and the explanatory variable is the natural logarithm of tuition, a coefficient of 5 implies an elasticity of .05.

13 In yet another version, the number of each state's tuition compacts with other states was included (see Hoxby 1997a). These bilateral agreements provide for reduced tuition rates for out-of-state students. This variable was insignificant.

14 For states in which colleges tend to rely on the ACT rather than the SAT, increases in the fraction of high school students taking the SAT may reflect an increased interest in attending out-of-state colleges. The coefficients for the SAT variables are larger in the regression that includes the regional dummies.

15 Wyoming already was omitted in column (6) because it has no private colleges.

16 For the other independent variables, by contrast, the comparison with a zero value has intuitive meaning.

17 See, for example, the Texas Higher Education Coordinating Board web site at www.thecb.state.tx.us.

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Margin Notes:

Higher Education: In Need of Reform.

More Americans must finish college if our country is to prosper in tomorrow's global society, and it's up to state legislators to make that happen. Those are recommendations from the final report of the National Conference of State Legislatures' Blue Ribbon Commission on Higher Education.

Higher education in this country is in crisis, the report says. The American system is no longer the best in the world. At the same time, tuition and fees are skyrocketing and financial aid and loan programs aren't keeping up. As a result, post-secondary education is not accessible to many Americans.

"We call state legislators to action," says Wisconsin Representative Rob Kreibich, co-chair of NCSL's commission. "They have the power to demand that we do better, to demand that we think of higher education not as the balance wheel of budgets, but as an investment in our future."

Higher educationa can get short shrift in tough budget times because it has the built-in funding source of tuition. But still, states provide more funding and regulation of colleges and universities than any other level of government. The federal government's limited involvement includes funding academic research and financial aid for low-income students.

"States must take the initiative to reform higher education now, to avoid unnecessary federal intrusion. Each state's system, traditions, strengths and weaknesses are unique. Higher ed has always been a state responsibility and it must remain that way," says Connecticut Representative Denise Merrill, co-chair of the commission.

The commission came up with the following 15 recommendations for state legislators.

1 Define clear state goals. States need long-term priorities and a public agenda.

2 Identify your state's strengths and weaknesses. Don't make the mistake of borrowing other states' solutions without first determining what problems need to be fixed.

3 Know your state's demographic trends for the next 10 to 30 years. No one can begin to articulate meaningful goals for state higher education if they lack reliable information about current and future students.

4 Identify a place or structure to sustain the public agenda. Have ongoing, statewide discussions about how well the system is performing.

5 Hold institutions accountable for their performance. Require regular reports from institutions or link funding to performance.

6 Rethink funding. States have reduced the percentage of their budgets they appropriate to higher education. Some states may decide to spend more money. All states need to spend money more wisely.

7 Rethink student aid. States should examine their merit- and need-based financial aid programs to ensure that they cover the full cost of education, reward students who finish promptly, and help adults and part-time students.

8 Help reduce borrowing and debt. Two out of three students graduate with and average debt of $17,250. States can better balance merit- and need-based programs and consider loan incentives or forgiveness programs.

9 Recommit to improving access. Make college more affordable, offer courses at varied hours, such as in the evenings, and ensure a variety of low-cost options like technical schools and community colleges.

10 Recommit to success. Ensuring that students get into college is only half the battle. States should also ensure that students graduate.

11 Embrace innovation. Institutions should be encouraged to change to meet the needs of their communities.

12 Encourage partnerships. Communicate with businesses to learn what their expectations are.

13 Transform the 12th grade. Dual enrollment, concurrent enrollment and early college programs can help prepare students for college and finish faster.

14 Don't neglect adult learners. They have different needs than traditional students.

15 Focus on productivity. Demand that institutions become more efficient.

Copies of the report can be found at www. ncsl.org/bookstore.

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Margin Notes:

From the Liberal to the Practical Arts in American Colleges and Universities: Organizational Analysis and Curricular Change.

by Steven Brint , Mark Riddle , Lori Turk-Bicakci , Charles S. Levy

One of the most important changes in American higher education over the last 30 years has been the gradual shrinking of the old arts and sciences core of undergraduate education and the expansion of occupational and professional programs. Occupational fields have accounted for approximately 60% of bachelors' degrees in recent years, up from 45% in the 1960s, and hundreds of institutions now award 80% or more of their degrees in these fields (Brint, 2001)

The arts and sciences originated historically for the pursuit of knowledge "for its own sake" and, simultaneously, as the educational foundation for youths preparing to occupy positions of power and influence in society. They include the basic fields of science and scholarship, such as chemistry, economics, history, literature, mathematics, philosophy, and political science. By contrast, programs in occupational fields are designed to educate students for jobs--in business, education, engineering, nursing, public administration, and many others. These applied programs are often housed in their own professional schools or colleges distinct from colleges of arts and sciences. In this paper, we will sometimes refer to these programs collectively as the "practical arts," a term we consider an apposite contrast to the familiar term "liberal arts." For the most part, however, we will use the more conventional term "occupational-professional" programs.

This paper is not intended as a critique of occupational-professional education in American colleges and universities. Indeed, many writers, including Jencks and Riesman (1968) and Clark (1983), have argued that a key strength of American higher education has been its receptivity to practical training, beginning well before the original Morrill Act (Geiger, 1998), but of course stimulated greatly by the land grant commitments of the federal government. It is worth noting in this context that most educational systems in the industrialized world are much less focused on the arts and sciences than the American system. The French and Swedish, for example, extend vocational tracks from secondary to higher education. Countries like Germany in which arts and sciences predominate are able to maintain this focus primarily because of the early differentiation of primary and secondary schooling into vocational and academic tracks (Allmendinger, 1986). Nor do most European countries have general education requirements at all in the undergraduate curriculum. The Continental pattern is to channel students directly into specialized study in a discipline. (2)

At the same time, there can be little doubt that the conflict between market-based utilitarianism and the liberal arts tradition of education for understanding and democratic citizenship has been an important touchstone in the American context. Decisive shifts in one direction or the other have often been interpreted as indicators of the state of relations between the great forces of the market and cultural idealism among American elites. Even today, advocates of the arts and sciences frequently argue that the basic disciplines are superior sources of study for broadening the horizons of undergraduates (Geiger, 1980; Shapiro, 1997) and for developing skills in analysis, written and oral communication, and critical thinking (Bowen & Bok, 1998: 209-216). These views are supported by findings of sharp declines in self-reported gains among American college students in the 1990s as compared to college students in the late 1960s in awareness of different philosophies and cultures; in

understanding and appreciation of science, literature and the arts; and in personal development when compared to American college students from the late 1960s (Kuh, 1999). A significant portion of these declines can be attributed to lower levels of course taking in arts and sciences fields (Adelman, 1995).

In this paper, we will try to answer two key questions about this rise of the practical arts in American four-year colleges and universities. First, is this shift a historical departure, or is it instead a continuation of the dominant tendency in American higher education in the twentieth century, a tendency which was interrupted briefly in the 1960s by an unusual conjunction of forces favorable to the arts and sciences? Second, what institutional characteristics are most strongly associated with the production of a large number of degrees in occupational-professional fields as opposed to the arts and sciences?

These questions are important; scholars do not know whether the situation today is anomalous from a historical perspective. If American higher education has been predominantly concerned with occupational education for most of the last century, perhaps concerns about the "endangered" liberal arts are overstated, or at least should be evaluated in this larger context. Scholars also do not have a confident sense of where change since 1970 has been greatest. Are institutions focusing on applied fields central or marginal in the American system of higher education? Are they mainly public or not? Are they spread throughout the system or located mainly in particular regions and market segments? Because answers to these questions allow us to identify the locations in which the arts and sciences are weakest, they have potentially significant implications for higher education policy, particularly for efforts to revive or "reinvent" the arts and sciences in the context of predominantly occupationally oriented curricula (see, e.g., Shulman, 1997), and for efforts to reverse declines in the personal, civic, and cultural development of American college students.

The paper is divided into two major sections, reflecting the two key questions under consideration and the different methodological approaches that we bring to bear on each. We will first address the debate about historical trends in occupational-professional versus arts and sciences degrees. This analysis is based on a historical time series showing how the proportion of graduates in these two areas has changed from the 1910s to today. We will then discuss theories of the social bases of occupational-professional versus liberal arts organization among four-year colleges and universities. These theories focus, respectively, on (1) organizational functions, (2) status and selectivity, (3) historical traditions, and (4) socioeconomic and political contexts. We will present multiple-regression analyses to examine these theories and to locate the centers of occupational-professional and arts and sciences education among American four-year colleges and universities. We will conclude by considering what the findings imply about the future of American higher education.

Undergraduate Degree Trends, 1915-2000

Has the American undergraduate experience been primarily utilitarian in emphasis over the past century or has it been devoted primarily to education in the arts and sciences? Oddly, no one, so far as we know, has attempted to answer this question through the development of a historical time series. (3) There are reasons to believe, as many do, that the 1960s and early 1970s represent a historically unusual period favoring the arts and sciences in the context of an otherwise longstanding historical commitment of most students and institutions to occupational majors. The land grant universities, after all, were strongly oriented to occupational-professional education from the beginning, and public institutions have long educated a large proportion of American college students. Yet there are also good reasons to believe that the practical arts have become dominant at the undergraduate level only recently. Before World War II, college going was more completely the preserve of the middle and upper-middle classes. Goyette and Mullen (2002) show that social class is strongly associated with majoring in the arts and sciences today, and it is likely that it was also associated with this preference in the past.

The vagaries of official statistics make it difficult to know with certainty whether the recent shift toward occupational-professional fields represents a long-term continuity in the organization of American higher education or a relatively new departure. Before the mid-1960s, government statistics do not separate first professional degrees from bachelors' degrees. In addition, the fields

used for classification in the 1920s and 1930s vary greatly from those used in the 1950s and 1960s, and still more so from those in use today. To develop a time series for the percentage of bachelors' degrees awarded in occupational-professional fields, we have had to make two adjustments to government statistics: first, eliminating first professional degree fields (concentrated in law, medicine, and theology), because they are not truly bachelors'-level degrees, and, second, creating tables of correspondence for degree fields used in earlier years and those used by the National Center for Education Statistics (NCES) today. (4)

The time series also includes a solution to one other major problem in estimation. Before 1930-31, two major categories are used in government statistics: degrees awarded in Arts and Sciences (A&S) and degrees awarded in Professional Schools. Only aggregate degrees are given for A&S, while degrees awarded in professional schools are disaggregated by field. Between 1930-31 and 1943-44, by contrast, degrees in A&S are divided between traditional A&S fields and occupational programs within arts and sciences colleges. We know from this data that A&S degrees before 1930-31 must include significant numbers of degrees that we would today classify as occupational-professional. These include degrees in such fields as agriculture, commerce, engineering, and journalism. (During this period, colleges and universities did not consistently locate their occupational programs in separate professional schools; some located them within colleges of arts and sciences.) Fortunately, for the period 1915-15 through 1929-30, it is possible to estimate the percentage of occupational-professional degrees within A&S by fitting a polynomial spline through data points associated with occupational degrees bestowed within arts and sciences colleges during the period 1930-31 through 1943-44. (5) Our estimates for these early years in the time series are corrected in this way. An extrapolation of the rate of error across the relatively short length of the estimated section suggests that deviations from the prediction line will be within the range of plus or minus two percentage points.

[FIGURE 1 OMITTED]

Because detailed data by subfields is not available before the 1960s, we have allocated fields to the category in which a majority of graduates belong. We do not believe the accuracy of the time series is greatly affected by this allocation rule, because the great majority of fields clearly belong either to the arts and sciences or the occupational-professional category. Even in the few divided fields (notably, communications, legal studies, psychology, and visual and performing arts), the great majority of graduates clearly belong either to one category or the other. Communications, for example, is and has been predominantly applied. For most of the period, it was mainly journalism. Similarly, psychology is and has been predominantly arts and sciences. We therefore believe the data presented in Figure 1 to be accurate within 1-2% of the true proportion for each of the years reported.

The time series includes all available years from 1915-16 to 2000-01. For years before 1949-50, data are available biennially through the Biennial Survey of Education. For years since 1949-50, data are available annually. Due to wartime exigencies and postwar reorganizations, data on degrees awarded for 1945-46 and 1947-48 were not collected.

Figure 1 shows that the arts and sciences dominated in the 1910s and 1920s, at a time when higher education was a preserve of the middle and upper-middle classes, and the English model of liberal arts education at the collegiate level remained strong. This dominance began to slip just before the Great Depression. By the mid-1930s, occupational-professional programs were significantly stronger. Data from the World War II period are potentially somewhat misleading because of the large numbers of men fighting in the war. However, following World War II and through the 1950s, occupational-professional programs were once again decisively stronger than the arts and sciences, encouraged no doubt at first by the returning G.I.s who were older than traditional students and inclined toward degrees that would give them a leg up on their careers. In the early and mid-1960s, the arts and sciences regained control, with nearly 55% of graduates. In terms of absolute numbers of students and professors, this was a high watermark for many arts and sciences fields. The conjunction of a continuing national commitment to basic science following World War II and Sputnik, combined with promising developments in the arts and humanities, and the sophisticated social criticism found in some social science disciplines created unusually favorable grounds for the

advance of the arts and sciences, even at a time of great expansion in enrollments. If we restrict our focus to the post-World War II period, the term "resurgence" is accurate; patterns in degrees awarded after 1971 are reminiscent of the patterns found in the late 1940s and throughout the 1950s.

Thus, a long-term historical view suggests an underlying trend toward occupational-professional programs combined with shorter-term cyclical movements. Within these cyclical movements, periods of change co-incide with economic declines (the Great Depression of the 1930s and the tightening of the college labor market at the end of the 1960s). By contrast, periods of prosperity are sometimes (but not always) associated with stronger preferences for the arts and sciences. Economic declines are not, however, the only force involved in the two marked shifts toward occupational-professional degrees during the period covered by our time series. The development of college-level credential requirements in newly professionalizing occupations is clearly another important factor. For example, the proportion of all bachelors' degrees awarded in education increased by more than 7% between 1915 and 1929, as many normal schools were transformed into teachers' colleges.

The Resurgence of the Practical Arts, 1970-2000

The most recent turn toward the practical arts dates from the depressed college labor market of the early 1970s (Freeman, 1976), and it continues to be encouraged by demographic and economic forces: an ever-growing number of students vying for a less rapidly growing number of good careers. In addition, a shift in federal financial aid policy from grants to loans may have encouraged lower-income students to choose curricula linked to jobs that could allow rapid loan repayment (Slaughter, 1998).

In the fifteen years between 1970-71 and 1985-86, occupational-professional fields gained significantly as compared to arts and sciences fields, with nearly two in three degrees awarded in occupational-professional fields in 1985-86. The arts and sciences rebounded from their nadir of the mid-1980s, but a decisive majority of degrees have continued to be awarded in occupational-professional fields since that time; in recent years, some 58% of bachelors' degrees have been awarded in occupational-professional fields. A more refined analysis can be made of these data by allocating subfields within the broad NCES disciplinary categories. Such an analysis suggests that a more accurate figure for the proportion of occupational-professional degrees awarded would be 2-3% higher. (5)

At the undergraduate level, the fastest-growing degree fields include a number that barely existed 30 years ago. Protective services and computer and information systems both experienced more than a ten-fold growth between 1970-71 and 2000-2001; fitness, recreation, and leisure studies experienced more than a five-fold growth; and communications grew more than three times larger. As Table 1 indicates, over the last three decades the fast-growing fields have been occupational in virtually every case. (6) The fastest-growing of all has been business, which now accounts for some one-fifth of all undergraduate degrees--up from one-seventh in 1970-71. As Adelman observed, business became in the 1980s "the empirical core curriculum" (Adelman, 1995, p. 229). By contrast, over the period only four liberal arts fields grew relative to other fields. Two of these fields--psychology and life sciences--are closely linked to health occupations. The other two fields are "liberal/general studies" and "interdisciplinary studies." These latter two fields--still quite small in numbers of graduates--illustrate one facet of another interesting trend in academe: the slow and still very limited erosion of disciplinary boundaries in the liberal arts. Performing and visual arts, fields which could be classified either as arts and sciences or as occupational-professional, have also grown a little relative to other fields. (7)

Every other arts and sciences field has declined not only proportionately, but also in absolute numbers. It is important to emphasize this point, because the American higher education system is substantially larger today than it was in 1970-71. More than 1.5 million students graduated with bachelors' degrees in 2000-2001 compared to about 840,000 in 1970-71. Under these circumstances, it is not easy for a field to decline in absolute numbers, however poorly it may fare in competition with other fields. In this context, it is necessary to underline the significance of a decline in absolute numbers: During a period in which graduates nearly doubled, almost every field which

constituted the old liberal arts core of the undergraduate college was in absolute decline as measured by numbers of graduates. This includes not only all of the humanities and social sciences (except psychology), but also the physical sciences and mathematics. One could say that all of the traditional arts and sciences fields, except those closely connected to health careers, have a receding profile in today's colleges and universities.

From these new enrollment patterns arises the prevailing wisdom: "[In] recent decades, students ... have been oriented chiefly toward gaining useful skills and knowledge rather than membership in a cultural elite ..." (Trow, 2000, p. 1), and the familiar but nevertheless arresting statistic from Astin's annual survey showing that the proportion of college freshmen interested in attending college to develop a "meaningful philosophy of life" dropped by 45% in in the years between 1967 and 1987, while the proportion interested in attending to "become well-off financially" grew by 40% over essentially the same period (Astin, 1998).

Institutions, nevertheless, vary greatly in the extent to which they have embraced the "practical arts." Hundreds of institutions graduate nearly all of their students in occupational-professional fields. Hundreds more maintain a near-exclusive focus on the arts and sciences. And, of course, a very large number of institutions are located somewhere between these two extremes. We will turn now to an analysis of the sources of variation among American colleges and universities in the proportion of bachelor's degrees they award in occupational-professional as opposed to arts and sciences fields.

Institutional Bases of the "Practical Arts"

What factors explain this variation in curricular focus among American colleges and universities? Previous efforts to investigate this issue have focused on one or another of two institutional characteristics: Carnegie classification and average SAT scores (see Breneman, 1994; Gilbert, 1995; Morgan, 1998; and Turner & Bowen, 1990). Are these the most important influences? It is at least plausible that other factors, such as socioeconomic composition, size, religious affiliation, or regional location are also important explanatory factors. Our approach is to develop a set of explanatory models based on competing theoretical expectations about the relationship between institutional characteristics and curricular emphasis and to choose the most important explanatory variables from these models for further analysis. Specifically, we focus on four sets of hypotheses to account for levels of concentration in occupational-professional fields. These have to do with: (1) organizational functions and market segmentation, (2) status and selectivity, (3) historical traditions, and (4) the environmental context in which institutions are located.

The first set of hypotheses is based on the expectation that degree concentrations should be associated with differences in organizational functions. This is obviously true in the case of institutions specifically constituted for the purpose of occupational education, such as the Georgia Institute of Technology or the University of Texas Health Sciences campus. The Carnegie classification system was designed to reflect (and also to shape) the functional differentiation of the American higher education system circa 1970. The Carnegie categories distinguish between institutions that serve differing functions as marked by the level of degrees offered and the defined purposes of the institutions. Selective baccalaureate-granting institutions are functionally differentiated in this framework by their greater concentration on arts and sciences fields. In so far as they are oriented to the advance of basic science and scholarship, research universities might also be expected to produce comparatively high proportions of arts and sciences graduates. Campus size, whether measured by enrollment or budget, is another functional measure in so far as size reflects the likelihood that curricular activities will be more diverse than concentrated. Today, program diversification occurs primarily through the development of new occupational-professional programs (Breneman, 1994; Hashem, 2002). Functional analysis can be enhanced by drawing on the insights of market segmentation economics. Winston (1999) has argued that because of their small subsidy resources, the less prestigious baccalaureate and master's granting institutions face the largest incentives to reduce their cost structures or diversify their current revenue streams. This leads to the expectation that occupational-professional fields may be particularly strong at Carnegie BA II and Carnegie MA I and MA II (or Comprehensive) institutions. Thus, other factors held constant, we expect BA I colleges, Research I universities, and smaller institutions to award a higher proportion of degrees in arts and sciences fields, while technical colleges and universities, larger institutions, and the

financially weaker BA II and MA I and II institutions to award a higher proportion of degrees in occupational-professional fields.

The second set of hypotheses is based on the expectation that degree concentrations should be associated with the status and selectivity of institutions. Higher education observers have long noted the dominant ideal of elite sectors of American higher education is that "students should do liberal arts work as undergraduates, postponing occupational training until they entered a graduate school or took a ... job" (Jencks & Riesman, 1968, p. 263). Reputation and undergraduates' standardized test scores are indicators of academic status and selectivity. The socioeconomic composition of student bodies is a second dimension of status. Students from higher SES families may be expected to enroll in higher status curricula (Bourdieu & Passeron, 1977). The economic status of institutions is a third dimension of status. Institutions charging high tuitions and those with large operating budgets per student are out of reach of many lower and middle-class students. These institutions might also be associated with higher status curricula in the arts and sciences. Thus, we expect academically selective, socially elite, and expensive institutions to have higher proportions of graduates in the arts and sciences.

The third set of hypotheses is based on the expectation that historical traditions should make a difference in the proportion of occupational degrees awarded. Organizational sociologists since Stinchcombe (1965) have noted the constraining force of the institutional designs at the time of their foundings. Colleges founded earlier in the nation's history, denominational colleges connected originally to the liberal arts, and women's and historically black institutions might all be expected to cleave closely to the older traditions in undergraduate education, while state institutions, influenced throughout their history by the economic development concerns spelled out in the Morrill Acts, should be more likely to favor practical education as a means of serving their states and their generally less affluent student constituencies. Catholic colleges were founded to provide opportunities to members of then-subordinate religious and ethnic communities, and it is reasonable to expect that they might remain more attuned to occupational-professional education. Thus, we expect older, Protestant-affiliated, single-sex, historically black, and private institutions to retain a stronger focus on the arts and sciences.

The fourth set of hypotheses is based on the expectation that degree concentrations should be associated with the socioeconomic and political context in which institutions act. Institutional offerings may reflect more liberal or more conservative political cultures of states. States with more liberal political cultures may encourage a stronger emphasis on the arts and sciences because of citizen concerns with issues of intellectual and social development, whereas more conservative states may feel an affinity to the utilitarian outlooks of occupational-professional programs. Degree concentrations might also reflect variations in opportunities for postgraduate training within states. Where such opportunities are relatively plentiful, undergraduates can "afford" to major in arts and sciences fields, knowing that they can receive occupational education following college graduation. We might expect a correlation between economic growth and arts and sciences for similar reasons. Where average incomes are growing, more people will feel a degree of autonomy from the conditioning influence of market forces (Brint & Karabel, 1991). Even population growth alone might encourage a greater emphasis on traditionally higher status curricula, because population growth creates a sense of increasing opportunities. Thus, we expect variations in the proportion of arts and sciences graduates to reflect the area of the country in which institutions are located and changes in states' per capita incomes and population growth rates.

Data and Methods

The data used to construct the dependent variable in this analysis is drawn from the NCES annual survey of American colleges and universities, as reported in its Integrated Post-secondary Educational Survey (IPEDS). We have used data from 1997-98, the most recent data currently available on degree fields by institution. We have classified fields as either occupational-professional or arts and sciences and computed the proportion occupational-professional degrees awarded at each institution for 1997-98. All data is for bachelor's degrees only. Table 2 shows the categorization scheme used in this analysis. This categorization scheme is based on the 40 major discipline categories currently in use by NCES. To increase the accuracy of the analysis, we reallocated a small

number of subfields in communications, law and legal studies, psychology, and visual and performing arts. (See Table 2.) The dependent variable is continuous and runs from under 10% to over 90% of degrees awarded in occupational-professional programs.

The data set used in this analysis was constructed by combining the earned degrees data with variables collected from a wide variety of sources and archived in the Institutional Data Archive on American Higher Education (IDA). The analysis is based on data collected on every four-year college and university in the United States listed in the Higher Education Directory (1999). We will use sample statistics in reporting the results of our analyses, however, because not all institutions are included in the Higher Education Directory and because missing data do not allow us to make claims that the analyses are based on a complete representation of the underlying population. (8)

Table 3 provides an overview of the independent variables used in the analysis. The independent variables are grouped in relation to the four sets of hypotheses described above. Our analyses compare the explanatory power of these sets of independent variables. Variables in Model 1 (organizational function/market segment) include: (1) dummy-coded variables for each Carnegie classifications measured in 1994 with BA I institutions as the reference category; (2) student enrollment in 1997-98; and (3) log of operating budget in 1997-98, the latter two being measures of organizational size. This set also includes: (4) a variable dummy coded to isolate institutions dedicated to technical, business, or health sciences education. (9) Variables in Model 2 (status and selectivity) include: (1) average combined SAT/ACT scores; (2) a dummy variable for institutions of national reputation based on membership in the American Association of Universities, the Consortium for Financing Higher Education, and other measures of national reputation; (3) dummy variables for five categories of graduation rates--a measure correlated with the socioeconomic composition of student bodies; and (4) log of tuition. The first two of these variables are academic status variables, and the last measures economic status of institutions. In the absence of direct measures of the socioeconomic composition of student bodies, we have chosen to use five-year graduation rates, a measure correlated both with the academic status of institutions and the socioeconomic status of student bodies. Variables in Model 3 (historical traditions) include: (1) institutional age in 2002 coded in seven time periods with colleges established in the seventeenth and eighteenth centuries as the reference category; (2) a dummy variable for public institutions; (3) dummy variables for evangelical Christian, other Protestant, and Catholic colleges with independent, nonreligious colleges as the reference category; (4) a dummy variable for historically black colleges and universities; and (5) a dummy variable for women's colleges. Variables in Model 4 include: (1) dummy variables for nine regions of the country with New England as the reference category; (2) income growth per capita by state, 1990-2000; and (3) population growth by state, 1990-2000. (10)

Findings

We have used ordinary least squares multiple regression to determine the net effects of variables in each of our four models. (11) The regressions in Table 4 look successively at the models based on organizational function, status and selectivity, historical traditions, and socioeconomic and political context.

This analysis indicates that an explanatory model built around functional variables explains nearly one-third of the variation in the proportion of occupational-professional degrees awarded by institutions in 1997-98. Not surprisingly, BA I institutions stand out for their commitment to the arts and sciences. Research I universities also award comparatively more arts and sciences degrees than other institutions. By contrast, nonselective baccalaureate institutions (BA II) and comprehensive institutions (MA I and MA II) are strongly associated with higher levels of occupational-professional degrees. These findings tend to confirm Winston's (1999) thesis that the weaker baccalaureate and master's granting institutions should be more market sensitive and, therefore, more occupationally oriented than other institutions. At the same time, institutions in all categories other than elite liberal arts colleges and research universities appear to be highly market sensitive and oriented to occupational-professional education. As expected, larger institutions as measured by student enrollment were also more occupationally oriented. However, our other measure of size, log operating budget, was connected with higher proportions of arts and sciences degrees and thus behaved more like a status variable than a functional variable.

The set of status and selectivity variables also provided a relatively good explanatory model, again explaining nearly one-third of the variation in proportion occupational degrees awarded. The variable measuring average SAT/ACT scores was by some measure the best predictor in this set, with each additional one-hundred points in SAT score being associated with a decrease of nearly 6% in the proportion of occupational as compared to arts and sciences degrees awarded. The national reputation variable also showed strong effects; it was associated with a decrease of 14% in the proportion of occupational degrees awarded. As expected, log tuition was also associated with lower proportions of occupational degrees. The variable measuring six-year graduation rates showed a less consistent predictive power. (12) In general, the findings indicate that the arts and sciences are strongly favored by prestigious institutions and that status includes at least two dimensions, academic and economic.

The models based on historical traditions and sociopolitical contexts were less powerful, although variables in these models (with the exception of historically black colleges and universities) do show the expected pattern of relationships: that is, higher proportions of arts and sciences degrees among older colleges and universities, women's colleges, and more liberal regions of the country (New England, the West Coast, and the Mid-Atlantic regions). They also show higher proportions of occupational degrees among public, Catholic, and evangelical colleges and in the "heartland" regions of the country (notably, the farm and industrial Midwest, the mountain states, and the Southeast). We have associated population and income growth with higher degrees of autonomy from the conditioning of the labor market. Consistent with this notion, these variables showed significant, albeit weak, net associations with higher proportions of arts and sciences degrees.

Regional variation in the proportion of occupational-professional degrees may be due to a number of possible influences. These include: more conservative political cultures, leading to an emphasis on practical pursuits; economies requiring fewer highly educated professionals; or simply fewer opportunities for postgraduate study. We were unable to find measures that perfectly capture these potential sources of variation, but our exploratory analysis using state data suggests that political culture--as measured by presidential vote in 2000--may be a surprisingly important influence. (13)

Our best-fitting model incorporates variables from each of the four models discussed above. We created this best-fitting model through stepwise deletion of nonsignificant predictors. Table 5 shows the coefficients and significance levels for the independent variables in our best-fitting model. (14)

The results for this model represent a clear improvement over the results obtained for any one of the four models in Table 4. The model explains nearly 60% of the variance in the percentage of occupational degrees awarded by four-year colleges and universities in 1997-98. Standardized regression coefficients indicate that Carnegie categories and average SAT/ACT scores are the strongest predictors of the proportion occupational-professional degrees awarded. These findings indicate that selective baccalaureate-granting institutions and other institutions with strong academic profiles, as measured by average SAT/ACT scores, are the core of support for the arts and sciences, while nonselective baccalaureate-granting institutions, master's granting institutions, and other institutions with weaker academic profiles are the core of support for occupational-professional education. Other variables also made an important net contribution to the explanatory power of the model. The most important of those associated with higher proportions of occupational-professional degrees were technical institutions, institutions established during the peak years of industrialization (1876-1900), larger institutions, and institutions located in heartland regions. The most important of those associated with higher proportions of arts and sciences degrees were public institutions, historically black institutions, women's colleges, and institutions located in the Northeast, Atlantic and Western seaboard states.

Perhaps the most interesting finding is the net association between the arts and sciences and institutions created to serve socially disadvantaged groups (women's colleges, historically black colleges and universities, and public universities). It is particularly notable that state control is associated with a higher proportion of arts and sciences degrees net of other predictors--a finding at odds with popular images of state and land grant institutions. Although high proportions of arts and sciences graduates are the norm only among institutions serving academic and socioeconomic elites,

some institutions designed to serve less advantaged groups do provide support for the arts and sciences. This is true of historically black institutions, women's colleges, and state colleges and universities, but not of religiously affiliated institutions. Evangelical Christian colleges are more likely to embrace occupational-professional fields than are otherwise comparable nondenominational institutions.

Discussion

The shift toward the practical arts in American colleges and universities cuts to the core of the competing values of educators in different sectors of the American higher education system. Many educators in the liberal arts sector endorse the view that shaping "the intellectual maturation of young people and widening their cultural horizons has traditionally been the strength and the mission of American undergraduate education" and agree with the assessment that the decline of the liberal arts tradition can only lead to a significant deterioration in "the vitality of intellectual life throughout the broad middle of the academic hierarchy" (Geiger, 1980, p. 54). Against this view, many educators in other sectors argue that colleges and universities have little choice but to adapt to the job-related interests of today's students, and in any event this adaptation allows higher education to contribute more effectively than it once did to the economic life of the country (see, e.g., Clark, 1998).

Whatever one concludes about the larger value issues at stake, there can be no doubt that the resurgence of the practical arts since 1970 has had important implications for the organization of academe. The growth of occupational-professional education is itself one support for the climate of utilitarianism on campus. It has also led to the migration of faculty toward the professional schools and indeed whole disciplines toward a professional model. In many institutions, arts and sciences disciplines have been transferred to colleges of professional studies to articulate more closely with career-oriented programs. (15) Psychology has become a clinical specialty at some universities and economics an arm of business administration. The smaller arts and sciences disciplines, particularly area studies and foreign languages and literatures, have faced significant downsizing and even elimination, while interdisciplinary majors in the arts and sciences have grown more popular among administrators, sometimes as much for economic as for intellectual reasons (Brint, 2002).

Kerr argued that "it may become increasingly difficult and misleading to talk about the future of 'higher education.' There will be many quite different segments, each with its own future ... Institutions in the different segments will not know or care much about each other" (Kerr, 2002, p. 10). In contrast to contemporary forms of segmentation, Kerr foresaw a new classification of institutions emerging, which include today's research universities and liberal arts colleges, but also new categories of "professional school institutions" (presumably today's doctoral-granting institutions) and "polytechnic colleges" (today's comprehensive and less selective baccalaureate-granting colleges).

Our analysis indicates the plausibility of Kerr's vision of the future. The resurgence of the practical arts since 1970 has been largely driven by less prestigious institutions, which have also experienced the greatest growth in enrollments. The less selective baccalaureate and comprehensive institutions are now quite far along in the direction of transforming themselves into exclusively career-oriented polytechnics. (16) Prestigious institutions, by contrast, do not need to worry about competing for students and funds by providing job-related education, because they have a secure market position. They have, therefore, largely eschewed lower-level practical training and have instead competed for the highest status students and for research grants in the established disciplines. Indeed, some research universities have had an incentive to become markedly more liberal arts oriented, as they attempt to compete more exclusively in the "status goods" segment of the market for undergraduate students. Thus, Kerr's vision of the future may need to be adjusted just a little to separate out "liberal arts research universities," such as Duke and Harvard, from true "multiversities," such as the University of Florida and the University of Illinois, in which enrollments in occupational-professional have long been very strong among undergraduates (Morgan, 1998).

Because the current proportion of occupational-professional degrees is comparable to that found throughout much of the mid-twentieth century, it is possible to conclude that worries about the

decline of the arts and sciences are overstated. If not for one important difference between the two eras, we would tend to agree with this assessment. That difference is as follows: Where arts and sciences degrees were once concentrated in both BA I and BA II institutions, they are now concentrated in elite segments of the system: the BA I institutions and a fraction of high-status R I institutions (Gilbert, 1995; Morgan, 1998). This suggests that what was once largely a functional divide--different kinds of institutions emphasize different curricula--has become largely a status divide. Kuh's (1999) concerns about changes in students' reports concerning their personal development and cultural awareness should be interpreted in the context of increasing stratification between undergraduates attending elite institutions and all others.

The most important finding of this paper is the connection between less prestigious institutions and high proportions of occupational-professional degrees. We find a particularly strong occupational emphasis in institutions enrolling high proportions of students with low test scores and, by implication, from lower socioeconomic backgrounds. (17) To the extent that these institutions represent the growth areas of academe, the practical arts are greatly favored. The broader institutional implications of this finding are also important: Just as secondary schools became vocationalized in the early twentieth century, when they were transformed from elite preparatory institutions into institutions the majority attended and did not go beyond (Trow, 1961), so colleges and universities became definitively oriented to occupational-professional education at the end of the twentieth century, at a time when they were becoming mass terminal institutions in the same sense.

A variety of circumstances can, as we have shown, provide freedom from the conditioning influence of the labor market, thereby encouraging higher enrollments in the arts and sciences. Clearly, institutions enrolling students with unusually good prospects in life are much more likely to emphasize the arts and sciences. For this reason, the stratum of selective liberal arts colleges and elite research universities, those that send large numbers of students on to postgraduate studies, will likely continue to be an exception. As environmental influences at the state level, growth in population and per capita income are associated with higher arts and sciences proportions for similar reasons, we believe, because they encourage a degree of freedom from the conditioning influence of the labor market.

However, these forces are not likely to reverse the rise of the practical arts, now that occupational fields have demonstrated their centrality over the last 30 years in both good economic times and bad. It is particularly notable that the growing earnings advantage of college-educated workers in the 1990s did not lead to a marked decline in occupational-professional degrees. This suggests that any rebirth of the arts and sciences as the center of undergraduate education probably lies well in the future, at a time when the bachelor's degree has become a preparatory degree for a majority of students who are planning to pursue postgraduate training, rather than the mass terminal degree it is today. (18) And even in this distant future it is possible that the arts and sciences will become the preserve of a still smaller number of students and faculty than they are today, if they are further devalued by a society that has turned away from the types of intellectualism they reflect and sustain. (19)

TABLE I

>Growing, Stable, and Declining Degree Fields, 1970-2000

>A. Growing Fields B. Stable Fields C. Declining Fields

>Bachelor's Degree Fields

>I. Fields with Fewer than 1% of BA/BS Degrees in 2000

>Law/Legal Studies Architecture Library Science
>Transportation Studies Area/Ethnic Philosophy
Studies Religious Studies
Communications

Technology
Theology

>II. Fields with 1-5% of BA/BS Degrees in 2000

>Public Administration Agricultural Science English Literature
>Visual/Performing Arts Home Economics Physical Sciences
>Communications Mathematics
>Liberal/General Studies Foreign Languages/
>Interdiscipliary Studies Literatures
>Computer/Info. Systems
>Protective Services
>Recreation/Leisure/Fitness

>III. Fields with More than 5% of BA/BS Degrees in 2000

>Business Engineering Education
>Health Professions Social Sciences
>Psychology History
>Biological/Life Sciences

>Master's Degree Fields

>I. Fields with Fewer than 1% of Master's Degrees in 1995-96

>Communications Tech. Area/Ethnic Foreign Languages/
>Engineering Tech. Studies Literature
>Law/Legal Studies Home Economics Philosophy/Religion
>Liberal Studies
>Interdisciplinary/
Multidisciplinary
Studies
>Parks/Recreation/Fitness
>Protective Services

>II. Fields with 1-5% of Master's Degrees in 1995-96

>Communications Agriculture/Nat. Biological/Life Sciences
>Computer/Information Resources English Literature
>Sciences Theology Library Science
>Psychology Visual/Performing Mathematics
Arts Physical Sciences
Architecture Social Science/History

>III. Fields with More than 5% of Master's Degrees in 1995-96

>Business Administration Engineering Education
>Health Professions
>Public Admininstration/
Services

>SOURCE: Computed from NCES, 1998, p. 282-3.

>TABLE 2

>Occupational/Professional and Arts and Sciences Degree Categories

>Occupational/Professional Arts and Sciences

>Advertising (Communications) Area, ethnic and cultural
studies

>Agricultural business & production Biological sciences/Life sciences

>Agricultural sciences Communications (except those found under occ./prof.)

>Architecture and related programs

>Arts management (Visual & Perform. Arts) English language and literature/letters

>Broadcast journalism (Communications) Foreign languages and literatures

>Business management & admin. services History

>Clinical psychology (Psychology) Law and legal studies (except those found under occ./prof.)

>Communications Technologies
>(Communications)

>Communications, other (Communications) Liberal/general studies & humanities

>Computer & information sciences Mathematics

>Commercial photography (Visual & Multi/Interdisciplinary
>Perform. Arts) Studies

>Communications, General Philosophy and religion

>Conservation & renew. natural resources Physical Sciences

>Construction trades Psychology (except those found under occ./prof.)

>Counseling psychology (Psychology)

>Education Social Sciences

>Engineering Visual & performing arts (except those found under occ./prof.)

>Engineering related technologies

>Fashion design (Visual & Perform.
>Arts)

>Film-video making/cinematography and
>prod.
(Visual & Perform. Arts)

>Graphic design, commercial art and
>illus.
(Visual & Perform. Arts)

>Health professions and related

>sciences

>Home economics

>Industrial design (Visual & Perform.
>Arts)

>Interior design (Visual & Perform.
>Arts)

>Journalism (Communications)

>Law (Law and legal studies)

>Library science

>Marketing opers./market & distribution

>Mechanics and repairers

>Military technologies

>Music bus. management & merchandising
(Visual & Perform. Arts)

>Paralegal/legal asst. (Law and legal
>studies)

>Parks, recreation, leasure & fitness

>Personal & Miscellaneous services

>Precision production trades

>Protective services

>Public administration and services

>Public relations & Organizational comm.
>(Communications)

>Radio & television broadcasting
>(Communications)

>School psychology (Psychology)

>Science technologies

>Theological studies/religious
>vocations

>Transportation & material moving
>workers

>Vocational home economics

>TABLE 3

>Independent Variables

Level of

>Variable Categories/Range Measurement

>I. Function/Market Segment

>Technical Institution Technical Nominal
Other (reference)

>Carnegie Classification BA II Nominal
BA I (Reference)
MA II
MA I
Doctorate II
Doctorate I
Research II
Research I

>Enrollment 278-48,906 Interval

>Log operating Budget $3.1M-$3.03B Interval

>II. Status/Selectivity

>Combined (V+M) SAT/ACT 623-1500 (SAT) Interval
Scores ACT converted to SAT
scale

>"National" Institution National Nominal
Other (Reference)

>5-Year Graduation Rate Very High: >75% Nominal
(Reference)
High: 60-74% public;
65-74% private
Mid: 35-59% public;
40-64% private
Low: < 35% public;
< 40% private
V. Low: < 15% & > 25%
part-time

>Log Tuition $150-$32,164 Interval

>III. Historical Tradition

>Date of Establishment Before 1800 (reference) Nominal
1800-1850
1851-1875
1876-1900
1901-1925
1926-1950
1951-2000

>Control Public Nominal
Private (reference)

>Religious Affiliation (1) No Religious Affiliation Nominal
(reference)
Christian Council
Colleges
Other Protestant
Catholic

>Historically Black Yes Nominal
No (reference)

>Women's College Yes Nominal
No (reference)

>IV. Social/Political Context

>Region2 Northeast (reference) Nominal
West Coast
Mid-Atlantic
South Central
Southeast
Southwest
Industrial Midwest
Farm Midwest
Mountain

>Population Growth, 1990-2000 -34,841-4,111,627 Interval

>Income Growth Per Capita, $1,166-$5,281 Interval
>1990-2000

>SOURCES: Carnegie Classification, Enrollment, Control, Religious
>Affiliation, Historically Black Colleges and Universities, Women's
>Colleges, Region: Higher Education Directory (1999); Technical
>Institution: Derived from Higher Education Directory
>(1999); Operating Budget, Operating Budget for Student: National Center
>for Educational Statistics, IPEDS data file (1999); SAT/ACT scores:
>Higher Education Research Institute (1999); National Institutions:
>American Association of Universities membership list, Consortium for
>Financing Higher Education membership list, Breneman (1994), Goldberger,
>Maher, and Flattau (1995), Geiger (2002); FiveYear Graduation Rates:
>College Board Institutional data file (1998); Christian Council
>Colleges: CCCU website (www.cccu.org); Population Growth, 1990-2000,
>Income Growth Per Capita, 1990-2000: United States Bureau of the Census
>data file (2002).

>NOTES: (1) The Higher Education Directory data file was our primary
>source for determining religious affiliations. We also relied on the
>membership lists provided on websites for denominational colleges. These
>included: Christian Council (www.cccu.org), Congregationalist
>(www.naucc.org), Episcopal (www.cuac.org), Independent Baptist
>(www.bn66.com/churches/schools), Latter Day Saints (Mormon)
>(www.lds.org), Lutheran (www.lutherancolleges.org), Mennonite
>(www.mennoyouth.org), Methodist (www.gbhem.org), Nazarene
>(www.ptloma.edu/universityinformation/Nazarene colleges), Presbyterian
>(ww.apcu.net), Quaker (www.earlham.edu/ fahe), Roman Catholic
>(www.accunet.org), Seventh Day Adventist (www.sdanet.org), and Southern
>Baptist (www.baptistschools.org).
>(2) Northeast region includes: Connecticut, Maine, Massachussetts, New
>Hampshire, Rhode Island, Vermont. Mid-Atlantic region includes:
>Delaware, Maryland, New Jersey, New York, Pennsylvania,
>Washington, DC. South Central region includes: Kentucky,
>North Carolina, Tennessee, Virginia, West Virginia. Southeast region
>includes: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi,
>South Carolina. Industrial Midwest region includes: Indiana, Illinois,
>Michigan, Minnesota, Ohio, Wisconsin. Farm Midwest includes: Iowa,
>Kansas, Nebraska, Missouri, North Dakota, South Dakota. Southwest region
>includes: Arizona, Colorado, New Mexico, Oklahoma, Texas. Mountain

>states include: Alaska, Idaho, Montana, Nevada, Utah, Wyoming. West
>Coast includes: California, Hawaii, Oregon, Washington.

>TABLE 4

>Four Models of Percent Occupational-Professional Degrees, 1997-98

Model I

>Variables Functional/Market Segment

B Beta

>BA2 33.9 .702 ***

>MA1 35.1 .728 ***

>MA2 36.7 .397 ***

>D1 32.8 .268 ***

>D2 36.2 .325 ***

>R1 19.5 .218 ***

>R2 30.5 .224 ***

>Technical Institution 25.5 .158 ***

>Enrollment (in 0000s) .6 .206 ***

>Log--Op Budget -3.7 -.210 ***

>Ave. SAVACT (in 000s)

>National Reputation

>Very Low Grad Rate

>Low Grad Rate -

>Mid Grad Rate

>High Grad Rate

>Log Tuition

>Established 1800-1850

>Established 1851-1875

>Established 1876-1900

>Established 1901-1925

>Established 1926-1950

>Established 1951-2000

>Public Institution

>Historically Black Institution

>Women's College

>Christian Council College

>Other Protestant College

>Catholic College/University

>Population Growth, 1990-2000
(in 000,000s)

>Per Capita Inc Growth, 1990-2000
(in $0000s)

>West Coast Region

>Mid Atlantic Region

>South Central Region

>Industrial Midwest Region

>Southwest Region

>Southeast Region

>Farm Midwest Region

>Mountain States Region

R2 .348

Adj. R2 .343

SEE 18.3

Model 2

>Variables Status & Selectivity

B Beta

>BA2

>MA1

>MA2

>D1

>D2

>R1

>R2

>Technical Institution

>Enrollment (in 0000s)

>Log--Op Budget

>Ave. SAVACT (in 000s) -5.8 -.309 ***

>National Reputation -14.2 -.188 ***

>Very Low Grad Rate 5.5 .106 ***

>Low Grad Rate -.7 -.007

>Mid Grad Rate 3.2 .065 *

>High Grad Rate -.8 -.011

>Log Tuition -3.0 -.112 ***

>Established 1800-1850

>Established 1851-1875

>Established 1876-1900

>Established 1901-1925

>Established 1926-1950

>Established 1951-2000

>Public Institution

>Historically Black Institution

>Women's College

>Christian Council College

>Other Protestant College

>Catholic College/University

>Population Growth, 1990-2000
(in 000,000s)

>Per Capita Inc Growth, 1990-2000
(in $0000s)

>West Coast Region

>Mid Atlantic Region

>South Central Region

>Industrial Midwest Region

>Southwest Region

>Southeast Region

>Farm Midwest Region

>Mountain States Region

R2 .301

Adj. R2 .297

SEE 18.6

Model 3

>Variables Historical Traditions

B Beta

>BA2

>MA1

>MA2

>D1

>D2

>R1

>R2

>Technical Institution

>Enrollment (in 0000s)

>Log--Op Budget

>Ave. SAVACT (in 000s)

>National Reputation

>Very Low Grad Rate

>Low Grad Rate

>Mid Grad Rate

>High Grad Rate

>Log Tuition

>Established 1800-1850 14.5 .217 ***

>Established 1851-1875 25.2 .448 ***

>Established 1876-1900 29.5 .549 ***

>Established 1901-1925 28.4 .462 ***

>Established 1926-1950 27.3 .376 ***

>Established 1951-2000 26.5 .407 ***

>Public Institution 8.6 .182 ***

>Historically Black Institution 1.4 .015

>Women's College -12.5 -.111 ***

>Christian Council College 8.2 .093 ***

>Other Protestant College 2.5 .047

>Catholic College/University 9.0 .138 ***

>Population Growth, 1990-2000
(in 000,000s)

>Per Capita Inc Growth, 1990-2000
(in $0000s)

>West Coast Region

>Mid Atlantic Region

>South Central Region

>Industrial Midwest Region

>Southwest Region

>Southeast Region

>Farm Midwest Region

>Mountain States Region

R2 .137
Adj. R2 .129
SEE 21.1

Model 4

>Variables Socio-Political Contexts

B Beta

>BA2

>MA 1

>MA 2

>D1

>D2

>R 1

>R2

>Technical Institution

>Enrollment (in 0000s)

>Log--Op Budget

>Ave. SAVACT (in 000s)

>National Reputation

>Very Low Grad Rate

>Low Grad Rate

>Mid Grad Rate

>High Grad Rate

>Log Tuition

>Established 1800-1850

>Established 1851-1875

>Established 1876-1900

>Established 1901-1925

>Established 1926-1950

>Established 1951-2000

>Public Institution

>Historically Black Institution

>Women's College

>Christian Council College

>Other Protestant College

>Catholic College/University

>Population Growth, 1990-2000 -1.7 -.087 *
(in 000,000s)

>Per Capita Inc Growth, 1990-2000 -2.3 -.084 **
(in $0000s)

>West Coast Region 2.1 .026

>Mid Atlantic Region 6.4 .111 *

>South Central Region 8.8 .128 ***

>Industrial Midwest Region 13.5 .230 ***

>Southwest Region 15.3 .191 ***

>Southeast Region 15.8 .239 ***

>Farm Midwest Region 18.8 .238 ***

>Mountain States Region 21.7 .135 ***

R2 .074

Adj. R2 .068

SEE 21.8

>*** p <.001 ** p <.01 * p <.05

>TABLE 5

>Best-Fitting Model of Percent Occupational-Professional Degrees,
>1997-98

>A. Functional/Market B Beta
>Variables

>BA2 24.3 .501 ***

>MA1 27.4 .574 ***

>MA2 27.8 .313 ***

>D1 28.2 .238 ***

>D2 30.4 .274 ***

>R1 25.8 .300 ***

>R2 29.8 .234 ***

>Technical Institution 30.0 .195 ***

>Enrollment .3 .109 **
>(in 0000s)

>B. Status & Selectivity Variables

>Ave. SAT/ACT -5.1 -.272 ***
>(in 000s)

>National Reputation -6.7 -.089 ***

>Very Low Grad Rate 3.6 .068 **

>Mid-Level Grad Rate 2.4 .048 *

>Log Tuition -2.9 -.107 *

>C. Historical Identity Variables

>Established 1851-1875 4.5 .081 ***

>Established 1876-1900 6.2 .117 ***

>Public Institution -8.0 -.172 ***

>Historically Black -15.6 -.113 ***

>Women's College -9.5 -.086 ***

>Evang. Christian College 3.3 .041 *

>D. Socio-Political B Beta
>Context Variables

>Population Growth, -.2 -.079 ***
>1990-2000 (in 000,000s)

>Per Cap Inc Growth, -2.0 -.077 ***
>1990-2000 (in $0000s)

>West Coast Region -7.2 -.091 ***

>Industrial Midwest 6.4 .112 ***

>Southeast Region 6.1 .090 ***

>Farm Midwest Region 7.6 .102 ***

R2 .585

>Adj. R2 .575

SEE 14.5

>*** p <.001
>** p <.01
>* p <.05
>

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(1) The pattern in Scotland and England is a bit different, and some other parts of the world, including India and Japan, have a variant of general education at the undergraduate level. Interestingly, a recent report of the World Bank's task force on higher education and society makes a case for introducing general education (Hopper, 2001).

(2) The time series developed by Gilbert (1995) goes back only to 1956 and that developed by Turner and Bowen (1990) also begins in the 1950s.

(3) The following fields were classified as "first professional degree" fields throughout the time series and excluded: dentistry, law, medicine, optometry, pharmacy, and veterinary medicine. The following fields were classified as arts and sciences: area studies, biological/life sciences (e.g., biology, biochemistry, ecology, microbiology), English and cultural studies, ethnic studies, foreign languages and literatures, history, legal studies (other than law as a first professional degree), liberal/general studies, mathematics, multi-/ interdisciplinary studies, philosophy, physical sciences (e.g., chemistry, geology, physics), psychology, religious studies, social science (e..g., anthropology, economics, political science, sociology), visual and performing arts (e.g., art, dance, drama, music). The following fields were classified as occupational-professional: agriculture, architecture, business/commerce, communications, computer and information sciences, construction trades, education, engineering, forestry, health professions (other than first professional degree fields), home economics, industrial technology, journalism, library science, parks and recreation, precision productive trades, pre-dentistry, pre-law, pre-medicine, protective services, public administration, religious vocations (other than theology), and transportation.

(4) This is an algrebraic solution. We begin by plotting on a Cartesian coordinate system the proportion of occupational-professional to total degrees in arts and sciences for those years when official data

makes that distinction. We then use the line formed by that plot to estimate the proportion occupational-professional for the earlier years in which some occupational-professional programs are contained within arts and science colleges. The line is a curve formed by a fourth-degree polynomial of the form: y=3Dax+b[x.sup.2]+c[x.sup.3]-d[x.sup.4]. For this reason, the line is frequently referred to as a polynomial spline.

(5) This more refined analysis allocates occupational-professional subfields within arts and sciences categories to the occupational-professional category and vice versa. Thus, mass communication degrees are reallocated from occupational-professional to arts and sciences, while arts management degrees are reallocated from arts and sciences to occupational-professional. Similarly, clinical psychology degrees are reallocated from arts and sciences to occupational-professional.

(6) Hashem (2002) has examined the development of eight fast-growing occupational fields, including computer and information science, legal studies, recreation and fitness, criminal justice, communications, public administration, mental health, and health administration. Two of these fields (computer and information science and legal studies) were offshoots of well-established academic disciplines (mathematics and law) and here innovation occurred near the center of the system. One might expect that innovation in the other fields would have occurred in the weakest schools, those most exposed to market threat. But the innovating institutions were not, by and large, those most exposed to market threat. Instead, they were large, often urban, and less selective universities, such as New York University, Syracuse, Florida State, Wayne State, Kent State University, and San Jose State. In other words, innovation was led by institutions with discretionary resources at the fringes of the center. In two cases (mental health and criminal justice), another organization, the federal government, played a major role by providing funds for the development of new programs. This study illustrates the importance of looking at curricular change in organizational terms and not simply as a function of market forces.

(7) Over the period, economics also grew slightly in absolute terms, perhaps due to its close connection to business, but it did not grow in relative terms.

(8) Data is quite complete on the great majority of variables used in this analysis. No missing values exist for Carnegie classes, enrollment, national reputation, establishment date, public/private control, historically black colleges and universities, women's colleges, region, population growth, or average income growth. Several variables include 10 or fewer missing values: operating budget, operating budge per student, tuition, and graduation rate. Only two variables have larger numbers of missing values: average SAT/ACT scores (148) and religious affiliation (244).

(9) These institutions are usually not exclusively occupational-professional. Both MIT and Cal Tech, for example, also offer degrees in arts and especially sciences.

(10) Enrollment size and log of operating budget are strongly associated (r=.82). This raises concerns about multicollinearity. However, a high correlation between two variables in a multiple regression model does not violate the Gauss-Markov assumption concerning the limits of multicollinearity for multiple regression (Berry, 1993). Otherwise, the correlation matrix indicates moderate to low correlations for the independent variables, and we therefore conclude that the models are not compromised by problems of multicollinearity. Normal diagnostics were run to test for potential biases due to nonnormal distributions, skewness, and outliers. These diagnostic tests indicate that results of the analyses are unbiased.

(11) Using a proportion for a dependent variable in ordinary least squares multiple regression can raise problems if the variable is nonnormally distributed and skewed. In this case, two solutions are possible: either the variable must be transformed or a different statistical model (such as logistic regression or general linear modeling) must be used. However, if the proportion is normally distributed and is mainly dispersed between .3 and .7, as is true of the dependent variable in our analyses, ordinary least-squares multiple regression remains a robust model.

(12) Interestingly, institutions with both very low and mid-level retention rates were associated with higher proportions of occupational degrees, controlling for other variables in the model. Many

institutions with very low graduation rates resemble community colleges and proprietary schools in their student base and objectives, while a number of institutions with mid-level graduation rates have adopted either a polytechnic model of post-secondary education or are former teacher's colleges which retain large education programs.

(13) In our exploratory analysis, we used the percentage of each state's vote for George W. Bush in the presidential election of 2000 as an indicator of more conservative political cultures, and graduate degrees per capita as an indicator of postgraduate opportunities. The findings from this two-variable regression suggest that political culture deserves additional study as a potential influence on curricular emphasis. In this two-variable regression, state percentage vote for Bush was strongly associated with state-level variation in the proportion of occupational degrees awarded, while graduate degrees per capita was insignificant.

(14) Again, normal diagnostics show no important biases in the model presented in Table 5.

(15) Two examples of this phenomenon are the College of Science, Technology, and Health Professions at Western Kentucky University and the College of Business and Economics at California State University-Los Angeles. Although organization based on separate colleges of arts and sciences and professional schools remains the norm, such hybrids are now found at a number of institutions.

(16) Our research does not answer one important question: How much of the change at less prestigious institutions is due to the growth of a new market composed of non-traditional, adult re-entry students? Clearly, these students are among the most likely to want courses and degrees that will help them with their careers. We think it likely that they are a very important source of support for occupational programs at comprehensive and doctorate-granting institutions, but a less important influence at BA II institutions, where 18-24-year-old students continue to predominate. This question merits additional study.

(17) No direct measures of socioeconomic composition exist in this data set. One correlated measure, log tuition, was one of the last variables deleted from the best-fitting model, while another correlated measure, five-year graduation rates, showed relatively small net effects (cf. Goyette and Mullen, 2002). It is likely that more direct measures of socioeconomic composition would show stronger effects.

(18) This forecast is based on the view that demographic movements and the inflationary pressures they encourage play major roles in structuring the higher education system at the most macro level. As the number of students entering college goes up, inflationary pressures encourage more students to differentiate themselves from their peers by pursuing still higher levels of education (Collins, 1979, 2002). Eventually, this pressure can encourage a "ratcheting up" of the normative level of education.

(19) This possibility is suggested by Cohen (1998, p. 450).

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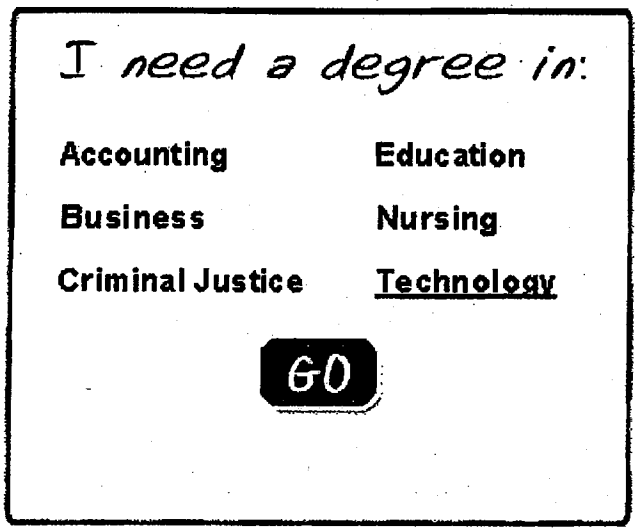

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Most Popular Majors

by *Hunter Davis*

Business Administration and Management is the most popular college major. In a yearly study conducted by the "Princeton Review", colleges are asked to give data regarding their academic offerings. Each college polled is asked which three majors have the highest undergraduate enrollment. With today's fast-paced economy, it is no surprise that Business Administration is the number one choice and most popular major amongst hundreds of possible college majors.

Business majors usually find success in the field of their choice by working their way up the corporate ladder to become managers, executives, and vice-presidents of their companies. A business major receives focused training and education in accounting, marketing, finance, human resources, economics, and decision-making.

Since Business Administration and Management is the most popular major, chances are you know someone who is majoring in business. Growing up, they probably saved their weekly allowance instead of blowing it, or maybe they started their own lawn mowing business in grade school. Regardless, a business major is naturally good with money and finances and can always be counted on for advice regarding monetary issues.

"Princeton Review's" top ten Majors of 2006:

1. Business Administration and Management

2. Psychology
3. Elementary Education
4. Biology
5. Nursing
6. Education
7. English
8. Communication
9. Computer Science
10. Political Science

* note that the popularity of these popular majors has nothing to do with the current job markets' need for positions in their related fields.

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Society for College and University Planning

Trends in Higher Education

March 2005

The Society for College and University Planning publishes this quarterly environmental scanning report as one outcome of routine work which informs our board of directors. We share this in the interest of providing our members and the broader higher education community with an ongoing analysis of trends that affect integrated planning in institutions. For your convenience, trends are categorized as Demographics, Economy, Environment, Learning, Politics, and Technology. Within each category we share some facts from our environmental scanning and we also share with you some of our thoughts about the implications of those facts.

We hope that you find it useful and welcome your thoughts and comments; share them by email at trends@scup.org. This report and others in the series can be found in SCUP's website.

Demographics

Fact: **Only 55 percent of American students who start college complete within six years and only 41 percent of African American or Hispanic students.**

- Attracting qualified minority students has become more complicated following the recent Supreme Court cases: many selective campuses are not reaching their admission targets.
- Since 1980 the percent of students who plan to work full-time while in school has risen to 6.3 percent.
- The most recent Cooperative Institutional Research Program (Astin) survey of freshmen found that 48 percent had 'A' averages in high school, so ability may not be the primary factor in completion.

Our Thoughts: **Retaining students needs to be as high a priority as recruiting them—successful retention always helps recruiting.**

- Programs that support groups of minority students from the same high school in attending selective schools together show promise for increasing retention above and beyond meeting financial needs.
- Research indicates that the two factors contributing most to college graduation are what students come with (academic preparation and performance in high school) and whether they can stay in college without stopping out (continuous enrollment).

Fact: **Rates of growth in the 18- to 24-year-old and 25-and-older populations vary widely across states over the next 10 years.**

- 17 states, mostly in the West, will experience greater than 10 percent growth in the traditional student population of 18- to 24-year-olds.
- Seven 'rust belt' states are most likely to experience low growth (i.e., less than 10 percent) in both population groups.
- Community colleges will continue to increase their share of college-goers in all population groups.

Our Thoughts: **How can we make sure that students' needs for access are met? Should we also ensure that states 'poor' in population aren't disadvantaged in higher education access?**

- Four-year institutions are becoming increasingly selective as applicants rise and budgets go down; including those publics with access mandated.
- The capacity of community colleges to absorb more students is severely limited. Without additional funds, building the space to meet those needs will be difficult. One funding exception may be residence halls, as community colleges expand their reach.

Fact: **Student visa requests increased for the first time since the 9/11 attacks and the passage of the Patriot Act.**

- Applications for admission, however, are still below 2001 numbers.
- A proposal by the administration would increase the cost of visas for foreign scholars and university employees to $500 from under $100.

Our Thoughts: **Foreign enrollments on US campuses have now dropped to their lowest level since 1971.**

- Major graduate institutions reported a drop of 6 percent in foreign enrollments.
- The sharpest drops were in enrollments from India, China, and Japan.
- China and India are rapidly building their own higher education infrastructure. International opportunities for architecture, construction, and engineering in higher education will abound.

Economy

Fact: **Congress and the president are still working on the Higher Education Reauthorization Act (HERA) and things continue to look bad for all higher education institutions—the president's budget makes major, significant cuts.**

- The National Center for Public Policy and Higher Education paints a dim picture of college affordability with grades of 'F' going to 36 states and 'D' to another 11.
- While Congressman Howard P. "Buck" McKeon's legislation to 'punish' colleges for large tuition increases was withdrawn, he's still working to include institutional reporting requirements on costs in the HERA.
- Pell, Perkins, research funding—nothing is sacred and everything is going down or away.

Our Thoughts: **All but three states had an increase in revenue projections in 2004—but mostly they're replenishing their rainy day funds in fear of bad times coming back soon.**

- We'll continue to see large endowment and capital campaign announcements from more and more campuses.
- Community colleges are now turning to fund raising beyond grant writing in an effort to increase revenues.
- Affordability will continue to decrease access and the ability of students to graduate on time, or at all.

Fact: **Tuition again saw a significant increase—an average of nearly 10% at public four-year institutions. Likewise, the average cost of books for one undergraduate semester is now $900.**

Our Thoughts: **Institutions need to apply a much finer analysis to its aggregate look at yields as they relate to financial aid—the now infamous 'tuition discounting'.**

- Price sensitivity analysis is making its way into affordability analyses—what does it take to get the class you want?
- Institutional research is vital to ensuring that sufficient information is available on each student and aggregates of students to determine what economic offers, to which students, create the desired yield.
- Private institutions are ahead of publics in such analyses.

Fact: **The global economy is more integrated than ever, which means perturbations in one place ripple quickly.**

- 2004 saw historic increases in the price of oil.
- The US dollar continued to decline on world markets and may force the Chinese to re-value the Yuan before the end of 2005.
- Rising US interest rates, however cautiously they increase, along with a drop in housing starts and sales, signal a short-lived recovery.

Our Thoughts: **The cost of doing business in US higher education institutions will continue to increase faster than the rest of the economy.**

- The building 'boom' will slow, if only because money just won't go as far.
- Energy efficiency will return to the forefront as a key way to keep costs down in new and aging buildings.
- Demand for metal, concrete, and other construction materials in Asia, following the tsunami and combined with the needs of China, mean that getting the building you asked for and can pay for will be difficult and take longer.

Environment

Fact: **The Kyoto accord went into affect on February 16, 2005.**

- Signatories are pushing for legislation to meet its provisions—including using taxation as a tool for the greening of their countries.
- Trading credits may provide a source of income for countries that produce fewer green house gases—how will they invest those funds?

Our Thoughts: **With or without the United States, the world is pushing for reduced pollution across borders.**

- Will US higher education institutions and companies lose the research and development game to those countries that have stronger financial incentives for green materials and practices?
- Will other countries start imposing tariffs on US goods that aren't made in sustainable ways?
- Will non-Kyoto signers be disadvantaged in global trade in other ways?

Fact: **Leadership in Energy and Environmental Design (LEED) certification remains the most recognizable symbol of green facilities. LEED is branching out, but not everyone sees the need to pay the US Green Building Council (USGBC) for that symbol.**

- In 2001 there were 5 LEED-certified projects. By October 2004 there were 162 with 1,614 projects seeking LEED certification upon their completion.
- New construction LEED certification is where USGBC started. Now it's promoting criteria for certifying existing buildings, commercial interiors, and core and shell projects.

Our Thoughts: **Sustainable design is simply becoming 'good design'. Energy conservation, students raised on environmental awareness, and local purchasing for economic development all played a role in this development.**

- The spread of life-cycle costing will enhance the marketability of green building.
- Increasingly campuses are assigning a sustainability portfolio to a professional on campus. This helps in the sharing of best practices and provides a more easily identifiable locus for targeting green products/design.
- Green products and bidding are becoming more acceptable and desirable in campus purchasing offices.

Fact: **Commercial research in a variety of areas has interesting implications for green practices and design, as *The New York Times* reported in its annual review of the year in ideas.**

- Translucent concrete has arrived on the scene, but presently it's too expensive for large-scale construction.
- Ben & Jerry's debuted a thermoacoustic freezer last year that uses helium or argon instead of hyrdrofluorocarbons for a significant decrease in hazardous chemical emissions. Pennsylvania State University researchers devised it and Ben & Jerry's gave Penn State the patent.
- A new fire-suppression system uses a liquid that evaporates 25 times faster than water, snuffing out fires by turning into a gas. It also disappears from the atmosphere five days after use and does not deplete the ozone layer.

Our Thoughts: **Even on initially small scales, new processes and inventions will begin to open doors to more inventive design options.**

- Translucent concrete offers options for smaller spaces, particularly at ground level, where visual contact increases safety, navigation ease, or aesthetics.
- While the ice cream freezer is still relatively small, such advances help reduce the depletion of the ozone layer.
- Fire-suppression that doesn't damage electrical equipment, library and art collections, and other critical documents could prove to be highly desirable for institutions.

Learning

Fact: **Since the passage of the Bayh-Dole technology-transfer law in 1980, the number of patents issued to universities has risen from under 250 to more than 3,600. Aside from patent revenues, bringing technologies to market has been a learning experience for business students.**

- In 2002, US higher education institutions earned $1.3 billion in patent revenues.
- Between 1980 and 2002 more than 4,300 companies were formed based on academic research.

Our Thoughts: **More often than not, engaging students in active and meaningful learning benefits not only the student, but also the university and community.**

- How do we encourage faculty members to include applied learning with economic impacts in their courses?
- High schools are increasingly requiring community service to graduate. For publicly supported institutions, a similar requirement may not be far off.
- Service learning, internships, co-op placements have all been around for many years—with a little creativity, these opportunities could have documented economic benefits to go with their learning outcomes.

Fact: **Between early 2000 and early 2001, 46 percent of adults in the US participated in some type of adult education, not including full-time attendance at a postsecondary institution. By contrast, only 22 percent did in 1965.**

- One percent more women (5%) than men (4%) participated in part-time college or university degree programs.
- The higher the income level, the more likely an individual was to engage in adult education programs—either work-related or of personal interest.
- Work-related courses were the type of educational activity in which adults participated most frequently (30% of all adults).
- The more education a person had attained, the more likely he or she was to engage in adult education.

Our Thoughts: **The desire for continuing education, including degree programs, is likely to keep growing over the next decade and beyond. Both work-related and personal interest courses will be in demand.**

- Demands for continuing education by professional and other skilled groups will likely increase as more adults choose these careers. Insurance and legal risks might also push professionals to needing additional educational certification.
- Adults are often better served by different classroom and pedagogical arrangements. Can four-year institutions be as flexible as two-years have proved to be?
- For-profit higher education is a likely beneficiary of this trend.

Fact: **Neuroscience research continues to highlight the importance of emotion in most aspects of cognitive development, memory, problem solving, decision-making, and other cognitive functions.**

Our Thoughts: **The affective connections to learning are still not widely recognized in higher education.**

- As digital intelligence is capable of more and more of the analytic, linear, sequential, and 'left-brain' functions, conceptual, big-picture, 'right-brain' functions will be increasingly necessary for professionals. How will higher education ensure that students gain or maximize these abilities?
- Classroom design influences our emotions as much as pedagogy. How will we re-conceptualize design to connect positive emotions and experiences with cognitive learning?
- Pedagogy that includes conscious attention to our 'old brain' needs might prove even more difficult for faculty to learn than integrating technology did.t

Politics

Fact: **The Higher Education Reauthorization Act budget proposed by the Bush administration contains more drastic funding cuts than anyone imagined before the election.**

- Fights about the removal of all funds for Perkins Loans, Tech-prep, and pre-college programs are a surety.
- Assessment is recommended for an increase, so No Child Left Behind for high school is more than likely to move forward. Will it make a difference for students' readiness?
- Research funding is taking a cut for the first time in years.
- The National Endowments for the Arts and the Humanities are once again scheduled for elimination.

Our Thoughts: **While the dust certainly has not settled yet, higher education is taking as big a hit at the federal level as it has in states over the past three years.**

- Private institutions will start to feel the pinch, just as publics have—students, of course, will ultimately be the big losers as tuition keeps going up.
- It may be impossible for higher education to keep a united front in its lobbying to keep funds nearer to traditional levels—there are too many competing interests.
- K–12 and higher education will be more divided than ever as the pie only gets smaller and smaller.

Fact: **Legislation aimed at increasing accountability in higher education institutions continues to play well at the state and federal levels.**

- California's Performance Review commission sent a strong message to four-year institutions with its report last year that lowering costs and increasing the ease of transferring credits were key to continued funding. It also recommended that community colleges begin awarding four-year bachelor's degrees.
- While it didn't stay there, U.S. Senator Robert C. Byrd put a provision in the final spending bill for 2005 that would have required any educational institution that receives federal aid to offer its students instruction on the U.S. Constitution.

Our Thoughts: **As costs increase, public institutions are going to see increased scrutiny from legislatures and Congress on what students are getting for their tuition dollars. Accreditation agencie's efforts to measure student outcomes aren't likely to be enough to convince parents, tired of high costs and kids who come home, that college is worth it.**

- Performance measurement and assessment are going to stay at the top of senior level administrators' list of issues. Proving that you've prepared a student for the world of work, no matter how loudly the liberal education is touted as laudable, is now a requirement of college graduation.
- State-wide post-graduation testing may continue to wax, since No Child Left Behind for college may not be far away.

Fact: **Europe's desire to allow seamless transfer across institutions is still far from being realized. The UK Higher Education Policy Institute reports that overly-bureaucratic solutions continue to dominate and they are just not working.**

- It's been a number of years since the Bologna Process was first outlined and the variation in awareness, let alone adoption of its principles among European countries and the institutions within them is as great as ever.
- U.S. students who study abroad often find their credits don't count, even when their own institution has sponsored the courses.

Our Thoughts: **Global students want to be able to move their learning credits across all boundaries, not just within a country. Increasingly, students are going to want to study in a variety of institutions at different times in their careers. The first country that recognizes this and allows easy transfer will capture a large chunk of the future learners.**

- If credits aren't recognized within the EU, is Europe really likely to successfully compete for international students?

Technology

Fact: **Spending on information-technology in higher education is likely to decline again this year, but spending is still over $5 billion.**

- Although overall spending is declining, private institutions report an expected increase of close to 28 percent.
- Public institutions expect a drop of 13 percent in technology spending.
- Private institutions report averaging $553 in technology spending per student, while publics average only $203.

Our Thoughts: **Technology spending in all sectors has finally begun to slow. The productivity promises of the 1980s have arrived and technology may not be able to contribute much more to the efficiency of educational delivery.**

- Fewer institutions say they're offering distance education programs 64 percent this year versus 67 percent last year.
- Public institutions just can't afford to keep pouring money into hardware, especially when they have to reduce technology support personnel on the payroll.
- Parents and students, while expecting excellent connectivity, may no longer be willing to pay escalating technology fees on top of tuition increases. If communities go wireless, campuses will try to piggy-back.

Fact: **Unlike other technology spending, wireless access is on the rise across the country.**

- The overall wireless market is likely to go over $200-billion in the next three years. 2004 again saw double-digit growth in wireless communications technology in the US.
- Seventy-nine percent of colleges surveyed recently reported having wireless networks, up from only 45 percent in 2002.

Our Thoughts: **The convergence of wireless devices continues to speed up, as the old Dick Tracey vision of instant access anywhere has finally come of age.**

- Eventually the US will have to adopt the global standards used elsewhere.
- Global students will expect professors to be as flexible and adept at electronic communication as they are, no matter where they are located. While faculty members have mostly learned the power of email, ubiquitous connectivity means much more than that.
- Power lines are now likely to be the way that everyone gets access into their house, with wireless taking over from there. The rural-urban divide will finally disappear.

Fact: **The southern state in India that is the center of its information technology industry plans to build a high-speed broadband network that provides access to all its citizens within two years.**

- The government and private industry have forged a partnership to make sure that everyone has access in an effort to push even further in its plans to be a knowledge-based employment center.
- US school children are now tutored by Indian nationals through the Internet.

Our Thoughts: **Outsourcing is no longer limited to manufacturing and help centers. High value added services, like education, tax preparation, medical diagnostics, and legal services are all going to India—a country that will soon have more English speakers than the rest of the world combined.**

- It won't take US for-profit higher education providers long to realize that India is place that's both a market and supplier of its products and services.
- Will US research institutions begin to outsource some their more hazardous experiments? More and more data collection is becoming routine with the introduction of technology, so out-sourcing research may well be just around the corner.

Fact: **Students are showing up on campuses with more electronic devices and they're expecting technical support for all of them.**

- The University of Minnesota now sets up 'computer inoculation stations' in residence halls to help students keep their computers free of viruses and spyware.

Our Thoughts: **This may be the perfect opportunity for partnerships with for-profit services. Ensuring that students aren't infecting university systems is becoming a necessary expense in the age of increasingly nasty attacks on campuses computing environments.**

- Is it time for campuses to consider computer 'health' insurance for students? Priced right it could help students and the university simultaneously, particularly now most campuses are requiring students to come ready to compute.
- Could those unused computer labs become quick diagnostic and repair centers?

Questions and Survey for Panelists

1. Thinking of HIgh School or Community College students that you know who want to go onto a four year school, what do you think are the most attractive fields of study for these students?
2. When students look for a college, what majors do you think they are most attracted to?
3. What majors had you hoped were available to you when you or a family member went to college?
4. What can FSC do in terms of its academic offerings to better serve the area and its potential student population?
5. What do you see as economic growth areas that will offer the greatest career potential?
6. What changes in student age population (18-22) do you for-see in the next ten years?
7. What future economic or social issues should an institution such as our need to consider in attracting students?
8. Please rank the following new majors or areas of study that you think students would be most interested in? (list each one of our identified growth areas with a brief explanation of what the major entails)
9. Please rank these same new majors or areas of study in terms of need for the community.

Faculty Questions

1. What do you think are the areas of study or new majors that are most likely to be attractive to students entering college?

2. What would FSC have to do to or offer for students to come here to study?

3. Given what you know now, what area of study of major would you pick if you or a family member were entering college?

4. What responsibilities does FSC have to service people of the area? What should we be doing?

5. What student populations do you think FSC should focus on for recruitment?

6. As FSC plans for the future, what economic and social trends should we keep in mind?

7. What concerns do you have about the traditional student population (18 - 22)? What could we do to overcome these concerns?

8. In what ways would alternative methods of teaching help FSC?

John	1. What do you think are the areas of study or majors that are most likely to be attractive to students entering college?
Karen	2. What would FSC have to do or offer students to come here?
Shanni	3. Imagine you were senior in high school and applying to college, what major would you select?
Azure	4. What responsibilities would you like FSC to take on to service people in the area?
John	5. What student demographics (the 18 -22 or others) do you think FSC should focus on for recruitment?
Karen	6. What concerns do you have about the 18 -22 year old population that a college should be aware of?
Shanni	7. When you think of your position now what could your college have done to better prepare you?
Azure	8. Thinking of your employees or constituents what training and education needs how could FSC be helpful in meeting these?
John	9. As FSC plans for the future, what economic and social trends should we keep in mind?

Expert Panel March 5 & 6 2008

FSC Students

1. (J) What areas of study or majors are most attractive to students applying to a college?

2. (K) What would FSC have to change to get more students interested in coming here?

3. (S) Imagine you were in your senior year of high school again, what major would you select knowing what you know now?

4. (A) Who do you think FSC should focus on for recruitment?

5. (J) What groups of people do you not see on our campus that you think would benefit from coming here?

6. (K) What should the people planning for FSC's academic offerings know about college students and their needs?

7. (S) If you could add one or two new majors at FSC what would they be?

8. (A) What stories do you imagine you will tell people about your experiences at FSC 10 years from now?

Leominster High School

1. Thinking of HIgh School students that you know who want to go onto a four year school, what do you think are the most attractive fields of study or majors for these students? (Shanni)
2. What do you think high school students look for when selecting a college? (Azure)
3. How do you know that the college actually has what the student is looking for? (Karen)
4. What future economic or social issues should an institution such as our need to consider in attracting students? (Shanni)
5. What can FSC do to attract more students? (Azure)
6. What do you think the students are like at FSC? (Karen)
7. (Guidance Counselors Only) What majors had you hoped were available to you when you or a family member went to college? (Shanni)
8. (Guidance Counselors Only) What do you see as economic growth areas that will offer the greatest career potential? (Azure)
9. (Guidance Counselors Only) What changes in student age population (18-22) do you for-see in the next ten years? (Karen)

Please rank the following majors according to the scale provided

Broadcast Journalism
This program would prepare students for careers in the field of television, radio, and documentary reporting.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Brain, Behavior, and Cognition
This program would take an interdisciplinary approach drawing on the behavioral sciences, biology, and computer science departments. Students could pursue a variety of careers in science, including neuroscience, cognition, computer science, or medical school.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

New Media/Web Design
Changing the name of Interactive/Media to web design provides the potential to increase enrollment. Increasing course offerings of animation within Interactive media also promises to attract students.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Game Design

This may be an extension of the existing Interactive Media concentration to offer Game Design to students who want to work in the field of designing video games and other interactive media

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Five Year BA/MA Education Degree

Students would complete both degrees within five years.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

EEC Certification as a Lead Teacher in Daycare

Students would have the highest level of certification to teach in a licensed day care facility

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Applied Math
This program would take an interdisciplinary form and would draw on math, bioinformatics and molecular biology.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Human Resources Management/Industrial Organizational Psychology
Refocusing the current program in Industrial and Organizational Psychology by building stronger ties with the Business Department presents the potential to attract more students.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Robotics and Artificial Intelligence (AI):
This new major would include computer and math classes in hardware, software and neural computing. Students would work toward the design of robot body and behavior. other disciplines.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Entrepreneurship/Small Business Management:
This new major could address the needs and desires of the College to cultivate close working relationships with surrounding communities by providing education and training in the creation and sustainability of small, local businesses

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Social Responsibility:
This major would provide students with the awareness and skills needed for living and working in a pluralistic society and would address issues of equity and quality of life facing people around the world.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Forensic Science:
Forensic science is a broad, interdisciplinary field in which biological and physical science methods are used to analyze and evaluate physical evidence related to matters of criminal and civil law.

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Environmental Science

This new major studies the interaction among physical, chemical, and biological components of the environment to address issues such as climate change, conservation, and sustainable development

Likely to interest students

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Offers career opportunities

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Beneficial to the community

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1	2	3	4	5

Considering the majors identified above which do you feel hold the greatest potential:

Are there other majors that you feel should be on this list, if so what would they be?

Comments:

Massachusetts Life Sciences Initiative

MASSACHUSETTS LIFE SCIENCES CENTER

Matching Grant Program for Researchers in the Life Sciences

On February 11th, 2008, the Massachusetts Life Sciences Center (MLSC) officially launched a new Matching Grant Program, designed to fund research at public and private universities and colleges and affiliated research institutions such as academic medical centers and independent research entities in Massachusetts. The program aims to foster and grow the scientific research enterprise of the Commonwealth. (For the official program launch press release, click here.)

The new competitive research program, which offers an initial $12 million in matching investments through three solicitations, is focused on attracting top scientific talent, spurring new research opportunities, and increasing industry-sponsored research in the Commonwealth. In particular, this first-of-its-kind state investment to fund research opportunities in the life sciences seeks to encourage new work on stem cells, genomics,RNA interference, proteomics,image analysis, and bioinformatics.

This initial MLSC Matching Grant Program

Solicitations:

Cooperative Research

New Faculty Startup

New Investigator

Click below for:

Summaries

Schedule

FAQs as of 3/07/08

consists of three solicitations:

Press

* The **Cooperative Research Solicitation** seeks to increase industry-sponsored research at universities and colleges in Massachusetts in order to facilitate scientific discoveries and inventions that lead to beneficial medical applications. A successful applicant will receive a grant of $250,000 per year for up to three years, in a 1:1 match with its industry partner.

Official Release

State House News

NECN Coverage

Cooperative Research Grant Bidders Conference
Date: Friday, April 4, 2008
Location: Executive Office of Housing and Economic Development, One Ashburton Place - 21st floor - Conference Room 1 (Click for directions)
Time: 10 am - noon

* The **New Faculty Startup Solicitation** targets investments to attract and retain nationally prominent faculty at Massachusetts' colleges and universities. A successful applicant will receive a grant of $250,000 per year for up to three years, in a 1:1 match with the academic institution.

New Faculty Startup Grant Bidders Conference
Date: Friday, March 14, 2008
Location: Massachusetts Technology Collaborative, Westboro Office in the Weiss Building, Classroom 102
(Click on link above for directions)
Time: 10 am - noon

* The **New Investigator Solicitation** seeks to spur innovative new research and advance the careers of new investigators who are working on cutting-edge life sciences research at Massachusetts colleges, universities, and affiliated research institutions. A successful applicant will receive a grant of $100,000 per year for up to three years.

For the **official downloadable solicitation documents**, click on links above according to your interest.

For a **schedule** of the application process pertaining to each solicitation, click here.

Each proposal will be subject to a competitive peer review and will be judged on its scientific merit.

If you are interested in receiving email updates about the program, click here.

If you have further questions, please contact Beth Nicklas at MLSC@masstech.org or 508-870-0312 ext. 1635

VAL L. PATRICK AND THERESE MURRAY

The promise of biotech

The Boston Globe

By Deval L. Patrick and Therese Murray | May 9, 2007

FOR DECADES Massachusetts has been fertile ground for the life sciences. Our unique concentration of extraordinary universities, teaching hospitals, research facilities, venture capital, and talent, spurred by a tradition of entrepreneurialism, provides a strong foundation for the growth in the biotech industry. These strengths have brought thousands of jobs and billions of dollars in life science investments to Massachusetts.

For us, that success is more than a commercial matter. Each family can speak poignantly about a family member or friend with a disease or debilitating illness. You cannot be in the company of someone you love, powerless to help them, without appreciating the vital importance of stem cell research and other biomedical breakthroughs. In many ways, the health of this industry and the health of our society are closely linked.

But we cannot afford to rest on our laurels. Competitor states and foreign nations are investing billions to attract our researchers, institutions, and industries. The University of Wisconsin-Madison outspends both Harvard and MIT in research and development. India and China, to say nothing of states such as California, are actively working to attract signature companies away from Massachusetts. At the same time, federal funding through the National Institutes of Health, of which Massachusetts typically receives a large share, is flat and likely to diminish. Politics, especially around stem cell research, impaired the innovation and calculated risk-taking that make breakthroughs possible. It is essential that the Commonwealth step up to maintain and extend our global leadership in the life sciences.

We are doing just that. Working with all sectors of the industry, we have developed the Massachusetts Life Science Initiative. This 10-year, $1 billion investment marks a new partnership between state government, industry, academic medical centers, and public and private higher education, and will accelerate statewide life sciences growth into high gear. We want to support this industry on the path from inspiration to commercialization, from ideas to cures.

That begins with support for new ideas and innovation. The rate of innovation in Massachusetts in recent years has been triple that of the national average and we have no intention of letting it slip. So, we will close gaps left by depleted NIH funding, and invest in promising developments like the nanotechnology center at UMass-Lowell and a new RNAi facility at UMass Medical in Worcester. To bring the best and brightest to those facilities and others, we will offer life science grants to young, promising researchers who may not yet have drawn the notice of federal funders.

Playing to our world leadership in stem cell research, we will also create a Massachusetts Stem Cell Bank to be housed at the University of Massachusetts. Once completed, the bank will hold the largest collection of stem cell lines in the world and make our rapidly growing catalog widely available to researchers. Already a group of competitive institutions have agreed to contribute to the Stem Cell Bank, underscoring the spirit of collaboration so distinctive about our biotech supercluster.

The state will also develop Innovation Centers to provide industry and the academic community access to cutting-edge facilities and technology. These centers will serve as regional economic engines throughout the Commonwealth, as new companies and jobs open up in the cities and towns around them.

We will supply Innovation Centers and private facilities alike with the equipment necessary to advance research without unnecessary restrictions. Today millions of dollars of equipment sits idle in labs because the federal government has prohibited its use on stem cell research. We want our researchers focused on innovation and cures, not ideology and politics.

Finally, when an idea is ready to become reality, we will help guide it to the marketplace. Breakthroughs are often lost in investment gaps typical of the movement from early academic research to industry development. We will designate grants to translate discoveries into applications and support partnerships to move new ideas along. We will also work to help life science projects in Massachusetts win federal assistance. Job growth here in the industry is fueled, in part, by federal support, and our companies lead the nation in these awards per capita. Every new job created in the life

sciences results in two additional jobs in support services for suppliers, vendors, and construction. What's good for the life sciences and biotech is good for Massachusetts.

Our Massachusetts Life Science Initiative will strengthen our competitiveness, not just in the United States, but in the world. State government has the opportunity to be an active partner in helping grow ideas into cures, bring new jobs Massachusetts, and secure our global leadership in this important industry.

Deval L. Patrick is governor of Massachusetts. **Therese Murray** is president of the Massachusetts Senate. ■

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE DEPARTMENT
STATE HOUSE BOSTON, MA 02133
(617) 725-4000

DEVAL L. PATRICK
GOVERNOR

TIMOTHY P. MURRAY
LIEUTENANT GOVERNOR

FOR IMMEDIATE RELEASE:
May 08, 2007

CONTACT:
Cyndi Roy 617-725-4025
Kofi Jones 617-788-3652

GOVERNOR PATRICK ANNOUNCES MASSACHUSETTS' NEW LIFE SCIENCES INITIATIVE

Investment package, industry and public- private higher education collaboration and state stem cell bank make Massachusetts global leader

For updated information on the governor's Life Sciences proposal, please click here.

BOSTON – Tuesday, May 8 – Governor Deval Patrick today announced his plan to make Massachusetts the global leader in life sciences, unveiling for the first time ever a comprehensive, collaborative Massachusetts Life Science Strategy.

The plan, outlined during a speech at the BIO 2007 convention, includes a 10 year, $1 billion investment package that will both enhance the state's already nationally recognized assets in the fields of medicine and science and fill gaps in federal funding to ensure the state's ability to support life science progress from the idea stage through the production stage. The Patrick Administration's strategy brings together industry, academic research hospitals, and public and private colleges and universities to coordinate these efforts, spur new research, strengthen investments, create new jobs and produce new therapies for a better quality of life.

"There is no place in the world with as much talent in life sciences and biotech as here in Massachusetts," said Governor Patrick. "Now is the time for us to invest in that talent and bring together the resources of our unparalleled research universities, teaching hospitals, and industry to work towards a common goal -- to grow ideas into products to create cures and jobs."

Key to the Governor's Life Science Initiative is new legislation that will strengthen the Massachusetts Life Science Center and charge it with the execution of a life science mission focused on science and economic development, strategic investments at critical stages of the development cycle, and collaboration with the private sector to create innovation infrastructure critical to both researchers and companies. The Governor also announced his commitment to making targeted investments in companies that encourage life science economic development in the Commonwealth.

"I commend the Governor for reaching our to all sectors of our life science cluster in order to craft a stem cell/life science package that recognizes the unique institutional assets and intellectual firepower in our region," said Steven Hyman, Professor of Neurobiology at Harvard Medical Schooland Chairman of the Massachusetts. "The Governor allocates state resources in effective ways to enhance our traditional strengths, buttress areas that need attention, and encourage powerful collaborations between our leading edge institutions."

Today's announcement at the BIO 2007 Convention highlighted the following:

A $1 billion investment package that includes funds to:

- **Bridge the NIH funding gap**– A competitive grant program during the current downturn in federal support to sustain key programs in the state. Our collective success during the 1998 – 2003 period when the NIH budget doubled from $14 billion to $28 billion only solidified Massachusetts' dominance in the area of biomedical research. However, the subsequent four years of flat funding since 2003 has caused a 13 percent loss of funding power by NIH and a 35 percent reduction in support for clinical trials. The Patrick administration will make surgical investments during the downturn to sustain key programs here in Massachusetts in order that our position is sustained to once again capture large percentages of new funding when it materializes.

- **Create the Massachusetts Stem Cell Bank** – A first A first in the nation centralized repository of new stem cell lines available to all sectors, public and private, of research enterprise. Boston University, Brigham & Women's, Children's Hospital, Harvard University, Massachusetts General Hospital, the Massachusetts Institute of Technology, Partners HealthCare and the University of Massachusetts have already agreed to participate in the Bank when it is completed.

- **Establish Massachusetts Life Science Fellowship Grants**– Grant packages for research institutions in Massachusetts to attract and retain the rising stars of life sciences research in the Commonwealth, and ensure Massachusetts is competitive with other states and nations.

- **Establish Massachusetts Life Science Innovation Centers**– Center-based research facilities that streamline technology transfer, development time and funding opportunity.

"As the president of the University of Massachusetts, the leading public academic research institution in the Commonwealth, I applaud Governor Patrick for making such a strong commitment to the life sciences, particularly stem cell research and RNAi-related research and development," said University of Massachusetts President Jack M. Wilson. "The announcement today is an important step in developing a world-class life sciences strategy for the Commonwealth that will foster scientific innovation, including unlocking the mysteries of debilitating diseases, and spur economic growth. The University of Massachusetts is proud to be able to play an important role in this strategy and I truly believe this proposal is far-reaching, comprehensive and of sufficient scope and scale to enable Massachusetts to continue and expand its national and global leadership in biotechnology and the life sciences."

"It is clear to me that scientific innovation and cutting-edge research help set Massachusetts apart in the eyes of the life sciences and greater scientific community. Today's announcement of this significant, new state funding is an important signal that the opportunities to do cutting-edge research in this state are expanding. I am proud that RNAi is already changing the scientific landscape, offering new tools in the effort to better human health; my colleagues at the UMass Medical School and I see great promise in our continued work with RNAi and RNAi Therapeutics. Support of this type from the government, academic institutions and society allows us to further advance science and to conduct important basic, clinical and translational research," Nobel Laureate Craig Mello, Ph.D. of the University of Massachusetts Medical School said.

"The future of life sciences is here in Massachusetts." Governor Patrick said. "We have the talent. We have the entrepreneurial spirit. Now let's seize the future."

Objectives of the collaborative

The goal of the Massachusetts *Life Sciences Collaborative* is to create a cross-sector collaboration that can both sustain dialogue among life sciences leaders in academia, industry and government and also over time develop a comprehensive, integrated strategy to grow the life sciences mega-cluster in Massachusetts. To be clear, when we use the term "cluster," we are using it in the broadest possible way to include the activities of our world-class universities, teaching hospitals and research institutions, our biotechnology, medical vice and pharmaceutical companies, as well as the many software, nture capital, plastics and IT companies that contribute to the growth and vitality of the cluster. The *Collaborative* will include all of these stakeholders.

Taking Stock

A report on the strengths and threats facing the life sciences super-cluster.

Download a pdf of the report

Currently, Massachusetts has a myriad of public and private programs and initiatives that are supporting the growth of individual sectors of the life sciences cluster, as well as vigorous and effective trade associations in biotechnology, medical devices and pharmaceuticals and other organizations that include teaching and community hospitals and health care research. **But the Commonwealth has yet to develop an overarching strategy that integrates the disparate elements of the cluster, identifies the obstacles to full economic and competitive potential, creates a path and direction that will ensure that Massachusetts maintains and builds upon its preeminence in life sciences research, development and commercialization, and that supports the effort with an administrative, financial and staff structure that can insure sustainability and results.** The Commonwealth must be positioned to resist and counter the aggressive efforts of other States—and countries—to challenge our position and draw away talent and resources from the state.

The importance and need for this initiative has been acknowledged already by the strong financial support provided by the Boston Foundation, the University of Massachusetts, Harvard University, and the Massachusetts Technology Collaborative' Innovation Institute and also by the administrative and staff support provided by MTC's John Adams Innovation Institute. The Massachusetts Biotechnology Council, the Medical Device Industry Council, New England Healthcare Institute, the Greater Boston Chamber of mmerce, and the Massachusetts Technology Leadership Council have

Massachusetts Life Sciences Collaborative Organizing Committee Member Biographies

Steven Hyman

Mitchell Adams

Burt Adelman

Christopher Anderson

Robert Anderson

Joseph Aoun

Edward Benz

Jamshed Bharucha

Paul Bleicher

Abbie Celniker

Aram Chobanian

Michael Collins

Charles Cooney

John Erwin

Walter Ettinger

Wendy Everett

Gayle Farris

David Fleming

Jonathan Fleming

Christopher Gabrieli

Ansbert Gädicke

Gary Gottlieb

Michael Green

Robert Green

Jeffrey Grogan

Paul Grogan

Paul Guzzi

Robert Healy

Hal Jenson

Ranch Kimhall

endorsed the initiative. **Unlike other initiatives in the life sciences undertaken by business and trade associations as one part of their broader public policy agenda, our initiative is solely dedicated on a multi-year basis to achieving the objectives of sustainable collaboration among life sciences stakeholders and the development of a comprehensive and integrated strategic plan for life sciences growth in the Commonwealth.**

George Langford
Patrick Larkin
Paul Levy
Lisa Lopez
Mark Maloney
James Mandell
Kevin O'Sullivan
Richard Packer
Joyce Plotkin
Mark Robinson
Peter Slavin
Thomas Sommer
Marilyn Swartz-Lloyd
Elaine Ullian
Lex van der Ploeg
Jack Wilson

News Articles MWCC

Mount's Asquino given Pacesetter Award for exceptional leadership

By Petulah Olibert
News Staff Writer

GARDNER — Sustainability, innovation, community involvement and commitment are what drive Mount Wachusett Community College President Dan Asquino, who was, last week, awarded the 2008 Pacesetter of the Year Award by the National Council of Marketing and Public Relations.

The award, heralded as "one of the organization's most prestigious honors," focuses on a community college president who has demonstrated "exceptional leadership, innovation and support of college communication initiatives," a press release from the college said.

Mr. Asquino, who received the award at the council's national conference March 10, according to the release, said that he is humbled and honored by the award.

"I feel great, obviously," Mr. Asquino said in regard to being the solo pick for the award out of 2,200 entries. "There are numerous colleges competing throughout the country, so it is an honor. But this award really is a tribute to my staff. They're the ones who really deserve it."

The award, Mr. Asquino says, reflects favorably on the college and the services it has provided and will continue to provide to the community.

"I think it is a tribute to the college and the area," he said. "It gets the college known."

In testament to his leadership and innovation, when Mr. Asquino began his tenure at the Mount 21 years ago, he thought more could be done to get the college involved within the community.

"I thought it was a very strong college academically," he said, "an outstanding institution, but what I didn't see was the college's involvement in the community as its name suggests. So not only have we

Turn to AWARD, Page 4

From AWARD, Page 1

changed our academic programs, but we have become more involved in the community. The academic programs now have a service learning and a civic engagement component, so the students are more involved in the community as well as the staff."

This endeavor, he said, not only makes the college richer in that students and the staff are more aware of the community, but also makes the community richer by fostering interest and keeping young people engaged, which translates to lower crime and dropout rates. And it has augured well for the school financially was well.

According to Mr. Asquino, the college has tripled its enrollment, and for the past four years, has had a steady annual increase of four percent. One year the college even recorded the highest enrollment increase of any public college or university in the entire commonwealth.

"I think its due to our efforts," he said. "People now know Mount Wachusett and they know about the programs we offer. And while it costs in the vicinity of $200,000 to receive a degree, more people realize they could come to Mount Wachusett for a couple years, transfer all of their credits and they could save $60,000 in the process. That is something we've tried to market, particularly to the middle class who are focused more on cost and quality."

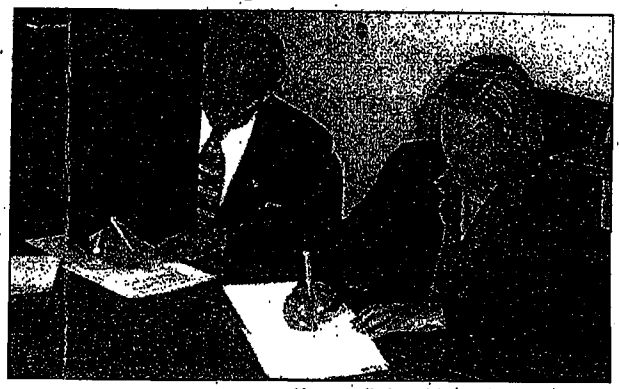
Mr. Asquino also focused on exploring alternative energy avenues.

"We had an old electric plant at the college and were then paying about $1 million. Today, that would translate to about $2.5 million," he said. "But last year, since we made the shift to biomass, we paid only $41,000 for wood chips that heated the entire plant for the entire season. In a few years, we hope to have the most efficient and most comprehensive alternative energy sources plant in the Northeast."

As for the future, Mr. Asquino is aiming to help students who want to make the transition to four-year colleges even more seamless by providing curriculum-related counsel, and developing articulation agreements with baccalaureate institutions. Soon, the college may offer an additional year beyond the two needed for an associate degree, he said, and a fourth year via distance learning.

polibert@thegardnernews.com

Mount inks agreement with Nichols



News staff photo by DANIEL KITTREDGE

Formalizing a cooperative program through which students can earn a bachelor's degree in business administration, Nichols College President Debra M. Townsley and Mount Wachusett Community College President Daniel M. Asquino sign an agreement during a ceremony at the Mount, Wednesday. For the complete story, turn to Page 3.

MWCC, Nichols partner for 'A to B' ıtiative

By Daniel Kittredge
News Staff Writer

GARDNER — Opening a new pathway for community college students to obtain a bachelor's degree, Mount Wachusett Community College President Daniel M. Asquino and Nichols College President Debra M. Townsley finalized the two institutions' collaborative Associate's to Bachelor's Business Program during a signing ceremony, Wednesday.

"We see it as a win-win-win," said Ms. Townsley of the program, which will allow Mount Wachusett business students to earn a bachelor's degree from Nichols College. " We are immensely pleased that a Mount Wachusett business graduate now has an opportunity to become a Nichols College graduate."

"It really is all about the students," said Mr. Asquino. "This agreement offers our students a seamless path to a highly regarded Nichols College business degree, at a tremendous cost savings."

Under the program, also known as "A to B," Mount Wachusett business students will have the opportunity to be jointly enrolled at Nichols as they work toward earning an associate degree in business. Once that degree is complete, the students will take a third year of business courses and transfer the credits — a total of 90 — to Nichols, spending their fourth year earning a Bachelor's of Science in business administration.

Fourth-year students can take their courses either at Mount Wachusett, at the Nichols campus in Dudley or through Nichols' online program, providing flexibility for those with family or employment commitments. Participants in "A to B" must maintain a grade point average of 2.0.

The presidents of both colleges said the program is part of their respective efforts to expand opportunities for students. Ms. Townsley said Nichols College has made expanding access to its degree a priority under its newly revised strategic plan, while Mr. Asquino said the Mount has for the past three years been working on its "university college" concept through which students could earn bachelor's degrees through "3 plus 1" articulation agreements with four-year colleges.

While designed foremost to assist students, Ms. Townsely said the program will also benefit both colleges by increasing enrollment figures and reinforcing the quality of course credits. The state's community colleges, she said, "have strong educational programs," and initiatives such as the "A to B" program will only serve to strengthen that.

Ezat Parnia, Nichols College's provost and executive vice president, said officials from the two institutions worked together closely to ensure that students joining the program would be able to seamlessly transfer their Mount Wachusett credits to Nichols. Often, he said, students transferring from a community college to a private institution lose some of their credits or are forced to retake certain classes.

"The intent was really to create a path" for transfer students, he said.

Mr. Parnia also stressed the importance of the program for students whose lives and commitments outside school prevent them from pursuing their education. Given the importance of a more advanced degree in the modern economy, he said the program's flexibility provides many young people with an opportunity they would not otherwise have.

Chezelle Rodriguez, who was present at Wednesday's ceremony, will be among the first Mount students to take part in the program. With two associate degrees from the college, she said "A to B" will help her continue her education while working a full-time job and raising her children.

"That's the best testimonial of all," said Mr. Asquino.

Ms. Townsley similarly spoke to the opportunities a Nichols College degree will open for many students, pointing out that one in 10 alumni of the college work as a president, CEO or business owner. Ninety-six percent of the class of 2006 found work within six months of graduating, she said, at an average salary of $40,000.

"It gives access to the students who many not be able to afford it," she said.

Dr. Vincent Ialenti, the Mount's assistant dean of distant learning and instructional technology, said business is the college's largest program, with nearly 260 students. Students will be introduced to the "A to B" program during a meeting Friday, he said, with additional promotion of the initiative to follow.

Mr. Asquino said the Mount is currently working to create additional partnerships with four-year colleges, specifically for nursing and other programs.

dkittredge@thegardnernews.com

Mount to soon start offering baccalaureate program

Asquino exploring ways for students to get bachelor's degrees through college

BY PETULAH OLIBERT
NEWS STAFF WRITER

GARDNER — Mount Wachusett Community College, in association with a few other colleges, will soon be offering academic programs beyond the two-year associate degree programs in the near future, college President Daniel Asquino said.

According to Mr. Asquino, he has been negotiating offering academic programs at the college that go beyond the associate degree programs for the past five years.

"At least 51 percent of our students have the desire to pursue a baccalaureate degree," Mr. Asquino said. "I thought it would be helpful and beneficial to the students to make that transfer as easy as possible and with no loss of course credit. So I've been working on articulation agreements with other baccalaureate degree granting colleges who would accept maybe more than just the second year of credits — perhaps a third year so that students can continue their education at Mount Wachusett for a third year at a lower cost. What I'm hoping eventually, is that students will be able to remain at Mount Wachusett and obtain their baccalaureate degree through distance learning or on ground programs offered by that college. So we're really aggressively pursuing that strategy."

In addition to easing students through those transfers, and providing them with lower-cost alternatives, degree pursuers may also be entitled to full scholarships at the institutions they transfer to.

"There will be scholarships either through the institution that students transfer to, or through our foundation," Mr. Asquino said. "We transfer many of our students who have obtained their associate degrees to colleges like Smith, Amherst and Wellesley, starting out as full juniors, some even with full scholarships worth about $80,000 a year."

There are no plans for the college to become a four-year degree-granting institution, as the process is a lengthy one, and because the school also wants to ensure that it caters to all of its students.

While 51 percent of the students seek to further their college careers, the other 49 percent — law enforcement, graphic arts, and television and broadcasting students — attend with the intention of going into the world of work.

"Our mission is to be a community college and we're essentially an associate degree-granting institution," Mr. Asquino said. "So if a current student wants to further his or her college career beyond the two years, we will advise them what courses to take, but we also aim to provide for those who come here with the intention of obtaining a two-year degree. For example, our new bio-manufacturing/biotechnology progra is going to be offered as an associa degree. People who obtain that degr will go out into the world of work sta ing at $40,000 to $60,000 a year. Th may come back to continue their educ tion, but they don't need to."

If plans go well, Mr. Asquino sai the new joint program will be availab in the fall 2008 semester.

"I think these additional academ programs are a real opportunity for t people in our community to come to o college and continue their education a obtain a baccalaureate degree witho having to worry about moving out of t area or very long commutes," M Asquino said. "They will, in turn, b able to give back to the community."

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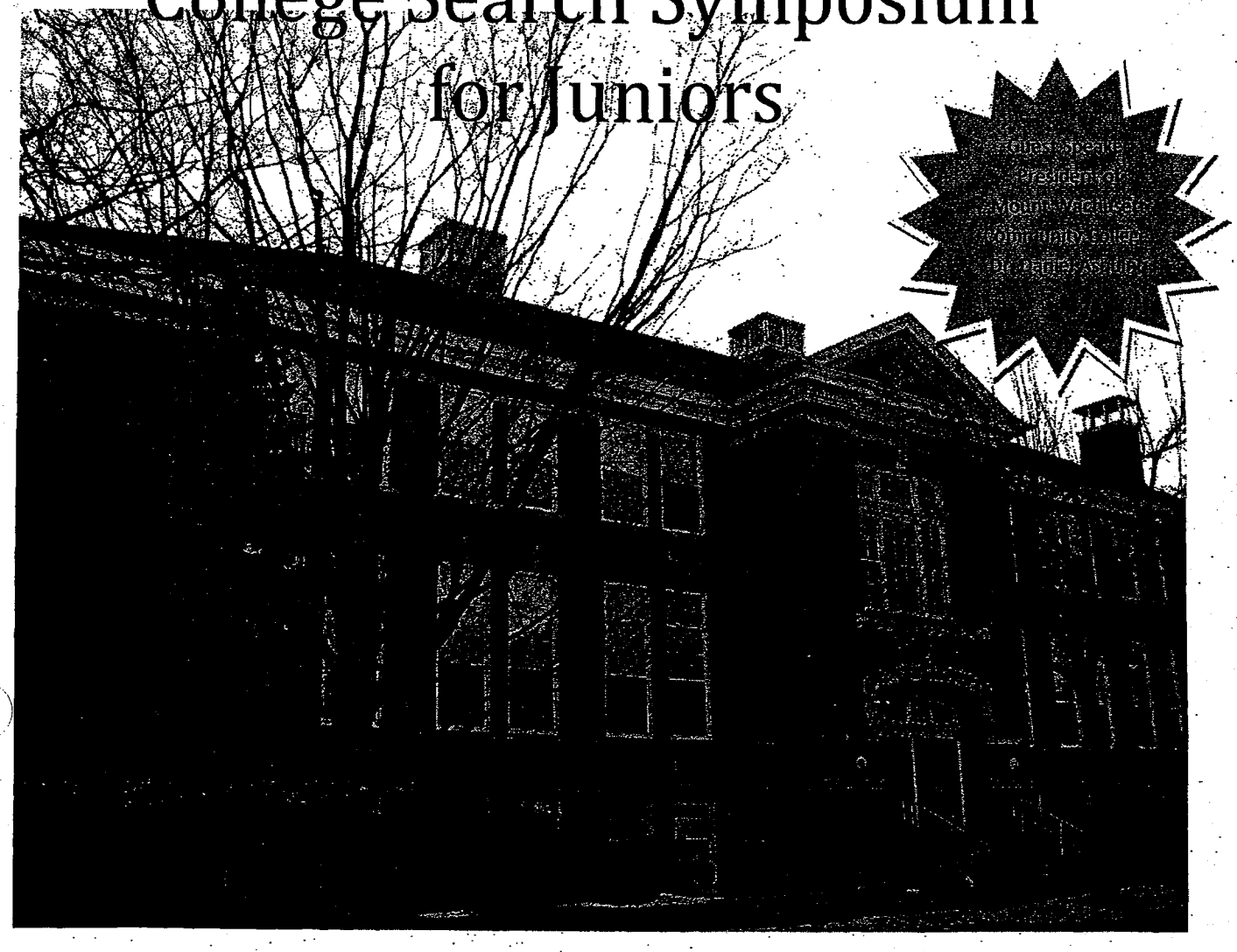
The Junior Symposium is a College Access Program for High School Students.
Co-sponsored by the Office of Admissions and the Division of Access and Transition Office at Mount Wachusett Community College.

8th Annual

College Search Symposium for Juniors



A one-day conference to help juniors plan a thorough college search.

Wednesday, March 19, 2008

8:30 a.m. - 1:00 p.m.

Registrations must be returned by Friday, March 7, 2008

Space is limited ... Register NOW

Mount Wachusett Community College

AA/EEO Institution

College Access & Preparation Programs

Presentation to Committee

FITCHBURG STATE COLLEGE

DELPHI REPORT
SECOND STAGE ACADEMIC PLANNING
APRIL 2008

Prepared by: J Chetro-Szivos, Ph.D. Associate Professor and Chair of Communication Media, Azure Collier, Public Relations/Publication Specialist and Graduate Student Applied Communication, Karen Sharpe, Writer Alumni Office and Graduate Student Applied Communication, & Shanni Smith, Assistant Director of Admissions and Graduate Student Applied Communication

DELPHI GROUPS

- Eight Panels - Between January 22 to March 11
- Forty-four individuals
- FSC Admissions Counselors, Faculty Group I, Faculty Group II, Expert Panel I, Expert Panel II, FSC Students, High School Students, & High School Guidance Counselors

RANKING OF POTENTIAL MAJORS

- Panelists asked to rank the 12 majors identified by the summer committees
- Three categories - likely to attract students, career opportunities, and benefit to the community
- Rated on a 5 point Likert Scale

MAJORS LIKELY TO ATTRACT STUDENTS

Major	Positive Responses	Percentage of Respondents
5 Year BS/MS Education	43	97.72
Forensic Sciences	43	97.72
New Media (Web & Game)	39	88.63
Broadcast Journalism	38	86.36
Entrepreneurship Small Business	36	81.81
Human Resource Management	36	81.81
Robotics	36	81.81
Environmental Science	36	81.81
Brain, Behavior, and Cognition	31	70.45
Social Responsibility	23	52.27
Applied Math	17	38.63
EEC Certification	7	15.9

Major	Strongly Agree	Percentage of Respondents
5 Year BS/MS Education	34	77.27
Forensic Sciences	28	63.63
Environmental Sciences	21	47.73
Entrepreneurship Small Business	18	40.9
New Media (Web & Game)	17	38.63
Broadcast Journalism	15	34.09
Robotics	14	31.81
Human Resource Management	9	20.45
Social Responsibility	8	18.18
Brain, Behavior, & Cognition	7	15.9
Applied Math	3	6.81
EEC Certification	3	6.81

MAJORS WITH CAREER OPPORTUNITIES

Major	Positive Responses	Percentage of Respondents
5 Year BS/MS Education	43	97.72
Entrepreneurship Small Business	39	88.63
New Media (Web & Game)	37	84.09
Human Resource Management	36	81.81
Environmental Science	35	79.54
Broadcast Journalism	35	79.54
Robotics	33	75
Brain, Behavior, and Cognition	32	72.72
Applied Math	24	54.54
Forensic Science	22	50
Social Responsibility	16	36.36
EEC Certification	9	20.45

Major	Strongly Agree	Percentage of Respondents
5 Year BS/MS Education	34	77.27
Environmental Sciences	18	40.09
Entrepreneurship Small Business	16	36.36
Human Resource Management	12	27.27
New Media (Web & Game)	12	27.27
Broadcast Journalism	11	25
Robotics	10	22.72
Forensic Science	10	22.72
Applied Math	10	22.72
Brain, Behavior, and Cognition	7	15.9
Social Responsibility	5	11.36
EEC Certification	4	9.09

MAJORS THAT ARE BENEFICIAL TO THE COMMUNITY

Major	Positive Responses	Percentage of Respondents
5 Year BS/MS in Education	41	93.18
Environmental Sciences	40	90.9
Entrepreneurship Small Business	39	88.63
EEC Certification	38	86.36
Human Resource Management	33	75
Social Responsibility	31	70.45
Robotics	30	68.18
New Media	29	65.9
Brain, Behavior, and Cognition	27	61.36
Forensic Sciences	27	61.36
Broadcast Journalism	24	54.54
Applied Math	22	50

Major	Strongly Agree	Percentage of Respondents
5 Year BS/MS Education	25	56.81
Environmental Sciences	23	52.27
Entrepreneurship Small Business	19	43.18
EEC Certification	16	36.36
Social Responsibility	14	31.81
Human Resource Management	12	27.27
Brain, Behavior, & Cognition	12	27.27
Forensic Science	10	22.72
Applied Math	9	20.45
Robotics	6	13.63
New Media	5	11.36
Broadcast Journalism	3	6.81

RANKING THE MAJORS

5 Year BS/MS Ed.	127
Entrepreneurship	114
Human Resource	105
New Media	105
Robotics	99
Broadcast Journal.	97
Forensic Science	92
Brain, Behavior	90
Social Resp.	70
Applied Math	63
EEC Cert.	54

5 Year BS/MS Ed.	93
Entrepreneurship	114
Human Resource	105
New Media	105
Robotics	99
Broadcast Journal.	97
Forensic Science	92
Brain, Behavior	90
Social Resp.	70
Applied Math	63
EEC Cert.	54

PANELISTS' SUGGESTIONS FOR NEW MAJORS

Bio-technology*

Physical Education

Sports Management

Computer Security/Forensics

Journalism

Foreign Languages

Allied Health

* *Governor's Life Science Initiative*

SALIENT ISSUES - ACADEMIC

INTERNSHIP

STUDY ABROAD

IDIS

GCE OFFERINGS

FINANCIAL SERVICES CAREERS

MAJOR/CONCENTRATIONS

EXPANSION of NURSING

FSC IMAGE

COMMUNITY PERCEPTION

Intimidating campus, concerns about safety, second rate institution, city's image influences public's perception of FSC, poor customer service, difficult to use, and good/bad physical plant

FACULTY ATTITUDE TOWARDS STUDENTS

Disparaging remarks by faculty

COMMUNITY OFFERINGS

Low Cost Entertainment for Families

College Course for High School Students

College Workshops and Academic/Athletic Competition Activities for High School Students

High School Student Visit Days

ESL Courses

Faculty and Staff Visits to High Schools

Training/Careers

TRANSFER POPULATION

Semester	New Students	Transfers	MWCC Transfer	Middlesex	Quinsig
Fall 05	990	383	100	28	25
Fall 06	1075	337	84	17	7
Fall 07	1062	355	116	33	20

TRANSFER ISSUES

- Difficulties in transition to FSC - no point person
- MWCC - Competition or Collaboration?
- Articulation Agreements
- Lack of integration into the FSC community
- Reports indicate some transfers had a positive experience once enrolled

MARKETING

- Community Misperceptions
- Little knowledge of competitive programs and success
- Competing against 111 schools in Massachusetts alone
- How will students learn about the new majors?
- Better relationships with community

Resource Report

Resource Report - New Majors

	START DATE	END DATE	DURATION	% COMPLETE	WHO
ist of Panelists	Jan 6, 2008	Feb 8, 2008	33 days	100	JCS & Committee
eminar in Circular Questions	Jan 7, 2008	Jan 10, 2008	3 days	100	JCS & Research Assistants
iterature Search	Jan 11, 2008	Feb 15, 2008	35 days	100	JCS & Research Assistants
nalysis of Interviews and Survey	Mar 12, 2008	Apr 1, 2008	20 days	100	JCS & Research Assistants
raft and Pilot Interview Questions	Jan 10, 2008	Jan 11, 2008	1 day	100	JCS & Research Assistants
raft and Pilot Survey	Jan 11, 2008	Jan 14, 2008	3 days	100	JCS & Research Assistants
raft Letter Inviting Panelists	Jan 17, 2008	Jan 18, 2008	1 day	100	JCS & Research Assistants
chedule of Rooms, Food, and Gifts	Jan 17, 2008	Jan 24, 2008	7 days	100	JCS & D. Nowlan
raft Letter for Panelists	Jan 17, 2008	Jan 18, 2008	1 day	100	JCS & Research Assistants
onduct Panels	Jan 22, 2008	Mar 11, 2008	49 days	100	JCS & D.Nowlan
nalysis of Interviews and Survey	Mar 12, 2008	Apr 1, 2008	20 days	100	JCS & Research Assistants
evelop and Present Work to Committee	Apr 1, 2008	Apr 2, 2008	2 days	100	JCS & Research Assistants

Resource Report - New Majors

Second Stage Academic Planning Committee - Spring 2008

	START DATE	END DATE	DURATION	% COMPLETE	WHO
Email Report to J. Spero	Apr 14, 2008	Apr 14, 2008	1 day	100	JCS
Report to Committee Members	Apr 15, 2008	Apr 15, 2008	1 day	0	J. Spero
Committee Meets	Apr 16, 2008	Apr 16, 2008	1 day	0	Committee
Prepare Report for ACC	Apr 17, 2008	Apr 24, 2008	7 days	0	TBD

Delphi Proposal

DELPHI PANEL

FORECASTING FITCHBURG STATE COLLEGE NEW MAJORS

AND SOCIETAL AND ECONOMIC TRENDS IMPACTING NEW MAJORS

FITCHBURG STATE COLLEGE

Delphi Panel

Purpose and Goals

The Second Stage Planning Committee will call together several *delphi panels* whose expert opinion will assist the institution in identifying and evaluating areas of academic growth. A series of questions will be put before the selected panelists to consider related to new majors, and social and economic trends effecting students and graduates. There will be two groups made up of a cross section of high school guidance counselors, community college personnel, representative from the business community, alumni, and elected officials. There will be specialty panels that represent specific groups such as current FSC students, high school students, and faculty. There should be one panel of FSC students, and one panel of high school students. The number of faculty panels will be determined by the Committee.

The data generated from these meetings will be included in a report that the Second Stage Planning Committee will use in filing its report to ACC about new majors and areas of potential growth. It is our hope this information will affirm and or expand the recommendations made by the Chair's Committee and the Strategic Planning Committee during the initial stage of planning. When completed this may provide FSC with a short list of areas of growth to pursue in the near future.

Timeline

The *delphi panels* are scheduled to meet in the months of January and February of 2008. A draft of a completed report should be available after spring break, which ends on March 23. The Second Stage Planning Committee will forward a report to ACC sometime during the month of April.

Delphi Panel Timeline

January 15 - February 29, 2008	Delphi Panels to be held
Mar 23, 2008	Draft of finding to Second Stage Committee
Apr 1, 2008	Second Stage Committee Report to ACC on areas of growth

Resources

The project will require a number of resources from the College in order to complete the interviews. The resources are identified below:

Secretarial Support	Coordinate scheduling of interviews, mailings, schedule space, arrange catering, photocopying, and preparation of report
List of Names to serve as panelists	Committee members will provide candidates and contact information
Draft of Interview Questions	Committee members to agree on questions for interviews.
Funding for Food	Provide lunch to delphi panelists

Possible Outcomes and Considerations

The *delphi panels* should provide useful information for the College to consider when planning its academic growth. The panelists' perspective may extend beyond what the members of the FSC community identified Committee members should be reminded that engaging community members in this process has potential marketing and public relations implications that can place the College in a favorable light with the external constituents serving as panelists. Therefore, it is important that the panelists regard the experience as being well organized, its goals clear, and that they were treated well by the College. The panelists will need a brief overview of FSC and its current areas of study. This can be delivered in written materials, a visit to the website, or preferably by a presentation prior to the discussion. We need to make sure that these materials represent the institution and is clear in terms of our mission and purpose. Follow-up with panelists is also important. They should be thanked and given a brief explanation of what happened after the project is completed. In addition to a luncheon, the Committee should consider if the panelists should receive a certificate of appreciation or some other acknowledgment of their participation.

6 PHASES OF PLANNING/FORECASTING