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ABSTRACT

Connections between higher education and state governments to promote economic development are discussed, including a regional economic development project in New England, and four partnerships between higher education and the state in Georgia, Iowa, Pennsylvania, and Massachusetts. International examples from France, Great Britain, Russia, and China are also briefly considered. Federal aid for a regional pilot project to the New England Board of Higher Education is designed to inform legislators about the significance of higher education to state economies and the region, and to better prepare legislators to make more informed judgments on issues concerning investment in human capital. Other programs of note are: the Ben Franklin Partnership in Pennsylvania, which focuses on the use of new technologies in basic industries; Georgia's Industrial Extension Service, which provides technical information to counties and companies; the Bay State Skills Corporation in Massachusetts, which provides job training; and Iowa's Industrial New Jobs Training Program for business and industry. Appended is "The Public Investment in Higher Education," a policy briefing report for legslators from Vermont. Approaches for improving the quality of information provided to legislatures include: annual performance report, better communication, informed public debate, and information on state research expenditures per faculty member. (SW)

POSTSECONDARY EDUCATION FOR A CHANGING ECONOMY PROJECT

HIGHER EDUCATION AND THE STATE: NEW LINKAGES FOR ECONOMIC DEVELOPMENT

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THE BERNSTEIN GROUP, INC.

AND

THE NEW ENGLAND BOARD OF HIGHER EDUCATION

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HIGHER EDUCATION AND THE STATE:

NEW LINKAGES FOR ECONOMIC DEVELOPMENT*

OVERVIEW

Linking colleges and universities to economic development is one of the most powerful movements operating in American higher education today. Both the global and national economies have become knowledge-driven. Specialized knowledge has become the indispensable asset for future economic development. And it is in our universities where advanced knowledge in science, engineering, and technology is nurtured and concentrated.

The higher education-economic development movement has mushroomed across the country and spread overseas to industrialized nations and many developing nations as well, including China. There is now another movement afoot among American governors to broaden their present commitment to elementary and secondary education to encompass a new drive to strengthen the quality, contributions, and performance of higher educational institutions as priorities for the 1986 legislative year.

Governor Thomas Kean, taking office as chairman of the Education Commission of the States, told a state leadership audience in Philadelphia on July 26, 1985, improvement in the quality of college and university education will be one of his two top priorities for a three-year period, support for public school teaching the other. He spoke of the importance of listening to the higher

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education community and examining successful state practices but emphasized "above all, our purpose is to articulate a vision for the resurgence of American higher education." He called for preparation of an interim report early in 1986 to be ready for state legislative sessions and "practical suggestions for effective state action." Economic and national renewal, he contends, demand no less.

Lamar Alexander, Governor of Tennessee, also chose education as one of his top priorities when he became chairman of the National Governors' Association on August 7, 1985. One of seven gubernatorial task forces he appointed on education is chaired by Governor John Ashcroft and is assigned to assess college quality and to tackle the knotty problem of developing effective methods of evaluating the results of postsecondary education. New criteria are now needed to enable governors and legislators to make comparisons of how well higher education is performing, assessing progress, and allocating resources consistent with state goals. Gauging the performance of public higher education is elusive at best without concrete indicators.

The astonishing surge of political and economic interest in our universities and the appearance in state after state of creative new research partnerships with industry are no fluke. This phenomenon is partly explained by economic conditions, partly by rapid fundamental changes in science, technology, and the world economy. For example, new technology has produced about 90 percent of all human knowledge in the sciences in the last 30 years alone. That knowledge will double again in the next ten to fifteen years.

It was not only dire financial straits that forced higher education to begin opening up to new economic partnership opportunities with business and industry in 1981. The pressures of severe inflation and recession account for part of it -- Reagan budget cuts and state government retrenchment compounded

these financial problems; the increasing failure of campus revenues to keep pace with skyrocketing costs also contributed.

Even more telling perhaps were sweeping worldwide and national forces that shook a fragile infrastructure of higher education out of its lethargy and defensive posture into a series of innovative high technology partnerships and joint ventures with industry and government. These forces included:

- The arrival of the knowledge economy. Knowledge industries today account for over 50 percent of the American Gross National Product. One out of every two workers is employed today in either the collection, organization, or dissemination of information.

- In an economy where knowledge has become a critical economic resource, the university lodged at the center of the knowledge process becomes the fuel that feeds the engine of national economic productivity.

- Productivity research establishes that since 1929, human capital has contributed more to American economic growth than financial capital, machines, or factory plants. Knowledge, education, and training have become the essential tools for developing human capital.

- The United States no longer dominates the global economic system as it did from 1945 to 1970. The United States has already lost world market leadership in such critical industries as autos, steel, machine tools, and consumer electronics.

- Acute international competition confronts 70 percent of all American goods sold in this country or abroad.

New England was one of the first regions to see its economic future tied directly to higher education. It suffered badly during the recessions of the 1970's. It has a greater concentration of colleges and universities than other regions of the country -- by the late 1970's it had become a knowledge-intensive economy, ready to redefine and redirect its aging and decaying economic infrastructure.

Given the Reagan Administration's philosophy of reducing the power and size of national government and restoring power to the states, the federal government is no longer the place to look for leadership and new initiatives in higher education-economic development. The governors' initiative in higher education

is a new departure -- they instead, of federal leaders, define the pressing issues for higher education. No longer do the President and Congress lead the way as had been the case for so long with the Morrill Act of 1862, the G.I. Bill of 1944, the National Defense Education Act of 1958, and the Higher Education Opportunities Act of 1965.

The states are not only the largest financial source of revenue for colleges and universities, they have been steadily increasing their share, while the Reagan Administration battles in Congress to cut back even further the federal share of funding support. It becomes logical then to look to the governors for energetic leadership since by virtue of their office and the resources they control they are the most visible, powerful, unifying leaders in the states.

Nevertheless the governors have yet to develop a vision for higher education, as Governor Kean concedes, nor even a specific agenda. Nor has prime public attention been focused yet on higher education. The governors and their constituents have been preoccupied with the quality of education in the public schools. Now that the wave of interest has peaked, they are in a position to turn next to the higher education resource, a system unrivaled by any other in the world in magnitude of investment, size, and diversity.

Among industrialized powers, American enrollment in college relative to population nearly doubles that of its closest competitor, Canada. Take the adult population, for example; almost 32 percent of American citizens 25 or older have at least some college education compared with 17 percent of Canadians and 17 percent also for East Germany, heading the list of Communist countries. In round numbers for the United States:

- o three of five high school graduates enroll in college;
- o 12 million students are enrolled in 3,300 colleges and universities;

- o colleges and universities will spend $100 billion in 1985-86 for their operating budget, accounting for three percent of GNP; and
- o colleges and universities employ two million people.

But where do state legislatures fit into the picture? State action requires their support. They pass the budgets which make possible state programs. Nevertheless, despite its wide array of formal powers, because of the way it is organized legislative leadership is divided, fragmented, and less visible than that of the governors. This paper turns next to higher education's connection to state legislatures and how a new venture underway in New England enlarges opportunities for regional economic development.

Following the New England case study is a review of four notable partnerships between higher education and the state in Georgia, Iowa, Pennsylvania, and Massachusetts. The final section discusses the broadening role of higher education in the economy and its newer responsibilities to state legislatures.

A NEW DEPARTURE

The New England Board of Higher Education (NEBHE) is an independent corporate creature of the six states of the region, created by the six governors in 1955, including Abraham Ribicoff of Connecticut, Edmund Muskie of Maine, and Christian Herter of Massachusetts. It is a Compact organization provided for under the Constitution of the United States, approved by the state legislatures, and ratified by Congress. Its interstate mission is to pursue the interests of higher education for the citizens of the New England states in medicine, science, technology, and other professional fields. Legislators from all six states serve as Board members.

New England's strategic plan for higher education and economic development is found in the Threat to Excellence report of the New England Board of Higher

Education's Special Commission on Higher Education and the Economy. Supporting documents and texts of the plan include the Prospectus, called by David Warsh, columnist of the Boston Globe, "the best case I've read yet for support of higher education in New England;" also three books published on Business and Academia, New England's Vital Resources: The Labor Force, and Financing Higher Education. A policy paper prepared for the Legislative Office for Research Liaison of Pennsylvania's House of Representatives calls Business and Academia "an excellent idea and strategy book" and says Financing Higher Education is "Highly recommended for perusal in terms of an excellent overview on the subject of higher education and economic development issues for state policy."

Two central questions New England's strategic plan addresses:

- Why should institutions of higher education want to help the economy of New England?
- What do these institutions do to assist the economy of the region?

The plan and accompanying texts document:

- The contributions of higher educational institutions to economic development in New England;
- A precise definition of the economic and social dimensions of the industrial mix of the 1980's and its significance for institutions of higher education; and
- Identification from the lessons and experiences of the 1945-80 period of factors relevant to new problems confronting state and regional economic policymakers and the ways institutions of higher education may address them.

The Threat to Excellence recommendations called for formation of an ad hoc committee of state legislators to hold public hearings in all six states on the issues raised in the report. Out of their call to action came the idea for a new initiative between the New England Board of Higher Education and the New England state legislatures. The issue would be higher education and economic development -- the theme would be increasing the return on the public investment in the region's colleges and universities.

The result is a new focused regional alliance forged between higher education and the state legislatures that has been five years in the making--three years of planning and organizing, two years of testing.

It is ironic that this new alliance has appeared first in the East, historically a stronghold for private colleges and universities not dependent on the state legislatures for support. New England has nearly twice as many private institutions per capita as the rest of the country: 49 percent of the region's students are enrolled at private campuses, 2 1/2 times greater than the national private enrollment level of only 20 percent.

The development of such an alliance might have been expected to appear in the West which has traditionally been known for its stronger public institutions of higher education and closer ties with state legislatures. The emergence of the legislative initiative in New England may simply reflect a greater need for strengthening higher education's weak ties with the region's legislators.

Higher education and New England are virtually synonymous. This is not only because of the long distinguished history of colleges and universities in New England and their contributions to the region's distinctive quality of life. It is because of both of these reasons plus the overarching fact that higher education has a greater economic impact in New England than anywhere else in the country.

FIPSE SUPPORT FOR NEW ENGLAND

The regional pilot project is supported by a three year grant from the Fund for the Improvement of Postsecondary Education (FIPSE) of the U.S. Department of Education. The purposes of the project are to better inform legislators about the significance of higher education to each state economy and the region and to better prepare legislators to make more informed judgments on issues concerning investment in human capital.

With one more year left of the grant, the preliminary results are promising, offering a new way of doing business between higher education and legislators--one built on trust, collaboration, and effective sharing of resources. The Christian Science Monitor commented on the new program on August 29, 1983, "If the educate-the-lawmakers plan works for higher education in New England, it should work elsewhere and on other levels... That's not all the schools need but it's an excellent beginning."

Coincidental with the development of the new project, E. Terrence Jones in an article for the Educational Record in the summer of 1984 called for higher education to "revamp its political efforts" in order to "maintain and increase its financial support from the state." Jones, Dean of Arts and Sciences at the University of Missouri-St. Louis, argues higher education should support increasing state revenues instead of asking for a bigger slice of the same economic pie and this can be achieved by "stimulating economic development." He urges replacing the old kind of go-it-alone university lobbying with a new style of university political relations, one based on an "organized effort to understand better what the state thinks about higher education and to explain more effectively academe's contributions to the polity."

What Jones persuasively argued for in 1984, NEBHE 1200 miles away successfully proposed to FIPSE and quietly began in 1983. The Caucus of New England State Legislatures agreed to jointly sponsor the project with NEBHE. The Caucus is the administrative arm of the region' six state legislatures, seeking greater cooperation and coordination of policy issues. The project started slowly without fanfare and began to gain momentum as it moved across the map of New England state capitals from Concord to Providence to Boston to Montpelier during the next two years.

THE STRATEGIC ENVIRONMENT

The time was ripe for a legislative project of this type. Historically higher education's relations with lawmakers have been fragile, sporadic, and defensive at best. The efforts at contact all too often have been limited to budget time. There was and is a need for better communications. But there is more to it than that.

In a speech to a policy briefing of New Hampshire legislators launching the pilot project in November 1983, Speaker of the State House of Representatives John Tucker said, "New England's strong higher education system, both public and private, has enabled our economy to remain vibrant and strong." He is concerned though about the competition from other regions that threatens the region's future economic stability. He sees the legislative alliance with higher education as an opportunity "to focus on what we have to do as a matter of public policy to ensure that New England's higher educational enterprise remains strong."

NEBHE's assessment of the strategic environment for colleges and universities found several shifts taking place. They all revolved around the economy and the financing of higher education:

- the federal share of higher education revenue reached 24 percent by 1969-70, held at roughly that level for a decade, and has been declining ever since--reaching a new low for the past 25 years of nine percent in 1984-85;
- the state share of higher education revenue is rising as the federal share dwindles; and
- the Reagan Administration's philosophy of federalism requires divesting the national government of funding responsibility for education and lodging more of it with the states, a trend likely to continue for the remainder of the President's second term in office.

Considering that federal, state, and local government together supply as much as 50 percent of all higher education revenue and the states account for

two out of every three dollars of government's share, state government is the place to look for greater financial support.

NEBHE believed it could work closely with the governors in the future--the governors are generally well-informed on the policy and political significance of these issues and have substantial resources to draw on. But how to educate and inform the 1,323 legislators in six New England states? Few legislators were well versed about education, let alone higher education; most lacked the time to devote to it and deferred to colleagues who specialized in the higher education field.

TECHNIQUES TO INFORM LEGISLATORS

In carrying out the project, NEBHE relies on four basic techniques to inform and help focus legislative attention on higher education and its impact on state economies. The approach is to do for legislators what they don't have time to do for themselves as far as higher education is concerned. A baseline survey was taken of legislators; policy briefings are held; publication of proceedings are mailed to all 1,323 legislators; and legislative advisers are used.

Many legislators knew about the impact of higher education on the quality of life and the economies of their local districts. Few, however, knew about the economic impact of colleges and universities overall on their states and the region. The data were not readily available. Hence, the development of the four basic techniques:

- An opinion poll taken of the region's 1,323 legislators on their attitudes about higher education's role in economic development. Over 50 percent responded. Two major findings were that 9 of 10 legislators want academia to furnish better data to government; three-quarters believe communications between legislators and higher education are inadequate.

- Policy briefings held in each of the state capitols. Extensive data and tables tailored to the state at hand are provided to legislators attending. Evaluations taken after the meetings show the great

majority of legislators view the briefings as "a helpful learning experience" and would like to see them held annually in the future.

- o Publications of the proceedings of the policy briefings. The Appendix contains a representative example of one of the six publications, that of the Vermont seminar.

- o Periodic meetings of a Legislative Advisory Council. The Council is an advisory group of legislative leaders from the six states created for the three year term of the grant. Plans are reviewed with the legislative advisers from the six states, and evaluations of the policy briefings and other activities are reported to them for their advice and counsel.

CREATING A MORE FAVORABLE CLIMATE

One may rightfully ask what results flow from New England's legislative project? From an appropriations point of view, this is what the record shows. Starting from a comparatively low base of public support for higher education in the New England states, Massachusetts' large percentage increase in appropriations in the past two years ranks it fourth in percentage increase among all states nationally. Maine has followed suit in stepping up appropriations for higher education, ranking fifth in percentage gain, followed by New Hampshire in 17th place, Connecticut 19th, Rhode Island 38th, and Vermont finishing 39th.

Still, it should be recognized that the benefits do not simply translate into cause and effect patterns for dollars appropriated. The legislative process is certainly more complex than that. Rather, NEBHE's partnership initiative with the Legislative Caucus creates a more positive climate overall for higher education in the state legislatures. Access is provided, attention is focused on issues, and dialogues developed.

Legislators have had their awareness and information levels raised by being shown the concrete economic contributions of higher education to their states. Legislators from all committees, not just those from education committees, now pay more serious attention to higher education's message. Not only are

legislators given new data and analyses of trends but this information is provided in a comparative format -- measuring how their states compare with the rest of the New England states and national norms.

As Carolyn Morwick, executive director of the Caucus puts it, "the ongoing process results in higher education becoming more understandable and appreciated by legislators." She says "the positive climate created by the interest shown in state legislators and the process of informing them has probably led to their devoting more money in budgets for higher education because they can see the benefits more clearly." In other words, more legislators now see higher education as an investment in long-term economic development rather than as merely another budget expense for the state.

What can other institutions of higher education do if they're interested in drawing on the New England Board's legislative model? Of course the political traditions and conditions of each state determine the opportunities for collaboration. Ideally the project is most suited to regional or statewide organizations representing colleges and universities. Either existing organizations can be used, as has been the case with NEBHE, or new groups can be organized for that purpose. However, sub-regions of a state can profit as well. Any grouping of colleges in a geographic area can collectively organize and use their resources to better inform legislators about their community.

A word of caution though for other regions. Representative Irving Stohlberg of Connecticut, chairman of the Caucus of New England State Legislatures, says, "I'd be cautious in transferring conclusions about our higher education project to other regions. The project has more application in New England than elsewhere because of our strong tradition of higher education, cohesiveness and smaller distances to travel." While it is true that what works in one region may not work in another, other regions facing common problems will

benefit from knowing what gave rise to the New England legislative model, what makes it work, and what effect it is likely to have in the future.

New England's strategic plan for higher education and economic development is long-term. No one expects the goals to be achieved quickly. The new legislative program helps to set the agenda for establishing objectives, defining the issues, and keeping the issues before the legislatures. New Hampshire's House Speaker Tucker says, "the Threat to Excellence plan should not be a one-time shot but an ongoing issue for economic survival, one that has to be fine-tuned and constantly kept before the legislatures." The high turnover every two years of state legislators means there are many new faces to inform as well as a continuing pool of legislators spread thin over an endless array of issue areas. Keeping higher education before the legislators as a resource to be tapped for economic development rather than as a special pleader is the mission of the New England project.

STATE-HIGHER EDUCATION INITIATIVES

A telephone survey of national and regional organizations reveals that, outside of New England, no other region or state is pursuing a higher education initiative aimed at state legislators. The importance of legislators to the budget and policy-making process is obvious but it is the governors who are monopolizing attention. State legislators have yet to be awakened to their potential for leadership, assessment, and energy in guiding and monitoring higher education's contributions to state economic development.

Linking colleges and universities to economic development is the hallmark today and for the immediate future of every state in America, every industrialized country in the world, and many developing nations. A dazzling array of research and development (R&D) partnerships centered in universities has been initiated in virtually every state in the union -- aimed at private

industry and supported, in part at least, by the state. This is the greatest mobilization ever of America's higher education institutions in peacetime for purposes of economic development.

The higher education-economic development movement is rooted in the period 1973-1982 in the worst peacetime world economic conditions since the great depression of the 1930's -- and further in the restructuring of the global economy in which the United States remains a leader but no longer dominates as it once did. Quality and cost, driven by technological improvements, now dominate world markets.

Three important new studies evaluate a wide array of R&D partnerships begun since 1980. James Botkin and Dan Dimancescu, technology consultants and co-authors of Global Stakes and The Innovators, have written an excellent analysis of 15 leading research consortia in a forthcoming report funded by the Carnegie Corporation of New York on America's New Experiment: R&D Consortia. Their study, which will be published by Ballinger Publishing Company, judges North Carolina's microelectronics center and Stanford University's Center for Integrated Systems as the strongest collaborative ventures and Massachusetts' Centers of Excellence project as the weakest. They find that research in high technology must be sustained for the long-term at a substantial level if it is to be effective, requiring a minimum commitment of at least 10 years.

Charles Watkins, professor at Howard University, wrote two comprehensive evaluations of high technology research partnerships in the states for the National Governors' Association in 1985, resulting from studies funded by the National Science Foundation. In his report on "Programs for Innovative Technology Research in State Strategies for Economic Development," Watkins concludes that a state's goals for technology must be set with regard for its own economic and demographic characteristics as well as its technological

infrastructure. He finds state-initiated R&D programs contribute either to actual job creation through technological innovation or at least the image of a robust, progressive economy.

In "State Programs to Encourage the Commercialization of Innovative Technology," Watkins acknowledges that the short life to now of most of the initiatives prevents a rigorous comparative evaluation. Such programs, according to Watkins, appear to have stimulated economic activity and certainly create an optimistic outlook about the state's economic future. Nevertheless, one must be cautious about premature claims of success, the enthusiasm and self-promotion of the program's backers, and the uncertainty of bright projections about future results before a solid track record has been established. The phenomenal growth stories of the Silicon Valley and Route 128 are unlikely to be repeated in many places because of the huge technological infrastructure required, built up over decades of development. Nor has it been established yet that state assistance programs can produce the financial growth and markets achieved by private sector companies such as Apple Computer or Hewlett-Packard.

The third of these valuable new reports reviewing the mushrooming growth in high technology research centers is the Northeast-Midwest Institute publication on Partners in Growth: Business-Higher Education Development Strategies. This study reports that by the end of 1984, at least 44 states had established university-based research centers for high technology development. These programs and others described present a broad perspective on what universities can contribute to economic development, including: R&D technology transfer; informal university-industry information networks; universities as business consultants; university-run industrial extension services; and university-industry cooperative research. The inventory reflects a wide array of economic strategies to enhance business-university partnerships that contribute to

economic productivity and competitiveness.

FOUR NOTEWORTHY PROGRAMS

Four notable partnership cases that either don't appear or receive only brief mention in the studies noted above deserve separate mention because of their originality, magnitude, or effectiveness.

First is the Ben Franklin Partnership in Pennsylvania which resulted from two years of preparation of a strategic economic development plan for Governor Dick Thornburgh. He rapidly implemented the plan with the support of the legislature not only to revitalize his state's economy but to move it away from excessive dependence on heavy manufacturing. The plan focused on the use of new technologies in basic industries, the spinoff of technological innovations for new business development, and emphasis on advanced professional services.

During its two-and-a-half years of existence, the Ben Franklin Partnership (BFP) has designated, after a competitive process, four Advanced Technology Centers encompassing the major public and private research universities in four regional centers of the state. In less than three years, Pennsylvania has created what Governor Thornburgh describes as the largest and most highly leveraged technological development program in the country. A total of $115 million has been committed, $29 million from the state and $86 million in matching support from the private sector. Up to April 30, 1985, the BFP Centers reported:

- 12 patents issued;
- $22 million raised in venture capital;
- 7,400 persons enrolled in Center training programs;
- $1.2 million won in Small Business Innovation Research awards; and
- 7,100 graduates of training programs.

A notable case little known beyond its own state and regional borders is that of the Industrial Extension Service (IES) of the Georgia Institute of Technology. IES's 13 field engineers each assist and provide technical information to an average of 13 counties and 480 companies. The program began in 1961 and was designated by the General Assembly of Georgia in 1975 as a part of the state's official productivity center at the Georgia Institute of Technology.

The international consulting company of Arthur D. Little evaluated Georgia's Industrial Extension Service and found it was responsible for producing $22 in economic benefits for every dollar the state invested. The field engineers help companies become more efficient and save costs by solving tough technical problems such as plant layout, pricing systems, marketing, and compliance with government industrial regulations. The field engineer operates much the same as a county agent working with farmers under the federal government's Agricultural Extension Service, which has been remarkably successful in spreading new technologies and helping American farmers become the most productive growers the world has ever seen.

IES assistance is primarily provided for short-term projects at no cost to the companies but can be extended by contract. The payoff to Georgia's economy is in jobs: creating them, keeping them, and making them more efficient. Though serving large and small companies alike as well as county and local government, IES is aimed mostly at smaller companies because they account for 78 percent of all businesses in Georgia, employ 2/3 of all workers, and create 3/5 of all new jobs.

Georgia Tech's ability to generate the applied research so valuable to the manufacturing companies of its state can be seen from its latest ranking by the National Science Foundation as first in the nation among state-supported

institutions of higher learning for engineering research and development expenditures. McKinsey & Co., a Big Eight accounting and management firm, concluded in a study last year of future economic prospects that "development of leading edge technology is essential to maintaining the rate of employment growth in Georgia and increasing the standard of living in the state."

One of the most successful partnership programs for the future is that of the Bay State Skills Corporation (BSSC) in Massachusetts. This independent corporation, established and partially funded by the Commonwealth of Massachusetts, has in the four years of its life attracted the participation of over 600 companies and 100 institutions of higher education. Nearly 8,000 people have been trained through BSSC programs. BSSC provides 50 percent of the funds needed; the other 50 percent is matched by industry, with colleges and universities used as contractors. For example, Simmons College trained 25 underemployed and unemployed women for entry-level professional positions as manufacturing system specialists. The biggest contributors to the program were Hewlett-Packard, Digital Equipment Corporation, Wang Laboratories, and five other high technology companies. Tufts University provided entry-level and advanced skill training for 31 biotechnology technicians, supported by six expanding biotechnology corporations, including Waters Associated/Millipore Corporation and the Dupont Company.

Other states seeing the great success enjoyed by the Bay State Skills Corporation have passed legislation based on the Massachusetts model. They include the Minnesota Job Skills Partnership, the Washington State Job Skills Corporation, and the Bluegrass State Skills Corporation of Kentucky.

Iowa, a leading agricultural state suffering from the depression in farming, has created a novel Industrial New Jobs Training Program for business and industry that uses special tax incentives to pay for customized training

arranged at the state's 15 community colleges. The program pays up to 50 percent of the salaries of trainees for new and expanding companies engaged in production or interstate services. The purpose is to provide an economic development incentive for industry by lowering start-up costs, improving productivity, and enhancing profits.

Over 5,000 people have been trained since the program began in 1983. Training for new jobs has been provided for 203 new employees at Sara Lee, 968 at Greyhound, Inc., and 450 at Wal Mart Corp. Under legislation creating Iowa Jobs Training, no up-front grant or current state funds are used. Instead, financing is generated by the training certificates issued by the community colleges, authorized by the state, and sold in the financial market. Funds paid for the training certificates are used to finance the project and to reimburse the employer for part of the training cost. Repayment of the certificates is provided by a withholding tax credit of one-and-a-half percent of the wages of new jobs and is further backed by a portion of the property tax on new facilities and equipment set aside as a standby reserve to secure payment of the certificates. Approximately $11 million were reimbursed to participating companies as of June 30, 1985.

These four very different state initiatives indicate the variety of possibilities available for higher education partnerships. Pennsylvania's Ben Franklin Partnership is important not only because of its size and high degree of leverage of state funds appropriated but because it resulted from a comprehensive strategic plan for economic development launched by Governor Thornburgh and draws heavily on the strengths of both public and private research universities in the state. Georgia's Industrial Extension Service has the potential of becoming the high tech equivalent of the Agricultural Extension Act of 1914 which disseminated the latest information and spread state-of-the-

art technology from America's land-grant universities to farmers in agricultural extension stations across the states. The Bay State Skills Corporation in Massachusetts is the forerunner of state training programs designed for jobs in a knowledge-intensive economy. Iowa's Industrial Jobs Training program is an innovative way of using tax incentives combined with higher education resources to aid economic development.

The initiatives and studies discussed in this section of the paper build on existing economic and higher education strengths of the state. They do not attempt to create new technological infrastructures. Stung by the 1981-82 experience of the highest unemployment rate since World War II, the overriding consideration for the states is job creation. Higher education has become recognized as the key resource in our knowledge-intensive and technologically-oriented economy to further this objective.

In the case of the New England Board of Higher Education, it received its money from a federal agency for a regional project. No legislation was necessary, only the agreement to cooperate between NEBHE, the Caucus of New England State Legislatures, and the state legislatures themselves. The other initiatives occur at the state level only and require formal state authorization and investment. The features of these more formal partnerships are:

- o The state acknowledges a fundamental problem of its economy.
- o A strategy is designed to attack the problem. Legislation is passed, seed monies or matching funds are appropriated to support collaboration between business and industry and higher education.
- o The state acts as a catalyst playing a secondary not a primary role.

The pitfall of the formal state initiatives is that they require a substantial and long-term investment. A steady commitment through good times and bad is essential--not only during the current economic recovery and expansion which has filled most state coffers beyond the fondest expectations of

governors and legislative leaders. Though the early reports of these ventures sound promising, the marketplace will ultimately determine whether these state investments will bear fruit in the form of economic expansion and job creation beyond the costs involved.

AN INTERNATIONAL PERSPECTIVE

The industrialized countries of the world are likewise moving rapidly to overhaul their higher education systems, linking them more closely to economic and technical development. Overseas, in contrast to the American experience, it is the national governments which are setting the goals, choosing the institutions and programs to be favored, and re-allocating their budgets. In the United States those decisions have been pushed down to the state level. The Reagan Administration's deliberate relinquishing of initiative and decision-making to the states provides an unusual opportunity for the governors and legislators to exercise leadership and channel resources for higher education into areas vital to economic development. However, the extreme decentralization of authority over higher education in the United States creates problems and ambiguity of goals and priorities, duplication of efforts, and blurred focus in allocating resources.

It is well-known that the United States and Japan are far ahead of their competitors in their technological shares of the world market. Japan's plan for the 1980's has been established by its Ministry of International Trade and Industry (MITI). MITI planned a knowledge-intensive, high technology economy resting on the cornerstone of a high quality educational system. For Japan, technology has become the centerpiece of its competitiveness and achievement of economic security.

The West European countries, though proficient in basic research, lag well behind the U.S. in applied research and behind Japan in commercialization of new

technologies. Individually they have begun the process of overhauling their national systems of higher education and economic development to make them more responsive to global market conditions.

France

Prime Minister Laurent Fabius is upgrading the quality of the French educational system to use it as a vehicle for modernizing the economy. The objectives he and Minister of National Education Jean-Pierre Chevenement are pursuing include:

- Making the university more relevant to the country's needs.
- Accepting the principles of economic competition in educational and national life.
- Training the maximum number of high-quality research workers in universities. France needs seven to ten thousand a year more engineering graduates beyond present output by 1990 and 14,000 a year more by the end of the century.
- Emphasizing teacher training to improve the quality of instruction and continuing education to encourage lifelong learning.

France is mobilizing university science departments and engineering schools throughout the country to connect their courses more directly to the skills needed in high technology industries such as computers and telecommunications. The Ministry of Education announced in June 1985 that it will allow universities for the first time to enter into direct partnerships with industrial corporations. Prime Minister Fabius says the new approach is part of a "necessary opening of the universities" to the outside world and a strengthening of links between the worlds of work and education.

To monitor higher education's effectiveness in this new movement, the French government has established a 15 member commission to prepare annual reports on the performance of the universities.

Great Britain

Prime Minister Margaret Thatcher's government produced a green paper for discussion last spring, similarly calling for a higher education system more closely linked to the needs of business and industry. The policy paper concludes that universities and colleges can contribute to Britain's economic development by encouraging more positive attitudes among their faculty and students about business and industry and by training qualified high technology workers. The need for technological manpower in the sciences and engineering requires continuing the trend away from the humanities and social sciences.

Overall, the European countries are following a similar pattern to the United States, but by a different route, redirecting enrollments and resources away from the humanities and social sciences to engineering and the natural sciences. Among other things, they are concerned about their present dependence on foreign countries for information technology and services. The nations of the European Economic Community presently import 40 percent of their technology needs. They seek to foster positive attitudes about business and industry at their universities, want business-university partnerships, and encourage much closer ties between higher education and national economic development than ever before.

Russia

Neither the Soviet Union nor China should be overlooked in this worldwide movement driven by global competitiveness for economic security. The Chronicle of Higher Education reported on July 25, 1985 that Prime Minister Mikhail Gorbachev sees higher education playing a key role in reinvigorating the Soviet economy by introducing high technology and by training a new generation of industrial managers competent in the use of computers. Two months earlier the Soviet Politburo had raised the pay of research scientists to accelerate the

pace of technological innovation in industry. According to Pravda, the raise is aimed at increasing "incentives given to workers employed in industry and research facilities... to introduce new technology and raise the quality of work performed."

China

China, too, is undertaking major reforms of its research and development infrastructure to make it more market-oriented. Chairman Song Jian of the State Science and Technological Commission which oversees research institutes says, in the future "the bulk of the research institutes, especially those concerned with technological knowledge, will have a market orientation." The goal is to link science and technology research more closely to economic development and to reduce government support for research over the longer term by replacing it with business and industry contracts.

NEW DIRECTIONS

The single, most effective approach to strengthening state economic development is for states to invest in education. Education in fact is the largest budget expenditure of the states. Business and industry are far more impressed with the quality of education in a state than with the glossy presentations and promotional packages offered by economic development agencies. So if states want to leverage their public monies to produce the greatest return, it is best done by strategic appropriations to enhance educational excellence which encourages business to invest and expand, thereby contributing to greater job creation.

And it is in higher education where the states can act most effectively as catalysts, leveraging their investments in scientific and technological research and training as the seed money to develop matching grants and contracts from industry. For the fiscal year 1985-86, the states are spending nearly $31

billion for higher education, the largest single source of funding for America's colleges and universities, outside of tuition. In just the last two years, state spending for higher education nationwide is up by 19 percent, more than double the rate of inflation during the same period.

While the states' investment in higher education has risen sharply over what it was during the darker economic years of 1980 and 1981, states' expectations of what they will get in return are rising as well. Though there is good reason to believe higher education is doing a good or excellent job overall, one cannot be certain because reliable, timely information is hard to come by. There is a lot of information about colleges and universities but much of it is self-serving and insignificant as far as what legislators need to know. It is then up to legislators to ask the right questions to find out what they need to know to judge whether public monies are being well spent. In other words, do the results justify the investment or can the money be spent in more productive ways? This relationship between state investment and quality and productivity of higher education is described in a 1984 speech to the American Association for Higher Education by John T. Casteen, III, President of the University of Connecticut and former Secretary of Education of the Commonwealth of Virginia. He says:

> To command the necessary support for higher education in a changed economy and with new constituencies making new demands, the colleges must couple improvements in the quality of their courses and programs, including improvements in services to industry, and services to the schools with requests for increased support. Absent linkage of this kind, we will miss the opportunity to move beyond pleas for help with damage control and toward command of both a greater share of available revenues and greater presence in state policy generally. The state should make clear its goals and priorities for higher education. Legislators can then weigh results produced against objectives sought. That is where the standards come for purposes of evaluation. The goals of course must be realistically stated and must be measurable. These are not philosophical questions. The state has finite economic resources to allocate and must award them in light of the

benefits to be accomplished, the cost of the investment, and the competing opportunities for use of the money. These considerations are not moral absolute as some academics think but policy judgments weighing competing interests.

Higher education has become America's most critical economic resource. As a national resource, America's colleges and universities are unrivaled by any country in the world in terms of size, investment, and productivity. America's elementary and secondary public school system, however, is not superior compared to foreign school systems--it never has been. The real purpose of the reform movement is to make U.S. schools competitive with foreign schools, especially in mathematics and science. After nearly two decades of deterioration and decline, the nation is making an all-out effort to restore elementary and secondary education to its early 1960's level of quality. Though public confidence has risen in the past two years and SAT's are improving, pre-1965 standards are unlikely to be achieved before the end of the 1980's at the earliest.

Governors and legislative leaders commonly accept the importance of the linkage now between education and economic development as the road to competitiveness and jobs. Improving the quality of education remains a top priority for policy-makers in the states.

They need not, however, try to repeat for colleges and universities the unexpected success enjoyed by the public school reform movement in the short period since the publication of A Nation at Risk in March 1983. Economic conditions differ as well as the level of public awareness of the working of these more complex institutions of higher education. The public had become more critical of its primary and secondary schools than its colleges and universities. There was a greater sense of urgency about the public school system where 40 million students get educated each year - more than three times the enrollment of higher education. Actually, as early as 1979, public opinion

polls turned the corner and began to rise in favor of higher education though not for the public schools. Public confidence in our colleges and universities has been rising ever since and is now at the highest point it's been in over two decades.

At the same time, it should be remembered that higher education more directly affects economic development and technological progress than the secondary schools. Public high schools send half of their graduates directly into the workforce, the other half enter college. It is in our colleges and universities, however, where the nation's young learn to think independently and critically about advanced subjects vital to a knowledge economy. That is where the fine minds are honed that produce the technological achievements in the sciences and engineering.

Governors and legislators act gingerly in dealing with colleges and universities. There are still lingering effects from the McCarthy era. They don't want to be accused of denying academic freedom or politically interfering in the internal academic affairs of institutions of higher learning. Nor are they secure about academics who defend their territories by claiming that issues such as curriculum, teaching, and research are too complex and specialized for untrained outsiders to grasp. As is so often the case in such matters, these are not either/or issues but rather a question of the right amount of interest shown consistent with responsibility for the use of public dollars. Senator Florence Robillard, Chairperson of the Senate Education Committee for the Vermont General Assembly, says, "my second priority for our educational institutions is that their actions must be accountable; my first, that they be accessible and my third, that they be acceptable to the marketplace." The question for elected officeholders is not whether they are spending the most money on higher education, but whether they are getting the most out of the

higher education investment.

Rarely have major reforms or initiatives come from within higher education. They come from outside the walls of the academy because of social movements as in the 1960s or because of federal legislation as in the case of the Morrill Act of 1862 or the Higher Education Act of 1965. In an August 20, 1985 meeting of the New England Legislative Advisory Council, Massachusetts Representative and House Chairman of the Joint Committee on Education Nicholas Paleologos said, "The hard questions are not even being asked about higher education." Not a single legislator in the room dissented from this view.

To ask the hard questions, one must know the right questions to ask. Governors and legislators should both broaden their sources of information and require better information from higher education if they are to judge how well public monies are being used.

STRATEGIC PLANNING

The first question to ask of higher education is "where are you now," to be followed by "where are you going?" Every state system and every college should be prepared to answer those questions in concrete terms.

One limitation of college and university data presented to public officials is that the data are self-serving, much like those of any other institution or interest group dependent on government appropriations for its budget. Another is that college and university data are offered in support of sweeping mission statements too generally worded and too bland to be of much value to policy-makers in evaluating achievement of objectives. What is lacking are strategic plans for institutions of higher education seeking public funds.

University plans should be linked closely with state economic development plans which set goals and priorities for their economies and should define the special role to be played by higher education with regard to the number and

kinds of trained graduates to be produced and the varieties of research to be supported.

Such strategic plans are no attempt to dictate policy. Rather, they are practical arrangements to move away from cosmic generalities toward realistic assessments of strengths, weaknesses, priorities, and contributions to achieving state goals. The New England Board of Higher Education, through a broad-based special commission, established such a plan that won a broad consensus in the six New England states. The plan provides a comprehensive long-term perspective to the issues and specific recommendations for higher education's role in economic development. Pennsylvania, under the leadership of Governor Thornburgh, also prepared a strategic plan essential to the state's economic health. The two-and-a-half year effort enabled Pennsylvania to recognize the true value of its great research universities and overall higher education infrastructure, and to begin shifting from a traditional industrial base to advanced technology enterprises.

NEW EXPECTATIONS FOR HIGHER EDUCATION

A 1984 study of the attitudes of New England's legislators about higher education showed that one of their greatest concerns is getting better information. The independent New York-based Committee on Economic Development in a recent report also said, "Private industry could not succeed with a data-collection system and research base as weak as this nation has in the field of education." One can only wonder why education is so remiss in providing adequate data about itself when information is so readily available in other fields such as stocks and bonds, professional sports, and the economy. Perhaps this is because independently financed organizations, both public and private, collect the data in these other fields. Many different types of indicators can be developed by independent agencies but the cooperation of individual colleges

and universities is critical because they are the source of the information.

Four approaches to improving the quality of information are offered as a start.

1. Annual Report of Performance

   Each state should use an outside group composed of prominent non-technical citizens, mainly business executives, whose companies are the greatest employer of college graduates, to judge how well higher education is meeting state goals. Scoreboards touting higher education achievements without disinterested, independent evaluation of performance serve only a public relations function, not a measurement purpose. Moreover, it should be remembered that state governing boards which provide information are not disinterested third parties which can be expected to report impartially on the system they govern.

   Colleges and universities provide information that is roughly equivalent to the approach of an annual report--it states their case. Look to independent third parties, public and private, for analysis, interpretations, and perspective. For example, France in May 1985 announced a new 15 member commission to produce annual reports on the performance of the nation's universities. Similar plans are being made to appoint an outside commission to report on major research programs.

2. Better Communication with Legislators

   Colleges and universities should be more candid, structured, and systematic in dealing with state legislators. Particularly in view of the high turnover of legislators, it is important to hold meetings with legislators periodically and not only at budget time, to discuss mutual resources, problems, and priorities. Over-reliance on centralized state boards of higher education for communication and information may actually impede more direct, informal communication between university educators and local legislators.

   In a May 1985 meeting of the Governor's Visiting Committee to the University of Maine with state legislative leaders, one of the concerns expressed by the legislators was legislative fuzziness about university governance. It was pointed out that legislators tend to let the University govern itself because they don't understand the chain of command. They think the university needs a tremendously increased presence before the legislature.

3. Informed Public Debate

   Both governors and legislators must raise the level of public awareness of the issues and priorities in linking higher education closely to economic development. In some states the issues are remote to the public; they remain the province of a select leadership who determine the future. In Massachusetts, for example, despite the remarkable success of Route 128 in sparking the economic renaissance of a decaying industrial state, Governor Michael Dukakis and the

powerful Massachusetts High Technology Council still have sharply contrasting views of the economic world they live in and their visions of the future.

Dan Dimancescu, a technology consultant in Cambridge, wrote a "Dear Governor" column for the Boston Globe in June 1985 taking Governor Dukakis to task for "riding the crest of a high-tech boom without returning new seed for the next growth cycle." Dimancescu criticized the Governor's policies and inaction on higher education and new technology as evidence of a passive approach to building stronger economic foundations for the state. The issue was joined when John Hoy of the New England Board of Higher Education replied in a "Dear Dan" column later that month, strongly defending Governor Dukakis and describing his accomplishments in higher education. Hoy argued Dukakis not only raised Massachusetts from the bottom of the barrel in state financing to one of the largest percentage increases in appropriations for education during the last three years, but also that he acknowledged the impact of the broad educational base of Massachusetts' economic turn-around -- not simply in high-tech fields.

Regardless of who had the better arguments, the fact that these issues were singled out and debated raised the level of public understanding and produced a continuing dialogue. There is far too little of this going on in the states today, with the result that there is often a rush on to do something about higher education and economic development but too little time spent in building and maintaining public consensus.

4. Two Rarely Used Indicators

Of particular interest to the states but seldom provided to legislators are the states' comparative rankings for contracts and grants received per faculty member and research expenditures per faculty member. These have a direct bearing on the state's capability in research and development for technology innovation and the productivity of faculty.

For example, a small state like Vermont appropriates the smallest amount of dollars per student to public higher education, but it ranks 13th among all states in research expenditures per faculty member, fifth in instruction expenditures per student, and as high as fifth in contracts and grants per faculty member. No wonder higher education makes such a large contribution to the economy of the state of Vermont. On the other hand, it is not surprising that private universities and colleges in Massachusetts rank third nationally in research expenditures per faculty member and fifth in contract and grant monies awarded. But public institutions finish a dismal 50th for both these rankings. Whether this public-private imbalance in Massachusetts is a matter of conscious policy or the result of lack of information for policy-makers is unclear.

The proposals discussed in this section of the paper are meant to be suggestive. Many other indicators and improvements for better information can be devised by those concerned with higher education. The purpose is not to encourage new regulations for higher education but to assist state policy-makers in evaluating the long-term value of the public investment. Incentives such as tax benefits and special grants to encourage desired behavior would certainly help accomplish this objective.

Hard evidence to measure the health of higher education is grossly inadequate. If one wants to find out about the health of a publicly traded company, a wide array of financial reports are available from reliable, independent investment services such as Standard and Poor's, Moody's, and Value Line. To find out how a favorite major league baseball team is doing, simply open up the sports page to reams of statistics about the performance of the team, each one of its players, and its opponents as well. Why is it then so exasperatingly difficult to get timely, relevant data comparable over time indicating the yield of public funds invested in higher education? After all, colleges and universities are the most significant national depositories and transmitters of knowledge and information in our society--except perhaps about themselves. This may be an idea whose time has come.

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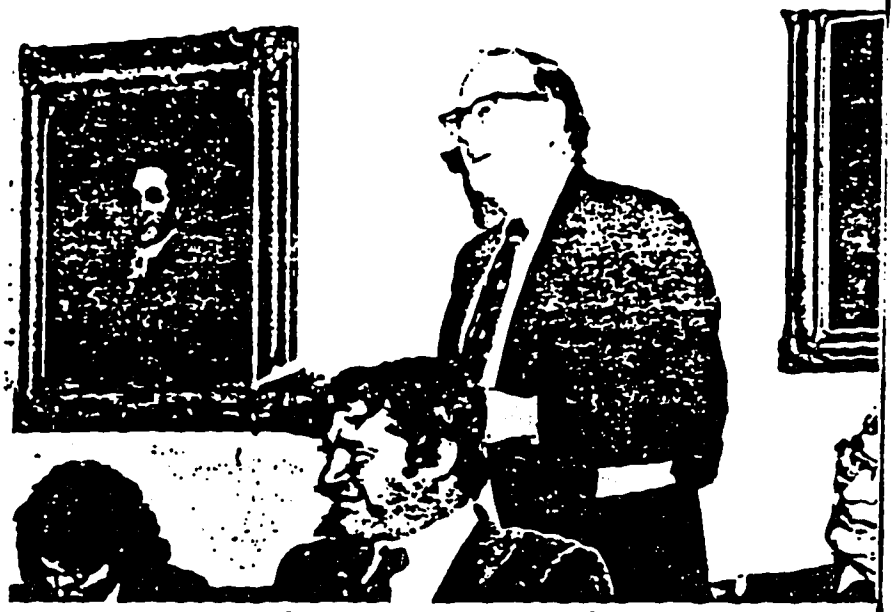
THE PUBLIC INVESTMENT IN HIGHER EDUCATION

Report of
A Policy Briefing
for Legislators from

VERMONT



Senator William Doyle of Montpelier

A New England Project
Supported by
The Fund for the Improvement of
Postsecondary Education

Agenda

Policy Briefing for Vermont Legislators
Thursday, February 28, 1985
The State House
Montpelier, Vermont

Welcome
Senator Peter Welch
Senate President Pro Tempore

"Maximizing the Higher Education Resource in Vermont"
Melvin H. Bernstein
Project Director
New England Board of Higher Education

"Educational Attainment and Investment in Vermont"
John C. Hoy, President
New England Board of Higher Education

Discussion

Moderator
Sister Janice Ryan, President
Trinity College
Delegate to the New England Board of
Higher Education

Panel
Lattie F. Coor, President
University of Vermont
Delegate to the New England Board of
Higher Education

Hilton Wick, Acting Chancellor
Vermont State Colleges
Delegate to the New England Board of
Higher Education

Senator George Little
Member, Committees on Appropriations,
Natural Resources and Energy

The Public Investment in Higher Education

The following is a report of a special policy briefing held by the New England Board of Higher Education (NEBHE) in February, 1985 for Vermont state legislators. The briefing is part of a NEBHE regional economic development project on the public investment in higher education in New England, funded in part by the national Fund for the Improvement of Postsecondary Education (FIPSE). To guide this project, NEBHE has established a Legislative Advisory Council of leaders from the six New England states. A special policy briefing for legislators has been planned for each New England state. The briefing reported here is the fourth in a series of six. Briefings were held in New Hampshire in November 1983, in Rhode Island in April 1984, and in Massachusetts in November 1984.

New Vermont delegates to NEBHE, Florence Robillard (second from left) and Donald Chioffi (second from right) join Vermont NEBHE delegates Lattie Coor (left), president of the University of Vermont, and Sister Janice Ryan (right) president of Trinity College, Vermont, to meet with Vermont Governor Madeleine Kunin (center).

"Today the educational attainment of the populace of any given state is the clearest measure, not only of its health as a society, but of the state's capacity to sustain a successful economy."

John C. Hoy, President
New England Board of Higher Education

Higher Education: New England's Natural Resource

Higher education in New England should be viewed as a unique natural resource. New England is more successful in attracting new college students to the region than any other section of the nation, primarily because of the excellence of its public and private colleges and universities. With 260 institutions of higher learning located in six states with a population of 12 million people, New England is the most knowledge intensive region in the country and probably in the world. The region has 50 percent more institutions of higher education per capita (and nearly twice as many private institutions per capita) than the nation as a whole. Higher education contributes substantially to the region's economy, in terms of direct expenditures and the educational and research benefits provided to meet the region's economic growth and development. In a recent NEBHE survey 86% of New England's legislators agreed that higher education is a major industry in the region.

Communication Between Higher Education and Legislatures

Question: Do you agree with the view that there is enough communication between New England's higher education institutions and the region's legislators on how they can help each other?

	YES	NO
Connecticut	22.4%	77.6%
Maine	20.2%	79.8%
Massachusetts	22.0%	78.0%
New Hampshire	20.7%	79.3%
Rhode Island	15.0%	85.0%
Vermont	41.0%	59.0%
Total	23.6%	76.4%

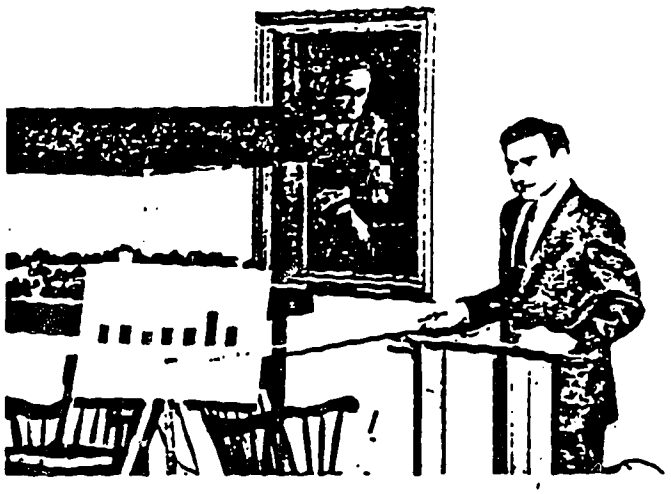
Findings taken from "Renewing Excellence: The 1984 New England Legislative Survey", sponsored by The New England Board of Higher Education

Vermont's Investment in Higher Education

Vermont has a considerable stake in the future of its institutions of higher learning. In fact, it can be said that higher education is more important to the economy of Vermont than it is to any other state in the country. Higher education can be considered one of Vermont's major industries.

"All of us in political life in the state of Vermont who have a concern about our economy and our communities recognize the essential importance of education; it is the linchpin of Vermont economic development. Without adequate education, you do not have people who are capable of doing the work that needs to be done, with the skills which allow them to obtain good jobs. Without an excellent higher education system, Vermont would be unable to attract the kind of industries that require and are dependent upon technological innovation."

Senator Peter Welch
Senate President Pro Tempore



"When you consider the state's resources, the amount of money invested, and what has been accomplished, it is fair to say that no state in the union gets a greater return from public investment in higher education than does the state of Vermont. Higher education's share of the gross state domestic product in Vermont is approximately 50 percent higher than the share of higher education in the rest of New England, and is again nearly double higher education's share in the economy of the United States overall."

Melvin H. Bernstein, Project Director
New England Board of Higher Education

Economic Impact of Higher Education

- The economic impact of Vermont higher education overall was estimated at nearly $500 million in 1982. This source of income is not only important to the quality of higher education in the state, but also to the quality of life available to Vermonters.
- The 23 degree-granting institutions in Vermont have a major impact on the state's economy. Half of the full-time student enrollment and 60 percent of the higher education tuition income is generated by out-of-state students.
- Vermont ranks fifth in the United States in government contracts and grants per faculty member; it ranks fifth in the country in instruction expenditures per student and it ranks 13th of the fifty states in research expenditures per faculty member. This investment in both research and teaching creates a dimension that should be extremely attractive to business and industry, particularly in the high technology field where a premium is placed on the availability of a well-trained labor force and innovative research and development capability.

John Hoy (NEBHE President) and Senator Little

"If you look at higher education as an industry, you realize how important the out-of-state students are, not only in maintaining the size of Vermont institutions, but in providing the revenue base needed to sustain our continued development."

Senator George Little

Government Grants and Contracts Per Faculty Member, Public Institutions New England States FY 1982

State	Dollar Amount	National Rank
Connecticut	$14,971	43
Maine	$20,817	20
Massachusetts	$11,794	50
New Hampshire	$19,183	26
Rhode Island	$24,279	15
Vermont	$35,058	5
U.S. Average	$20,472	

*District of Columbia included in ranking

Instruction Expenditures Per FTE Student, Public Institutions New England States FY 1982

State	Dollar Amount	National Rank
Connecticut	$1,882	49
Maine	$1,888	48
Massachusetts	$1,646	51
New Hampshire	$1,918	47
Rhode Island	$2,203	38
Vermont	$3,031	5
U.S. Average	$2,410	

*District of Columbia included in ranking

Research Expenditures Per Faculty Member, Public Institutions New England States FY 1982

State	Dollar Amount	National Rank
Connecticut	$10,931	42
Maine	$12,085	39
Massachusetts	$ 6,331	50
New Hampshire	$22,923	9
Rhode Island	$17,171	23
Vermont	$20,912	13
U.S. Average	$16,192	

*District of Columbia included in ranking

Source: "Higher Education Financing in the Fifty States", National Institute of Education and the National Center for Higher Education Management Systems, November 1984

Training the Workforce for Future Growth

The quality of the labor force in Vermont depends on the availability of training and continuing education programs for residents in response to industry's demands for new skills. Economic development is contingent upon an educated workforce. It is ultimately to Vermont's advantage that it concentrate on training or retraining its native workforce rather than looking to an in-migrating population to fill jobs requiring sophisticated skills.

Ronald Iverson and Lt. Gov. Peter Smith

High Technology Employment as a Percent of Total Nonagricultural Employment

	1983	National Rank
Connecticut	12.2	2
Massachusetts	11.5	3
New Hampshire	11.1	4
Vermont	9.6	7
Rhode Island	4.2	32
Maine	3.0	43
U.S. Average	6.3	

Source: *Monthly Labor Review*, U.S. Department of Labor, Bureau of Labor Statistics, May 1985

In the state of Vermont there are approximately 300,000 adults aged 25 years or older. Of this number, 90,000 did not graduate from high school. The opportunity and encouragement to continue their education is extremely important to adults who did not complete high school and to the economy of Vermont. Without sufficient education and training, the undereducated adult's ability to earn a living decreases as the momentum of the technology revolution increases, especially in the New England region, which has the nation's highest rate of job creation in the high technology field.

Years of School Completed by New England Adults 25 Years and Older, 1980 Census

	High School Graduate	College Graduate
Connecticut	70.3%	20.7%
Maine	68.7%	14.4%
Massachusetts	72.2%	20.0%
New Hampshire	72.3%	18.2%
Rhode Island	61.1%	15.4%
Vermont	71.0%	19.0%
U.S. Average	67.0%	16.0%

Source: U.S. Census Bureau

"The time has come for a state policy that will encourage greater numbers of adults to return and complete their degrees part-time. Forty-two percent of the enrollment in American higher education now comprises adult part-time learners. In Vermont, however, that figure is only 27 percent. The requirements of adults deserve increased attention from educators and state policy-makers alike."

John C. Hoy, President
New England Board of Higher Education

Vermont Places High Priority on Financial Assistance

Vermont's financing of higher education represents a high tuition/high financial assistance approach unique to the state. Tuition rates at Vermont public institutions are close to the highest in the country for both in-state and out-of-state students. However, the state, through the Vermont Student Assistance Corporation (VSAC), has made a substantial commitment to provide high impact financial assistance programs to students through the availability of grants and loan funds. In addition, the VSAC provides extensive information and counseling services, and administers an Outreach Program which serves economically and/or culturally disadvantaged high school students and adults.

Hilton Wick—Vermont business leader and higher education advocate

"Higher education makes an important and lasting impact on Vermont's economy, but we do not want to overlook the social and cultural contributions made by our institutions to the people of our state."

Hilton Wick, Acting Chancellor
Vermont State Colleges

While Vermont supports its public institutions at a level well below many other states in the country, the state fully recognizes its responsibility to provide those students in need the financial assistance to pursue higher learning.

- Vermont ranked 47th among the 50 states in FY 1985 in higher education appropriations per capita of state population.
- Vermont ranked first among the 50 states in FY 1982 in the percentage of its state higher education appropriations devoted to student financial aid. The state ranked second in the amount of state student aid dollars awarded per capita of state population. In both of these measures Vermont has ranked first or second over the past ten years.
- More than 8,000 full- and part-time Vermont students received Incentive Grants in FY 1984 from the Vermont Student Assistance Corporation to supplement federal and institution awards.
- In FY 1984, the Outreach Program administered by the Vermont Student Assistance Corporation served 5,288 Vermonters who because of their financial or social circumstances would otherwise be unlikely to continue their education past the high school level.
- Vermont ranked 41st in the percentage increase of its higher education appropriations over the past ten years and 27th in the percentage increase over FY 1983.

Factors in State Support of Public Higher Education, 1983–84

State	Appropriations per student (in dollars)	National Rank	Tuition per student (in dollars)	National Rank
Connecticut	3,972	13	519	50
Maine	3,086	46	1,609	7
Massachusetts	3,948	15	810	38
New Hampshire	1,925	51	2,5[illegible]	2
Rhode Island	3,636	31	1,575	10
Vermont	2,450	50	3,520	1

*District of Columbia included in ranking

Source: "How States Compare in Financial Support of Public Higher Education 1983–84," National Institute of Education.

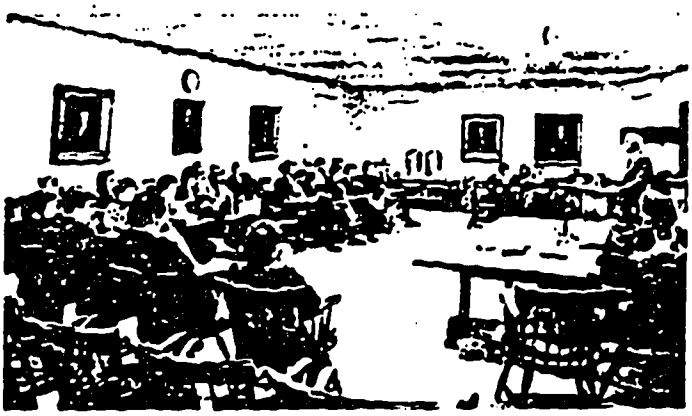
Interstate Cooperation: The Regional Student Program

A regional poll co-sponsored by NEBHE revealed that a clear majority of New Englanders favor greater interstate cooperation at all levels of higher education in order to reduce costs, increase academic options for students and at the same time avoid duplication of programs in adjacent states.

NEBHE's Regional Student Program (RSP), in operation for 28 years, continues to be a model program of interstate cooperation which increases educational opportunities at the postsecondary level. It enables residents of the six New England states to enroll in out-of-state public colleges and universities within the six-state region at reduced tuition rates for degree programs not available at their home states' campuses. The program is the largest of its kind in the United States.

"Higher education institutions must cooperate more with each other to provide students with better services, especially in rural areas. We have to give up some of the turf lines among various institutions and the traditional notion of who does what where in order that students' needs are well-served."

Governor Madeleine Kunin



With 348 in-migrating and 535 out-migrating students, Vermont remained a net exporter of RSP students in 1983-84. The in-migrating RSP population increased by 11 percent, with those students taking advantage of 51 percent of the programs available to them in the Green Mountain state. Out-migration rose 12 percent since 1982-83, with Vermonters enrolled in slightly under 30 percent of available out-of-state programs. Residents saved an average of $2,012 in tuition under the program. Estimated total Vermont savings rose 10 percent in 1983-84, to $1,076,319.

Half of Vermont's outgoing RSP students enrolled in New Hampshire's two-year vocational colleges and institutes and various community colleges in Massachusetts. The doctoral degree program in Education at the University of Massachusetts at Amherst enrolled the largest number of Vermont residents at the university level. Meteorology at Lyndon State College remains the most popular state college program offered through the RSP, and attracted close to 18 percent of the total in-migrating population.

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