MEMORANDUM

Date: July 14, 2003

To: Wisconsin Technology Council

From: Rolf Wegenke, Chair, Human Capital Committee[1]
Wisconsin Technology Council

Subject: HUMAN CAPITAL POLICY AGENDA
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Statement of the Human Capital Issue

In the late 1980s, the slogan was, "It's the economy, stupid." But, in today's economy, stupidity will not move Wisconsin forward. We propose a new slogan: ***It's the people, smarty.***

The Knowledge Economy is dependent on educated people for success. Education itself can no longer be seen only as part of the infrastructure or as a means to an end. Rather, education is an economic cluster, a generator of wealth, and an export industry. In October 2000, *Postsecondary Education OPPORTUNITY* reported that

> [The U.S.] . . . labor market is **somewhat** over-supplied with insufficiently educated workers, and **significantly** under-supplied with workers at the level of a bachelor's degree and above.[2]

What is true about human capital for the United States as a whole is especially true for Wisconsin. Education – again, specifically higher education – is a key predictor of income. " . . . [S]tate per capita personal income is largely determined by the proportion of each state's population age 25 and over that has at least a bachelor's degree from college.[3]

The world depended for millennia on a resource-based economy – we depended on what we could take from the soil. In the 19th and 20th centuries, the economy was transformed to a manufacturing economy – we depended on what we could make. Today and tomorrow we have a knowledge-based economy. In the Knowledge Economy, we depend on what we know. **Education provides the essential resource for the Knowledge Economy: brainworkers.**

In addition, education is reordering the way the world is organized. Education has made it possible for individuals with very few resources beyond their bright ideas to strike off on their own. Education also has made it not only possible, but even

inevitable that large corporations will flatten their organizational structure; more decisions and more control can be exercised by individual employees without jeopardizing the overall strategic direction of the company. Thus, entrepreneurialism with all of its risks and benefits looks different today than it did just a decade ago. Entrepreneurialism is characteristic not just of young people starting a new business in their garages, but also characteristic of people of all ages in large corporations and in society as a whole (hence the term "social entrepreneurs"). Indeed, businesses and government must be entrepreneurial if they are going to succeed in the Knowledge Economy. Education is necessary to achieve and to manage this transformation of old-line companies – as well as state bureaucracies. Education is empowering, enabling the individual to be both entrepreneurial and successful. **Education in the Knowledge Economy is the driver in the reorientation/reorganizing of the social and economic order.**

Education also adds value because it is a source of creative ideas – of knowledge itself. Ideas are the essential currency of the Knowledge Economy. In the Knowledge Economy, it is ideas that are bought and sold. **In the Knowledge Economy, it is education that is adding value and, thereby, generating wealth.**

The Knowledge Economy is also a global economy. Wisconsin's world-class educational institutions are attracting the best and the brightest from almost every country on earth and turning them into Wisconsin's entrepreneurial ambassadors. **Education, then, is an export industry.**

In addition, education in the 21st century is tied to technology. Internet-connected classrooms, distance learning, on-line universities and more are changing how people are educated – and how education can be "marketed" as a commodity to citizens with Wisconsin's borders and beyond. Wisconsin has an opportunity to become one of the nation's digital education leaders.

In sum, education is an economic cluster because it is (1) an economic resource, (2) an economic driver, (3) a generator of wealth, (4) an export industry, and (5) an engine increasingly powered by technology.

> The various sectors of education in our state are major players in our economy. In the process of producing educated citizens, schools, colleges and universities constitute an economic engine.
>
> The University of Wisconsin's annual economic impact is $9.5 billion, and that represents 150,000 jobs. The Wisconsin Technical College System spends a combined $2.5 billion a year, generating 19,000 jobs. The annual budgets at private colleges and universities in the state to add up to $1.8 billion and 15,000 jobs. And the public K-12 schools, with hundreds of school districts all over the state, account for a whopping $7.9 billion in expenditures and 112,000 jobs.

> The combined total of these education budgets is $21.7 billion, which is the equivalent of 15 percent of Wisconsin's gross domestic product. Some 294,000 people are on the combined educational payroll. In fact, education in Wisconsin is roughly the size of a Fortune 500 company. In impact, however, education exceeds most other employers. If education were a private industry, the state would be working to attract and keep it.[4]

Vision 2020: *A Model Wisconsin Economy*, the strategic plan developed by the Wisconsin Technology Council, focuses on human capital and on the importance of education, identifying where Wisconsin falls short:

> …the educational attainment of a worker [has become] a key differentiator in the market for human resources. The higher the educational attainment of the worker, the more knowledge the person could apply to the job, thereby increasing the worker's overall effectiveness. Higher education, therefore, is an essential ingredient for a knowledge-based economy because knowledge is the key input to increasing economic productivity (getting more goods and services from existing inputs) and fostering technological innovation (creating new products and services).[5]

> …we have a "brain drain" of many Wisconsin college graduates and we fail to attract a "brain gain" of college graduates from other states. It is particularly troubling, although not surprising, that this situation is occurring at [a] time when there is a serious worldwide shortage of knowledge workers…Talented knowledge workers are a scarce resource that we are failing to exploit in Wisconsin.[6]

According to the U.S. Census Bureau (2003), Wisconsin ranks 31st among the states in the percentage of population with college degrees.[7] If Wisconsin could bring its degreed population to just the national average, it would add $7 billion to its incomes and tax base. But addressing the issue of human capital is about more than our educational "infrastructure" or our current fiscal plight. Wisconsin's economic future is at stake.

> Wisconsin needs 150,000 more college graduates in its workforce to meet the U.S. per capita income average. In addition, Wisconsin needs another 150,000 workers with post-graduate degrees in order to exceed the U.S. average for per capita income.[8]

Again, to quote *Vision 2020*:

> …Wisconsin needs to create a climate that encourages creative people who in turn can produce ideas and businesses that create wealth. Wealth can only be created in an atmosphere of diversity and tolerance. These social and cultural values are important if we are to

> achieve our goals of developing a high growth economy in the future. Wealthy societies not only permit but encourage individuals with explorer mentalities to flourish. The public virtues of openness and diversity are common characteristics of all wealthy societies.[9]

The Wisconsin Technology Council[10] has set benchmarks for addressing Wisconsin's human capital crisis and Wisconsin's economic future:

	State Rank	2000	2005	2010	2015	2020
Knowledge Workers						
College Graduates (Bachelor and Graduate Degrees)	31	827,000	870,500	953,000	1,079,000	1,248,000
College Graduates as % of Population Over Age 25	31	23.8 %	24%	25%	27%	30%
Doctoral Scientists & Engineers	21	9,740	10,000	11,500	13,000	15,500
Arts, Design, Entertainment & Media Workers	17	29,910	35,000	40,000	50,000	60,000
Overall Workforce Education Rank	25	25	23	21	19	15

There have been many well-meaning initiatives to address Wisconsin's human capital crisis, such as receptions for alumni around the world and mailings of tourism literature to Wisconsin graduates and undergraduates. These efforts should not be undervalued or abandoned, but they have neither the scope nor the impact necessary to address the crisis at hand or to produce the dynamic future Wisconsin seeks. The proposals suggested in this paper are the first (but by no means the last!) steps in a Human Capital Policy Agenda for Wisconsin.

The Human Capital Policy Agenda

1. Invest in Seamless K–16 Education

   The Wisconsin Technology Council's Vision 2020 report recognizes that all of Wisconsin's public and private educational resources need to be aligned to maximize benefit to students at all levels.[11] We must emphatically reject both rhetoric and policies that would pit one sector of education against another or one level of education against another. The importance of K–12 education to productive postsecondary education is obvious. It should be equally obvious that Wisconsin will not attract and retain brainworkers, who place a high value on the education of their children, unless educational quality is not just keeping pace with Scarsdale or Singapore, but exceeding them in meaningful ways. Moreover, the purely economic return on

investment in elementary and secondary education (increased earning power) is best realized if students make seamless transition to and successfully complete postsecondary education. Assume the state invests $120,000 per student in K–12 education. That investment is repaid (in additional tax revenue) only if the student receives a postsecondary education. Education must be viewed as a single entity and, in addition to its myriad other benefits, be viewed as an investment. Governor Jim Doyle has announced a high-level task force on school funding. ***The State of Wisconsin should address school funding issues to propel Wisconsin into a leadership position in the Knowledge Economy.***

If the Wisconsin Technology Council's goals for increasing the numbers of individuals with four-year degrees and individuals with graduate degrees are to be achieved, there also must be more investment in postsecondary education, including technical education. In the Knowledge Economy, it is not a case of either/or. There must be investment in both. For example, at the University Research Park in Madison, the largest number of employees are graduates of Madison Area Technical College (MATC). Those jobs would not be there without the Ph.D.s in biochemistry and computer science or without the MBAs either. But, then, neither would the Ph.D.s and MBAs be there without the MATC graduates. Shame on the policymakers and shame on us if we pit one sector against another or if we disparage one sector or another. A comprehensive, effective college transfer model is a cost-effective way to expand educational opportunity and to reinforce the seamless nature of postsecondary education. Although great progress has been made, more needs to be done. This is a challenge which the educational leaders of this state must themselves address. ***The State of Wisconsin should guarantee a seamless K–16 education so Wisconsin will have the flexibility and creativity to lead in the Knowledge Economy.***

Does a call for increased investment in education imply that education as we now know it is substandard? Not at all. Our ACT test scores are among the highest in the country. Our postsecondary institutions are the envy of the world. But are we investing enough to position Wisconsin as a leader in the Knowledge Economy? The answer, plainly, is "no."

Richard Florida, in *The Rise of the Creative Class* states:

> …we need to shift both public and private funds away from investments in physical capital, toward investment in creative capital…[For members of the Creative Class] [I]nvestments in their education and skill development are the most effective and highest-return investment they can make.[12]

The U.S. Center for Workforce Development documents that investment in the education of the workforce generates eight times the return on investment generated by investment in plant and equipment.[13] Again, Richard Florida:

> Access to talented and creative people is to modern business what access to coal and iron ore was to steelmaking. It determines where companies will choose to locate and grow, and this in turn changes the ways cities must compete. As Hewlett-Packard CEO Carley Fiorina once told this nation's governors, "Keep your tax incentives and highway interchanges; we will go where the highly skilled people are."[14]

2. Support Financial Aid to Students

Tuition prices are rising in Wisconsin. However, UW tuition remains at or near the bottom of the list compared to peer institutions, and tuitions at private colleges and universities in Wisconsin are increasing less than the national average. Investing in education is a tripartite responsibility involving the government, the students and their families, and the private sector. As with all investments, the return accrues to those who put up the money. The Wisconsin Technology Council has shown that, in the Knowledge Economy, all investors (government, the students and their families, and the private sector) benefit. If Wisconsin is going to position itself as a leader in the Knowledge Economy, it must take concrete steps to make sure we increase our supply of brainworkers. We must especially address the growing populations (minorities and those with low incomes) who are currently left behind. And the way to do this is through means-tested grant programs for students.

The fact of the matter is that many in Wisconsin can afford tuition and will attend a college, university, or technical college regardless of the tuition. The average indebtedness of a UW student on graduation is $15,800; for graduates from a private college or university in this state it is $17,600.[15] Given the subsidized interest rates on many student loans and the boost in income that a college degree yields, and comparing this to what the same student would pay for loan on a rapidly depreciating car, this level of borrowing is manageable for most – but not for all. For low-income individuals, any loans (if they can secure them) are out of the question. And without financial support, they will not attend a postsecondary institution. A recent study found that grant aid – not elaborate programs at institutions – was the best way to increase enrollment and persistence by students at colleges and universities.[16] Another recent study, this one sponsored by the Sallie Mae Fund, confirms that those with the greatest need for student financial aid have the least knowledge about financial aid and how it works and also found that those with the most knowledge about financial aid are most likely to attend a college or university.[17]

Yet, here again, Wisconsin is currently falling short. Recent data from the Higher Educational Aids Board (HEAB) show that financial assistance for students eligible for the state's major means-tested financial aid programs leaves more than 33 percent of Wisconsin students' documented need unmet. In other words, more than $242 million would have to be added to the state's total appropriations for need-based financial assistance in order to fully meet this need.[18] It's notable that Minnesota, which is leading Wisconsin in brain gain strategies, provides twice the Wisconsin appropriation for need-based financial aid to its students.[19]

> Dwindling funds for financial aid programs, which lag behind exploding tuition costs, only exacerbate the problem. "We are heading toward reduced access, reduced quality, and reduced competitiveness in the international economy," warns David Ward, president of the American Council on Education (ACE) [and former UW-Madison Chancellor]. If more students can't afford a BA, more white-collar jobs could flow to countries like India, with fast-growing educated workforces. Worries Patrick Callan [president of the National Center for Public Policy & Higher Education]: "This may be the first generation in American history that won't be better educated" than its predecessors.[20]

Wisconsin has long pursued a low-tuition policy for its public universities. The net result has been that, even when resources are scarce (as they are now), subsidies go to those who would attend college in any event. This is economically inefficient and will not move Wisconsin one step closer to achieving its goals for increasing the educational level of our population. At the same time, keeping tuition low makes the University of Wisconsin subject to countercyclical pressures because low tuition requires excessive dependence on taxpayer support. This policy is countercyclical because, just when the state's revenues are likely to be constrained, the state's economy most needs the boost that education would give it. Tuition flexibility is essential for Wisconsin's economic future. Increases in financial aid **must** accompany any tuition system that is reflective of ability to pay or proportionate to the benefit to the investor. To this end, a strategic link between tuition increases and increases in financial aid should be enacted. A partial link was established in 2001.

The State of Wisconsin should increase funding for student aid programs to maximize participation of all Wisconsin citizens in the Knowledge Economy.

3. Enact an Education Tax Credit

In a November 2, 2002 memorandum, Ed Chin, then State Director of the Wisconsin Technical College System, stated:

> Absolute growth in the state's labor force would require significant increases in the net level of in-migration to the state . . . of those seeking work for skilled, technical and professional jobs.[21]

Maximizing educational opportunity for Wisconsin citizens is clearly important, but it is not enough. Business leaders have long recognized that immigration is essential for Wisconsin to become a player in the Knowledge Economy. For example, a few years back, Metavante (formerly M&I Data), paid for 30 students from India to study at Marquette University. All but one of those students ended up employed in Wisconsin at Metavante. In other words, the corporate world already recognizes that the way to address worker shortages is immigration plus expanded investment in education.

A Milwaukee *Journal Sentinel* article on "Connecting to the World Economy" documents that world-class cities are characterized by high levels of immigration:

> One measure of that lies in the number of expatriate workers and immigrants. According to census data, the population of foreign-born residents inside the Milwaukee city limits rose 55 percent to 46,122 in the 2000 census from 1990 and now accounts for 7.7 percent of the city's population. . . .
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> Compared with the nation's premier global cities, however, Milwaukee continues to lag.
>
> Chicago boasts a 22 percent foreign-born population within its city limits after a 34 percent increase in the past decade, census numbers show. The borough of Manhattan hosts a worldly 29 percent foreign-born residency, making it a true global village. And Boston has three times the number of immigrants and expatriate workers as Milwaukee...
>
> "If you want a pool of human capital, you have to build it, which is time-intensive. These people are in high demand..."[22]

Unfortunately, xenophobia has not disappeared from Wisconsin's culture. Even before September 11, the state raised out-of-state tuition at UW. Given the culture and the state's fiscal straits, it is not realistic to expect our elected leaders to invest Wisconsin taxpayer dollars in students (future brainworkers)

from Illinois, much less from India. This is where the tripartite responsibility of government, students and their families, and the private sector for investment in education comes into play. The task, then, is to devise a politically viable incentive to promote the attraction of workers, whether they be from Illinois, India, or Iola, Wisconsin. An Education Tax Credit is the answer.

An Education Tax Credit has been introduced in the Wisconsin Legislature twice before and passed the Assembly with near unanimous support by Republicans and Democrats, only to fail to be scheduled in the state Senate. An Education Tax Credit has been endorsed by Wisconsin Manufacturers and Commerce, the University of Wisconsin System, University of Wisconsin students (United Council), the Wisconsin Association of Independent Colleges and Universities, and the Wisconsin Technical College System. As originally drafted, the legislation would provide employers a credit equal to 50 percent of tuition paid at any Wisconsin college, university, or technical college. Tuition could be paid for current or prospective employees. The credit would rise to 75 percent of tuition paid for individuals at 185 percent of poverty.

The five principal advantages of the Education Tax Credit are:

- It shifts the locus of decision making to the marketplace (the employer) rather than to academics (colleges and universities) or a governmental bureaucracy.

- It short-circuits the political obstacles to funding immigration.

- It leverages private investment in education, especially for those in low-income groups who are now shut out of the Knowledge Economy.

- It does not discriminate among associate, baccalaureate, or graduate programs.

- It involves real economic incentives and is much more likely to stimulate immigration than, for example, a new Web site or a mailing to alumni.

The State of Wisconsin should enact an Education Tax Credit to encourage more private investment in education and immigration of brainworkers to position Wisconsin to be a leader in the Knowledge Economy.

Alternatives

It was stated at the outset and bears repeating here that the proposed Human Capital Policy Agenda does not denigrate alumni events, Web sites, or other initiatives to turn the brain drain into a brain gain. These should continue and be enhanced, but they are not sufficient to have a significant impact on Wisconsin's economic future. There are other proposals regarding human capital in circulation

that raise serious questions that should be resolved before the state pursues them further. These include:

1. Forgivable Loans

There have been a number of proposals to create forgivable loan programs. These proposals would provide loans to students which would be forgiven if they remain working in the state for specified periods of time. This is an appealing proposition, but, in reality, forgivable loan programs do not work. According to the Institute for Higher Education,

> "There are existing loan-forgiveness programs, but no clear evidence that those types of programs actually change people's behavior . . . " says Jamie P. Merisotis, president of the Institute for Higher Education, a research organization .... "If it's just an award for people [who] would have done it anyway, it's a waste of limited resources, and the money should have been put into grant aid."[23]

As explained above, low-income and minority students are least likely to be able or willing to borrow. But there is a more fundamental reason why these programs do not work: simple economics. The average (total) student indebtedness of both UW and private-college graduates is between $15,800 and $17,600 (at highly subsidized rates). If a UW, WTCS, or a private college graduate is offered a job that pays $10,000 a year more than a comparable job in Wisconsin (and this happens frequently), how much of an incentive is it for a graduate to stay in Wisconsin in return for $3,000 a year in loan forgiveness over a five-year period? The graduates will be $35,000 ahead if they leave the state and pay off the loan.

2. Industrial Policy

Numerous proposals have been advanced to have the state invest in the jobs of the future. This sounds reasonable and is often called a "targeted" policy. A more loaded label would be "picking winners and losers." It has been widely acknowledged since the economic collapse of Eastern Europe that such policies do not work. Projections of what is "hot" are based on what has happened in the past. The members of the Reversing the Brain Drain and other Worker Shortage Issues Committee in their discussions in October 2001[24] put a primary emphasis on computer science. While computer science is still "hot," where would an emphasis on this field leave biotech (Promega, Infogen), medical equipment (GE, Ohmeda), the service sector (Cobalt, Metavante, Fiserv), healthcare (read: the nursing shortage), or education (read: the teacher shortage)?

Government has a long history of "guessing wrong." When legislatures in other states recently made such attempts to pick winners, they found themselves bogged down between proponents of technical education and baccalaureate education and among advocates of computer science, molecular biology, Japanese language, early childhood education, and healthcare. Fifty percent of the jobs this fall's freshmen will hold when they graduate in four years do not yet exist. No one has a crystal ball of sufficient clarity to pick the "winners and losers" of 2007.

For example, contrary to the clichés we usually hear, liberal arts grads compete well for the top jobs in the Knowledge Economy. A *Wall Street Journal* story quoted a career center director who stated that companies value the "people" and problem-solving skills of majors in political science, psychology, and other liberal arts fields. A staffing manager for a manufacturer noted that companies find liberal arts grads' general curiosity a plus.[25]

This is backed by Judith Faulkner, CEO of Epic Systems, a Wisconsin-based computer software company, who says that, when hiring, she looks for bright college graduates with strong critical thinking skills. "I like to employ people who have learned how to learn," she states. "In my field we need to stay ahead of the curve. The graduates who challenged their minds while in college – who really immersed themselves in a rigorous thinking experience – bring true value as employees."[26]

Moreover, the Knowledge Economy is so interconnected (as shown by the example of the University Research Park, above) that the concentration on particular categories of brainworkers may actually make it impossible for the targeted industry to succeed. Indeed, at various meetings of the Wisconsin Technology Council, high-tech employers have indicated that as important or more important than recruiting scientists is the task of recruiting marketers, fiscal managers, foreign language specialists, and the like. Another issue with targeting is one of timing. For example, proposals have surfaced to provide incentives for more biology majors, ignoring the fact that the number of undergraduate biology majors has risen by 60 percent since 1990. Again, projections are based on history, not on the future.

The most fundamental flaw with an industrial policy approach to human capital is that it is naive. *The Rise of the Creative Class* demonstrates that the "human capital" (read: people) that will make Wisconsin a leader in the Knowledge Economy will not come here because they can mingle with others who had the same major in college. Rather, "The Creative Class is moving away from traditional corporate communities, Working Class centers and even many Sunbelt Regions to a set of places I [Richard Florida] call Creative Centers."[27]

> Many said they had turned down jobs, or decided not to look for them, in places that did not afford the variety of "scenes" they desired – music scene, art scene, technology scene, outdoor sports scene and so on. Some recounted how they or their friends had taken jobs for economic reasons, only to move elsewhere for lifestyle reasons. In the course of my research, I have come across many people who moved somewhere for the lifestyle and only *then* set out to look for employment there.[28]

Music, arts, a lively, diverse cultural scene of the kind that develops around colleges and universities is a more direct route to the Knowledge Economy than anyone's major. The Knowledge Economy is powered by people acting in a diverse, creative marketplace. It cannot be commanded or designed by central authority. To attempt to do so is to waste time and resources – and to fail.

3. Build the Businesses First

Many have suggested that Wisconsin's human capital needs can only be addressed by persuading more "knowledge businesses" to relocate here or to expand here. While Wisconsin's brain drain can appear to fit the classic chicken/egg dilemma, the reality is that such businesses will not locate here, nor will entrepreneurs expand here, without the "essential natural resource," brainworkers. To again quote Hewlett-Packard CEO Carley Fiorina, "Keep your tax incentives and highway interchanges; we will go where the highly skilled people are."[15] You do not find paper mills in the Sahara. Even if we retained only the same percentage of our graduates as we do now, but grew the base of graduates by including more of our own underserved, disadvantaged populations and more immigrants, we would be better off than waiting for the new economy to arrive in our borders ahead of its fundamental prerequisite.

4. Stick with the Basics

Some have suggested that Wisconsin cannot be a player in the Knowledge Economy. The defeatists urge that we stick with the manufacturing, agriculture, and tourism triad that has served us so well for so long. This is a false dichotomy. No one is proposing to abandon Wisconsin's traditional economic base. Indeed, the base needs to be revitalized by being fully integrated with the Knowledge Economy. Advanced manufacturing is the most obvious example, but others are equally important.

Conclusion

Wisconsin is involved in a global economic competition. But this is not your father's economy. Success or failure will take place in the Knowledge Economy. The essential resource for success in the Knowledge Economy is a highly trained and educated workforce. Despite the high quality of Wisconsin's education "industry," the state is at a disadvantage and is threatened with a noncompetitive future. Rather than feel-good, marginal gestures, the State of Wisconsin needs a bold, scalable Human Capital Policy centered on investment in the Knowledge Economy.

It's the people, smarty.

NOTES

[1]Members of the Committee are: Alozie Aguwa, Richard Atkin, Richard Carpenter, Robert Cervenka, Carlos de la Huerga, Stan Johnson, Erica Kauten, and Gene Saragnese. Dr. Katharine C. Lyall, President of the University of Wisconsin System, and Dr. Richard Carpenter, President of the Wisconsin Technical College System, contributed to this paper.

[2]Thomas G. Mortenson, "Educational Attainment in the Human Capital Economy," *Postsecondary Education OPPORTUNITY,* October 2000, p.5. (Emphasis added.)

[3]Ibid., p.10.

[4]PK–16 Leadership Council, "It's the Economy, Smarty," *Wisconsin School News*, March 2003, p.12.

[5]Wisconsin Technology Council (WTC), "A Knowledge-Based Economy," *Vision 2020: A Model Wisconsin Economy*, p.9.

[6]Ibid., p.12.

[7]U.S. Census Bureau, Table 13. "Educational Attainment of the Population 25 Years and Over, by State, March 2002.

[8]WTC, p.7.

[9]WTC, p.35.

[10]WTC, p.45.

[11]WTC, p.28.

[12]Richard Florida, *The Rise of the Creative Class,* (New York, NY: Basic Books, 2002), p. 319.

[13]Study by the National Center on the Educational Quality of the Workforce and the Economy, 1996.

[14]Florida, p. 6.

[15]UW System Office of Policy Analysis & Research and WAICU Survey.

[16]The Lumina Foundation, "Learning in the Fast Lane," 2001.

[17] "The Sallie Mae Fund Launches Project Access," News release, January 20, 2003.

[18]Higher Educational Aids Board, *Board Report #03-14, Wisconsin State Student Financial Aid Data for 2001-02, February 28, 2003.*

[19]National Association of State Student Grant Aid Programs, *33rd Annual Survey Report on State-Sponsored Student Financial Aid, 2001-2001 Academic Year,* April 2003, pp. 1-2.

[20]William C. Symonds, "Colleges in Crisis," *Business Week,* April 28, 2002, p.75.

[21]Edward Chin, "Follow up to 10/19/01 Meeting of the Reversing the "Brain Drain" and other Worker Shortage Issues Workgroup," November 2, 2001, p.2.

[22]Milwaukee *Journal Sentinel*, "World-class cities rely on entrepreneurs," May 26, 2003, page 18A.

[23]Will Potter, "The Wrong Kind of Incentive?" *The Chronicle of Higher Education,* March 21, 2003, p.A27.

[24]Department of Workforce Development Inter-Agency Task Force, Wisconsin Economic Development Planning, Brain Drain Subcommittee, October 2001.

[25]*The Wall Street Journal*, February 10, 1998.

[26]*The Wisconsin Independent,* Spring 1998.

[27]Florida, p. 218.

[28]Florida, p. 224.