

## Michigan Talk 2.0

### Personal Introduction

As many of you know, I am a scientist by training and background...indeed, I am perhaps the worst of all types of scientists...a burned-out theoretical physicist.

As such, I suffer from two character flaws:

i) First, I tend to a bit too candid in my remarks...

...I generally tell it like it is...

...or at least how I think it is...

ii) Second, I tend to be one of those folks who lives more in the future than in the present or the past...

My life as a scientist and engineer has been spent working on futuristic areas such as:

i) Nuclear rocket propulsion

ii) Laser-driven thermonuclear fusion

iii) Supercomputers

iv) robotics and artificial intelligence

Hence, perhaps it is natural that as we enter the 1990s, I should find myself looking once again to the future, facing the challenge of helping to build a University capable to serve our state and our nation in the 21st Century.

### My Message

My message today will be suffer from both of my character flaws as a scientist/engineer...

...it will be a vision of the future...

...and it will be unusually candid.

In a nutshell, as I look to the future, I am sensing an ever-accelerating pace of change in our society, in our state, in our nation, in our world.

Yet I also fear that few have realized the enormous changes that our society is undergoing as it approaches the 21st Century.

The themes of change,

i) the growing pluralism of our society

ii) our evolution into a world nation, ever more tightly coupled to the global community

iii) and our rapid transition to a knowledge-based economy

are not themes of the future...

...they are themes of today...

...and they are already dominating every aspect of American life.

It is clear that the key strategic resource of our society has become knowledge itself...

that is, educated people and their ideas.

Knowledge will play the same role that in the past were played by natural resources or geographical location or unskilled location...

In the knowledge-intensive future that is our destiny

it seems clear that education in general...

...higher education in particular...

...and the research university most specifically are rapidly becoming the key ingredients determining the strength, prosperity, and social-well being of our nation.

But here there is some good news...

America is particularly well positioned,

since our research universities are clearly the envy of the world, as evidenced by the extraordinary demand by graduates of every country to see advanced education and training in the United States.

Indeed, higher education is not only our nation's highest quality, but also probably also its most competitive industry as measured by the test of the marketplace!

Further, Michigan is particularly well-positioned from this perspective, since our state has built over the years not only one of the strongest systems of public higher education in the nation, but possesses several of the world's leading research universities.

But, now for the bad news...and the candor...

We--that is YOU AND ME--seem hell-bent, both as a nation and as a society, on destroying the extraordinary resources represented by our research

universities, just as we are entering an age of knowledge in which they will become our most valuable resources.

Indeed, a tragic combination of public misunderstanding, short-sightedness, and downright selfishness, is now threatening to constrain and hamper our universities...

Leading to the frightening prospect that we will manage to destroy our international competitiveness of higher education just as we have many other American industries.

In my home state Missouri we have an old saying that the best way to get a mule to move is to first hit it over the head with a 2x4 to get its attention.

Now that I have your attention, let me explain more clearly what is at stake here...

### **The Many Michigans...**

What images come to mind when you hear the words "The University of Michigan"

Probably the Michigan of those marvelous Saturday afternoons in the fall as 105,000 fans cram into Michigan stadium to watch the Wolverines...

or the pride you felt when Michigan won the NCAA championship in one of the greatest Cinderella moments in sports.

Perhaps you think of the Michigan of the Big Chill...

The tradition of student involvement helping to awaken the conscience of a nation...

There is also the caring Michigan as seen by the over 750,000 patients each year who are treated by the UM Medical Center,

Or the Michigan as Silicon Valley East, working to build the high-tech infrastructure necessary to create new companies and new jobs...as evidenced by the \$5 B industry in industrial automation now building up in the Ann Arbor-Detroit-Warren crescent...

Or the Michigan which attracts to our state almost a quarter of a billion dollars of federal R&D each year...not to mention many of the world's leading scientists and engineers

Or the Michigan of the "cutting edge",

which conducts the research that changes our lives...  
as evidenced, for example, by announcement earlier this month  
that a Michigan team had identified and cloned  
the gene responsible for cystic fibrosis,  
thereby opening up the possibility of saving  
thousands of lives every year.

And, of course, there is the Michigan as the educator,  
attempting to provide, in the words of one of our first presidents  
“an uncommon education for the common man”  
an education as good as any available  
in the world  
for all citizens, regardless of race, creed, and  
socioeconomic background.

It is important to note these different perspectives of the  
University because all too often we tend to think of these  
marvelous and complex institutions in one-dimensional images  
that reflect only our particular interests or needs of the moment...  
...when we read about student unrest on our campus...  
...or open the tuition bill for our son or daughter...  
...or see Michigan get two kickoffs run back on them by Notre Dame...

Indeed, my thesis today is that the American  
research university...of which the University of Michigan  
is not only the prototype, but one of the  
leading examples...  
is rapidly becoming the key player in determining  
the strength and prosperity of our state  
and our nation.

### **Themes of Pluralism, Globalization, and Knowledge**

Our universities today are at a particularly important moment  
in history, since they are being called upon to  
educate students who will be spending most of their  
lives in another century...citizens of the 21st Century,  
if you will.

And while it is always risky to try to speculate about the  
future our students will find, three themes of 21st  
Century America seem clear...

i) It will be future in which our nation becomes a truly  
multicultural society, with a cultural,  
racial, and ethnic diversity that will be extraordinary  
in our history

In which those groups we refer to today as minorities will become the majority population of our nation in the century ahead...

In which women take their rightful place as leaders of America...

ii) It will be a future in which America will become "internationalized" ...

in which every one of our activities must be viewed within the broader context of participation in the global community...

Whether through travel and communication, the arts and culture, the internationalization of commerce, capital, and labor, we will become increasingly interdependent on other nations and other peoples.

Further, as the destination of roughly half the world's immigrants, the United States is rapidly becoming a "world nation" with not simply economic and political but strong ethnic ties to all parts of the globe.

iii) The Age of Knowledge

But there are even more profound changes underway...

Looking back over history, one can identify certain abrupt changes, discontinuities, in the nature, the very fabric of our civilization...

The Renaissance, the Age of Discovery, the Industrial Revolution

There are many who contend that our society is once again undergoing such a dramatic shift in fundamental perspective and structure.

Today we are evolving rapidly to a new post-industrial, knowledge-based society, just as a century ago our agrarian society evolved through the Industrial Revolution.

In a sense, we are entering a new age, an age of knowledge, in which the key strategic resource necessary for our prosperity, security, and social well-being has become knowledge--educated people and their ideas.

Key element in transformation, is the emergence of knowledge as the new critical commodity, as important as mineral ores, timber, and access to low skilled labor were at an earlier time.

This new critical commodity knows no boundaries.

It is generated and shared wherever educated, dedicated, and creative people come together...and, as we have learned, it spreads very quickly.

The knowledge revolution is happening worldwide  
and at a very rapid rate.

**Concerns...**

Needless to say, these same challenges of pluralism,  
of globalization, and of this age of knowledge  
that is our future will pose great challenges and  
demand similar changes in our state and our nation.

The America of the 20th Century that we have known...  
was a nation characterized by a rather homogeneous,  
domestic, industrialized society...

But that is an America of the past.

Our students will inherit a far different nation...  
a highly pluralistic, knowledge-intensive, world nation  
that will be the America of the 21st century

Of course, these themes of the future,  
the changing nature of the American population...  
our increasing interdependence with other nations and other peoples...  
and the shift to a knowledge-intensive, post-industrial society.

Are actually not themes of the future...but rather themes of today...  
...in a sense, I have simply been reading the handwriting on the wall...

Yet I also fear that few have realized the enormous  
changes that our society is going through as it  
approaches the 21st Century.

Indeed, I am personally convinced that we face a very unusual  
period of challenge in the decade ahead...a watershed,  
in a sense, from which we can either emerge as a  
world leader...or as an also run...an economic backwater

My central theme is that education, broadly defined, will  
be the pivotal issue in determining which of these two  
alternative futures will be Michigan's...and America's.

Indeed, I am absolutely convinced that the dominant issue of  
the 1990s will be the development of our human resources.

Previous economic transformations were closely associated  
with major public investment in infrastructure such as  
railroads, canals, electric networks, and highways.

In the coming economic transition, an equivalent  
infrastructure will be an educated population.

Hence the challenge before higher education is the  
challenge before America...

And the actions we must take...

...and the investments we must make...  
...will clearly determine our capacity to  
respond to this future...

### **The "Pipeline Problem"**

But here we face very serious challenges...

...clouds on the horizon...

and they involve the knowledge and skills of our people

Today, an unprecedented explosion of knowledge marks  
the onset of a new era. Since people are the source of new  
knowledge, we will rely increasingly on a well-educated and  
trained work force to maintain our competitive position  
in the world and our standard of living at home.

Yet here we are in real difficulty, because we are not  
educating enough new people to maintain the  
strength and prosperity of our nation.

This has become known as the "pipeline problem", since  
it involves the full spectrum of education,  
from preschool through K-12 through higher education  
to lifelong education.

#### **K-12 Education**

By any measure, K-12 is in serious trouble.

We are "A Nation At Risk"...

Our education system simply has not responded to the  
challenges of the age of knowledge...

Note: it is bad enough that...

10% of Americans are illiterate

25% now fail to complete high school

Our students bring up the rear in most international comparisons

Compared to students in 15 other nations, US high school  
seniors scored among the bottom fourth on calculus and  
algebra achievement tests.

International Association for Evaluation of  
Educational Achievement (IEA)

Grades 4, 8, and 12

US was 8th of 17 for 4th graders

US was 14th of 17 for 8th graders

US was 11-13 of 17 for 12th graders

Bottom 25% of US students were scoring at  
chance level, indicating that they were  
scientifically illiterate

The coins of the realm in the age of knowledge will be science, mathematics, and technology...

But most American high school students are not developing these skills. Only 7% of the 17 year-olds tested are prepared for college-level science courses.

We are a sports-oriented society,  
and we like to frame issues in the language of the playing field like "being Number one".

But folks, this isn't a game we are talking about today, this is a deadly serious matter of raising a generation of American who will be able to hold their own in an increasingly competitive, increasingly complex, increasingly science-oriented world.

The 13 year olds who were tested in this study will be in college in a four years... those of them who don't drop out first, and will be in the work force in ten... those of them who end up well-enough educated to get and hold a job.

Looked at in those terms, the lack of preparation for further education and future employment that these American teenagers demonstrated is nothing short of frightening.

We hear along about the 21st century, but this sounds remote. These kids that test at the bottom of the heap in world terms will be the backbone of our labor force at the turn of the century...  
...and will be running our country in 2025!

Face it, gang:  
The tragedy is not simply our poor showing relative to other nations.  
Science, mathematics, and computer literacy will increasingly become a requirement for almost all employment.  
We are condemning an entire generation to a lifelong estrangement from the very technology that will inevitably govern their lives.

If, in the final analysis progress depends on having the generations who follow us be smarter and better educated than we are, it is evident that we are sliding backwards rapidly!

## College Education

While higher education in America is the strongest in the world,  
we also face serious human resource problems here:

Dominant factor controlling the production of college graduates is the  
size of

the college-age population, which will decline until the late 1990s

Traditional source of college students is declining

25%-30% falloff in HS graduates by 1992

Composition of college age population is also changing...

By 2020 30% will be composed of Blacks and hispanics...

students who have not traditionally chosen S&E careers.

Indeed, by the turn of the century, over 50% of K-12 students  
will be Black or Hispanic.

Less than 15% of new people entering the

labor force of the 1990s will be white males.

The fastest growing pool of youths has the lowest

participation rate in college and the highest dropout

rate in high schools -- not the mention the least

likelihood to study science and math.

This shortfall has been compounded by the alarming  
recent trend for students away from knowledge-intensive  
majors such as science and the liberal arts to  
“let me get out fast so I can become an investment  
banker and make a bundle” majors.

Over period from 1966 to 1987, proportion of students  
who intended to major in physical sciences has  
dropped from 3% to 1.3%; in mathematics, the  
decline was from 4% to less than 1%.

Freshman plans to pursue computing careers is down more  
than two-thirds since 1982, from 8.8% down to 2.2%.

After recording big increases during late 70s and  
early 80s (increasing to 12%), engineering has dropped  
by almost one-third since 1982 (now down to 8.6%).

President of Sony:

"In US you produce 4 lawyers for every engineer.

In Japan, we graduate 4 engineers for every lawyer!"

## Graduate Education

Over the next two decades, PhD replacement needs will  
double in all sectors (academic, industry, government)

For example, 25% of engineering faculty will retire in next 6 years

On the basis of BS production alone, PhD production will decline by 20% in the decade after the mid-1990s.

Already symptoms: PhD shortage in faculty...

Compensation (in constant dollars) was constant from 1964 to 1984

It has gone up by 21% in past 5 years and will accelerate even more rapidly as the real PhD shortages appear late in the 1990s

More than 60% of E&S PhDs are now foreign

Indeed, foreign students account for nearly 85% of growth.

It is bad policy to be dependent on an unpredictable resource and not to be able to meet more of our needs with American talent.

Conclusions:

i) If we couple demographics with student preferences, we have got a timebomb on our hands...

ii) Just as we are becoming increasingly dependent on knowledge-intensive

fields...and educated people, we are facing serious shortfalls in the availability of college graduates in key areas.

iii) It is clear that our strength as a nation will depend on our ability to attract more talented students into these fields

### **The Dangers of Underinvestment**

Perhaps the most ominous dark cloud on the horizon of all is the increasing evidence that we as a people we have not yet recognized either the nature or the magnitude of the investments we must make to achieve prosperity in an age of knowledge.

While we all give the "age of knowledge" lip service, the evidence suggests that in reality, we long for a return to the agricultural and manufacturing economies that once made us reach...

1. For over two decades, US investment in civilian R&D has dropped while that of our competitor nations has risen rapidly. US investment in civilian R&D as a percent of GNP is now less than that of any other developed nation (and only 60% that of Japan and West Germany...)  
(US: 1.8%, Japan, 2.7%, Germany, 2.5%)

As a percent of GNP, US R&D spending has been flat at 2.8% for a long time. Meanwhile, Japan's spending has increased two fold, while West Germany's has increased three-fold over the last 25 years.

Almost all growth has gone into military research (70% of

federal R&D budget)

2. Over the past several years, numerous studies have suggested that Michigan is seriously underinvesting in its "knowledge infrastructure"...by as much as 30% to 40% relative to other states.  
Interestingly enough, studies performed by both the Democratic administration and the Republican Senate agree with this prognosis...and yet nothing has happened...and we slip even further behind!
3. Particular concern has been focused on the "education pipeline" in Michigan...from pre-school through K-12 education through higher education to lifelong education.  
Two-thirds of new jobs are in professional, managerial, and sales area...just 5% go to unskilled workers...as Michigan economy shifts from manufacturing to knowledge-based and service jobs.

### 3.5. Preschool

The plight of the poor in this state continues to worsen, as inadequate state tax revenues (due to voter resistance) and an out-of-control corrections program threaten those programs designed to protect the young.

"Studies show that high-quality preschool programs for at-risk children resulted in higher literacy, employment and educational attainment, and lower levels of school dropouts, public assistance dependence, and arrests."

4. The challenges faced by K-12 education were well-summarized in a recent editorial in a Detroit paper:

"If Michigan is to prepare tomorrow's workers for tomorrow's jobs, major structural changes are needed in public education, both in classroom quality and in the adequacy and fairness with which the system is financed."

"What is required is a strengthened commitment in Lansing to school finance reform and improving the quality of basic and higher education, and a greater political willingness to stand up to special interests who would thwart those long-term goals to pursue short-term objectives. The opportunity to eliminate chronic unemployment in Michigan may be never more within our grasp than between now and the end of the century. The alternative is a growing mismatch of job opportunities and job training that threatens

not only the state's recent prosperity, but its very solvency."  
(Free Press editorial, 1/5/89)

Earlier this year we learned that Michigan ranks 48th in the nation in the rate of retention to H.S. graduation.

I cannot believe that we as a people can accept that kind of performance.

Yet, we continue to be paralyzed in our efforts to come to grips with school finance reform or major structural changes necessary to achieve quality in public education.

5. The situation is somewhat different yet no less acute for higher education in our state.

While the quality of Michigan higher education today is very high, the long term prognosis remains guarded...

Our state has dropped from 6th in the nation in its support of higher education to 35th over the past two decades... into the bottom third!!!

We are being outspent by 30 - 40% in state support per student...

Not simply by prosperous states like California...but by neighbors such as Indiana and Ohio!

Indeed, one measure of the importance of higher education in the state budget is the ratio of tax dollars per enrollment ratio... a measure by which Michigan ranks 47th in the nation!

It seems clear that higher education faces a serious challenge in Michigan. Our present level of public support is clearly inadequate to maintain a system that is competitive on a national basis.

Whether measured in terms of state appropriation per student or fraction of our tax dollars directed toward higher ed, it is clear that in comparison with other states, our present level of public support is simply inadequate to maintain over the long run a system of higher education that is competitive on a national basis.

We are attempting to compete in this knowledge-intensive future with an underfunded public system of higher education... and no private capacity (such as a Stanford, MIT, or Caltech).

Despite herculean efforts by the Governor and the State Legislature in recent years to restore adequate

support for higher education in Michigan after the devastating cuts of the early 1980s, we continue to fall further behind the national average in state support.

### **What has happened to our priorities?**

What is wrong here???

Who is to blame???

Our schools and colleges???

Certainly they must take stronger actions to improve quality...and strive harder to operate in a more cost-effective manner...

But their present situation reflects as much as anything else our own personal priorities...

...as parents

...as volunteers...

...as citizens and voters...

What about our elected public officials???

It is certainly not their fault!!

Listen to their recent messages...

whether it be the Governor's State of the State address...

...or the response from the state Republican leadership...

...or the President's State of the Union address last week...

It is clear that our elected leaders, whether in Washington or Lansing or our local communities...

Would like nothing better than to make education their highest priority.

To become

...the Education Governor

...or the Education Party

...or the Education President

They understand clearly the importance of investing in our human resources, and they are searching valiantly for creative ways to improve the quality of our schools and provide adequate and equitable financial support.

But they also face formidable constraints, since in the end they must be responsive to the wishes of the electorate...and face it, gang...the electorate today says:

i) no more taxes...

ii) no more crime...

iii) no more cuts in social services or national defense...  
and our public officials have no choice but to respond.  
No, the real finger of blame for the crisis we face in education should be pointed,

as Michael Jackson would say, at "The Man in the Mirror"...  
...at you and at me...

We are the ones who fail to demand the highest quality  
in our educational institutions in Michigan...

We are the ones who steadfastly resist a tax base adequate  
to support both our needs and desires...and provide an  
adequate level of support for quality education in this state.

We are the ones who block any effective efforts to achieve  
equitable financing of education in Michigan.

We are the ones who generally are too busy to help our own  
children in their studies or participate in their activities.

And we are the ones who insist on building more and more  
prisons, even when we know that this investment  
comes out of the hide of education and social services--  
which are, of course, the only true long term solutions to crime!

We are the ones who complain about higher tuition costs  
at our public institutions, even though we know that  
these fees represent only one-fifth of the actual  
costs of an education on our campuses...  
and that our colleges provide adequate financial aid  
to offset the burden of even these modest costs to  
those in need...

If there is one common theme to these trends, it can be  
summarized by that old T-shirt expression:

"Eat dessert first, life is uncertain"

We have become a "live for the moment society"

The "Me Generation" of the 1960s has now up into mature  
Yuppiehood?

We have ceased investing in our future!

We have chosen instead to mortgage this future to pay for mistakes  
made in our past.

Six-month planning horizon...desire for immediate results...inability  
to identify the investments which have to be made today to yield  
the objectives for tomorrow.

For many years now we simply have not been  
willing to invest in our future...and the future of our children...

We have chosen instead to mortgage this future to pay for mistakes make in our past.

The attitude we have taken toward our most precious resource, our youth, is both callous and alarming.

I simply cannot accept the excuse that "we can no longer afford this investment in the educational opportunities we offer our youth".

To be sure, the immense social needs for welfare assistance, medical care, prisons, and all of the other programs that drain our tax dollars are compelling.

However, by choosing to meet these needs with resources taken away from our system of public education rather than through reforms in our tax structure or political system, we have in reality mortgaged our future by withdrawing the educational opportunities from our youth.

Michigan has had a long tradition of wealth and a caring attitude for its populace. But it seems clear that if priorities are not changed, Michigan will become poorer and poorer and finally it will not be able to meet the "caring needs" of its people. It will then have become a "have not" state.

We see ourselves caring about the future, but we are not preparing for it.

OMB Director Richard Darman has a term for this alarming trend in America: "now-now-ism"

"Now-now-ism is a shorthand label for our collective shortsightedness, our obsession with the here and now, our reluctance to adequately address the future. Our current impatience is that of the consumer, not the builder, the self-indulgent, not the pioneer."

We have become consumers of education, not investors in the future.

Yet the writing on the wall could not be clearer:

As we prepare to enter the Age of Knowledge, our ability to sustain the strength of our state and our nation...to achieve the quality of life for our citizens...will be determined, more than any other factor, by how we develop, nurture, and educate that most precious of resources, our people.

Hence, let me conclude my brief remarks by tossing at you--and at me--several challenges:

## **An Example: The Costs of Education**

To illustrate the challenges we face, let me focus for a moment on one of the most misunderstood issues surrounding higher education these days...tuition.

Let me destroy a few popular myths....

Myth1. Tuition levels in Michigan's public universities are high?

Absolute rubbish:

Reality: Tuition levels in Michigan's public universities are quite low and comparable to those of most other public institutions throughout the nation.

Background:

1. The roughly \$2,000 to \$3,000 of annual tuition and fees charged to instate undergraduates in Michigan's public institutions represents an incredible bargain when compared to all other alternatives-- public or private education, in Michigan or across the nation. For example, it costs more to attend Cleary College (\$4,163) to learn secretarial skills than to attend the University of Michigan (\$2,876)! Michigan students face far higher tuition levels at peer public institutions (UC-Berkeley tuition runs \$9,000 - \$10,000) and at peer privates (Harvard, Stanford, and Cornell tuition run \$14,000 - \$15,000). Another calibration: The cost of a degree at a public institution in this state is less than the cost of a new car!... Further, this investment will be paid off in only a couple of years following graduation because of the very high earning capacity of our graduates.
2. Because the absolute tuition levels at public institutions are so low, it is very misleading to attempt to compare costs through tuition increase percentages. (A large percentage of a small number is still a small number...) Further, the real cost of higher education at public institutions is NOT tuition.

Rather the primary costs of public education in Michigan are attributable to room, board, books, travel, and other expenses. Indeed, tuition represents less than 25% to 30% of cost of a college education to Michigan residents.

Myth 2. The increasing tuitions at Michigan's public universities are pricing them out of the reach of all but the very wealthy

T or F: Again, absolute rubbish!

The reason, of course, is the presence of effective financial aid programs.

For example, at U of M, we have a policy that guarantees that ALL MICHIGAN RESIDENTS ARE PROVIDED WITH ADEQUATE FINANCIAL AID TO MEET THEIR NEEDS UNTIL THEY GRADUATE.

In fact, roughly 65% of our Michigan resident students receive some form of financial aid (amounting to \$140 M last year.)

Further, families with incomes up to \$60,000 are eligible for some form of financial aid.

Myth 3: Surely the fact that tuition rates are increasing faster than the CPI reveals that universities are not cost-effective and are exploiting the marketplace.

1. While it is true that tuition has increased more rapidly than the CPI, it is important to note that resident tuition levels at public institutions throughout the nation were essentially at token levels until the late 1970s when public support began to wane. It has been clear public policy that the nominal tuition levels charged to resident students at public institutions should be increased somewhat to reflect a shift in support from general tax dollars to those who benefit the most--and who most can afford to pay. Nevertheless, in absolute terms, these tuition levels are still extraordinarily low (\$2,000 to \$3,000 per year at public institutions, compared to \$10,000 to \$15,000 per year at private institutions). Hence percentage increases

are misleading because of the unusually low absolute level of public university tuitions.

2. Several other points:

i) the CPI measures things like the costs of housing, food, etc.

But suppose you were required to live in a bigger and bigger house each year... then, don't you think that your costs would increase more rapidly?

Well, that is just what is happening in higher ed since in many fields, the amount of new knowledge doubles every five years or less.

Is it not understandable, therefore, that both the amount of education...and the costs of that education...should similarly increase in real terms...

costs

Computers, laboratory instrumentation, medical devices,...all so very necessary to the education and training of tomorrows professionals...all cost money...

But

3. Further, even the percentage increases in tuition have lagged the percentage increases in disposable family income over the past two decades.

Furthermore, dramatic increases in financial aid have extended educational opportunities to many who could never have afforded a college education in years past. Hence, in a very real sense, a college education at the UM is more affordable today than it has ever been before.

4. In Michigan state appropriations have exceeded the CPI in only 3 of the past 10 years. Indeed, over the past decade, the State of Michigan ranks 40th nationally in appropriation increases--and last among the large industrial states. In recent years, our state has continued to sink further below the national average in its support of higher education.

Capital facilities

Only 3 buildings in 25 years at UM...\$72 M...

...yet state should have been investing \$20 - \$30

M per year

Federal government has had no major facilities program since early 1960s...

Furthermore, has provided little help for equipment

Hence, a combination of tuition increases and program cuts has been required to balance budgets.

Myth 4: The price of a college education is no longer worth it.

Wow!!! Absolute nonsense

The money invested in a college education results in about a 10% return annually due to higher salaries commanded by college graduates.

That amounts to over \$500 K in constant dollars...and in the

knowledge intensive professions it is far higher

Further, at a leading university such as UM,

we are investing roughly \$25 K per year per student

in creating the type of learning environment necessary to prepare our graduates for the 21st Century.

By way of calibration, our present instate tuition levels are \$3,300.

We ask parents to contribute 12 cents on the dollar!

Not a bad deal, I'd say!

Myth 5: Hold on now! My taxes pay for the college

education of my children...

Balony!!!

i) UM share of state tax revenue has dropped by 42% over past 20 years (from 3.74% to 2.15%)

ii) Hence, today, only about 2 cents of each tax dollar goes to UM

In other words, someone paying \$5,000 per year in state taxes will be paying only about \$100 for UM

More specifically, the typical parent over their entire earning career, will

pay less than \$3,000 of taxes for the UM (assuming 30 years of earnings)...

(NOTE: We can scale this for all of higher education using the 23% UM share...

...hence this implies \$400 per year and \$12,000 per career

...a bit closer to the tuition...but a long shot from real cost

By way of comparison, the cost of a Michigan education is

UG Tuition: \$12,000

UG Cost: \$50,000 to \$80,000 (depending on how one counts)  
Hence it is clear that others must be shouldering the real costs for  
educating one's kids in a Michigan public university...not the  
taxpayer himself

### **Bottom Line**

Question 1: How good do you want your institutions to be?

Higher education is one of the most competitive  
industries in America, with over 3,500 institutions  
competing for students, faculty, funds...not  
to mention the international marketplace.

(We not only compete against

Hence, if you tell me how good you want an  
institution to be, then I can give you a pretty  
accurate idea of how much you will have to invest.

Then that determines an investment per student  
and per faculty that we will have to make.

Do you want the University of Michigan to be as  
good as:

...Harvard or Stanford?

...then it will take about

...\$50 K per year per student

...Berkeley or UCLA

...about \$30 K per year

...Ohio State or Minnesota

...about \$18 K per year

...Mississippi or Montana

...about \$10 K per year

...or Southern North Dakota State at Hoople...

Incidentally, it is clear that if you want to pay  
only bargain-basement prices, then you are  
going to end up with bargain-basement quality.

Question 2: Who is going to pay for this quality?

The state taxpayer?

The federal taxpayer?

Parents?

The student (through loans and deferred payments)?

Private philanthropy from

industry, foundations, alumni, friends?

Unfortunately, there are no other options.

Someone has to pay.

## **What's Going On Here?**

Something has changed in America...

You know, I was brought up in a long tradition in which one's first responsibility was to one's children  
My parents scrimped and saved for my college education...  
...and my wife and I have done the same for our daughters (who, since they attended eastern private universities, have taken essentially all of the savings we have been able to muster over the past 20 years)

Saving for a college education came first...

...before a house, before a fancy car, before an exotic vacation

But today's generation is different...

...the "me generation" grown up into comfortable Yuppies...

...it is bad enough that they have not saved for their children's college education

...and not supported adequate tax programs to support higher education

...but they have actively encouraged government at both the state and federal level to intervene in an effort to hold tuition levels to unrealistic low levels...

(either not realizing or perhaps not caring that they were undermining the quality of the education their children would receive at these bargain-basement prices).

## **Concluding Remarks**

**To Us...**

In a very real sense, our state has entrusted to us its most valuable resources...its youth...and its future.

To be responsible stewards of the public trust, it is clear that we must strive to achieve greater cost-effectiveness in our use of public funds...and I can assure you that we intend to do just that.

But even beyond this, we must become staunch guardians for the quality of our institutions...

For in education, as in every other aspect of American life, quality will be the key to our future.

Hence, to us falls the responsibility of taking the forceful and

courageous actions necessary to sustain and enhance this quality...in the long run the people of this state both demand and deserve nothing less!

### To You...

Higher education represents one of the most important investments a society can make in its future...since it is an investment in its people...

It is indeed the case that our state and our nation have developed the finest systems of higher education in the world...

But we must also remember this resulted from the willingness of past generations to look beyond the needs and desires of the present and to invest in the future by building and sustaining educational institutions of exceptional quality--

Institutions that have provided those of us in this gathering today with unsurpassed educational opportunities.

We have inherited these marvelous institutions because of the commitments and the sacrifices of previous generations...and it is our obligation as responsible stewards--not to mention as responsible parents--to sustain them to serve our own children and grandchildren.

It seems clear that if we are to honor this responsibility to future generations, we must re-establish the priority of both our **personal** and our **public** investments in education, in the future of our children...and hence in the future of our state and our nation.

### The Challenge to Us All...

Today Michigan faces serious challenges that will clearly determine its future prosperity and well being...

the challenge of pluralism...

the challenge of participation in a global community...

the challenge of the Age of Knowledge

the challenge of change itself...

If we are to respond, we simply must reorder the priorities of this state...

We must shift away from the temptation to address only the needs and desires of the moment

And, instead, we must begin to make some of the key investments necessary for the long term...

The key investments in our people...  
in our children...

Michigan continues to be blessed with abundant natural resources,  
a people of great strength, and a system of higher  
education of a quality envied by the rest of the  
nation...indeed the world!

But, the writing is on the wall...

If Michigan is to prosper in the age of knowledge  
that is almost certainly our future, we must join together  
now to restore both our public and  
personal investments in education...

...in our people and their ideas...

...in our children...

...and in our future