



PART 1:

EDUCATION MATTERS

College is not just a four-year experience. It sets people on a path that provides a lifetime of benefits.

Higher education means professional opportunity and economic security for its graduates. And higher education provides broad economic and social benefits to society. We are cared for in university hospitals and clinics. We benefit from technological advances created in university laboratories. Our communities are enriched by university research and public service programs that touch people at every stage in life, from infancy to old age, and in every socioeconomic class.



Universities are Critical to Our Future

More and more jobs are requiring a four-year degree, and this demand will only increase as jobs become more specialized. Our universities are where we look to respond to shortages of skilled workers, like nurses and other health care professionals. We rely on universities to be economic engines, serve and strengthen communities, and prepare citizens to succeed.

The United States is home to almost all of the top 20 universities in the world, and Washington is home to one of these: the University of Washington.

This global leadership in higher education is the result of decades of partnership and investment by the U.S. government, state government, civic leaders and institutions, and families and students.

But our leadership position isn't guaranteed.

As the world changes, other nations are trying to catch up and surpass the achievements of the U.S. higher education system. Here in Washington, this means that we've all got to strengthen and broaden the opportunities that higher education provides to students, graduates and the citizens of our state.



WASHINGTON HAS BUILT A GREAT UNIVERSITY

ONE OF THE BEST IN THE WORLD

WORLD RANK	INSTITUTION
1	Harvard University
2	University of Cambridge
3	Stanford University
4	UC, Berkeley
5	Massachusetts Institute of Technology (MIT)
6	California Institute of Technology
7	Columbia University
8	Princeton University
9	University of Chicago
10	University of Oxford
11	Yale University
12	Cornell University
13	UC, San Diego
14	UCLA
15	University of Pennsylvania
16	University of Wisconsin, Madison
17	UNIVERSITY OF WASHINGTON
18	UC, San Francisco
19	Johns Hopkins University
20	Tokyo University

SOURCE: Shanghai Jiao Tong University – Academic Ranking of World Universities in 2005.

History Proves Higher Education's Value

To gain perspective on the future, it is useful to consider how decisions made by leaders in the past have shaped the present. Strong, world-class education systems that anticipate – and participate in – the development and growth of a dynamic knowledge-based economy have not been the result of chance. They reflect strategic choices by public leaders and citizens. There are three lessons to consider:

HISTORY LESSON #1:

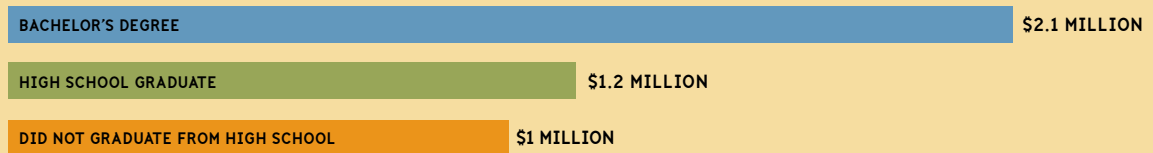
The United States became a world leader in innovation because it chose to invest in teaching and research.

In 1944, Franklin D. Roosevelt and the U.S. Congress opened the doors of colleges and universities to millions of returning servicemen and women through the GI Bill. This investment gave the postwar generation greater economic opportunity and a steadily rising standard of living.

Today, a person with a four-year baccalaureate degree earns on average 60 percent more in lifelong earnings than someone with only a high school diploma. That translates to close to a million dollars more income over a lifetime.

A FOUR-YEAR COLLEGE EDUCATION

Means nearly \$1 million more in lifetime earnings, which produces more state revenue.



SOURCE: Jennifer Cheeseman Day and Eric C. Newberger, "The Big Payoff: Educational Attainment and Estimates of Work-Life Earnings," U.S. Census Bureau Special Study P23-210, July 2002.



Increased access to higher education has translated into wider social benefits as higher education levels correlate with improved health, public safety and strong job markets.

Federal investment in research universities has given back to society in many ways. In 1950, when there was little commercial market for high-tech products and when many of the leading scientists of the world worked in other countries, the United States established the National Science Foundation and started to devote major public resources to university research and education.

Five decades later, these investments had generated huge economic and social benefits. Millions of Americans earned degrees in science, math and engineering. They made lives better through innovations in health care. They gave us the basic tools that have transformed the way we live and work, like computer hardware and software and the Internet. Their work increased economic opportunity and protected the environment. And they got their start in university laboratories and classrooms funded by U.S. tax dollars.

AMERICA MADE THE INVESTMENT IN RESEARCH

The United States spent an increasingly significant percentage of its total budget on scientific research and development.

YEAR	1950	1955	1960	1965
PERCENT OF TOTAL U.S. BUDGET	2.5%	4.8%	8.4%	12.6%

SOURCE: National Science Foundation.



HISTORY LESSON #2:

State investments help determine where knowledge economies grow and next-generation leaders emerge.

In 1959, North Carolina's business, government and academic leaders established the Research Triangle Park to capitalize on the research resources of the state's public and private universities, a strategic choice that led to this poor and rural Southern state having one of the globe's leading concentrations of high-tech and biotech industries. In 1960, California capped more than a decade of significant higher education investment and expansion with a groundbreaking Master Plan for Higher Education. The plan created a state university system where different institutions served unique functions. It expanded access and improved

teaching at Berkeley and UCLA. Although facing fiscal constraints and inadequate tax revenues at the time, California's leaders chose to make an investment that is still reaping huge dividends. That state continues to invest in its higher education system, doubling the number of bachelor's degree graduates in engineering from the UC system in the late 1990s, establishing four new California Institutes for Science and Innovation, and increasing support to state universities and their students in the 2006-2007 budget.

More recently, states from Georgia to Illinois to Texas have made large, targeted investments in college access and research activities. These are already paying off in positive economic growth and student populations that are more prepared to compete in the new global marketplace.

BY EXPANDING RESEARCH OPPORTUNITIES, AMERICAN UNIVERSITIES ARE BETTER ABLE TO PREPARE STUDENTS TO DO GREAT THINGS.

“ THE PRESENCE OF A MAJOR RESEARCH UNIVERSITY IS A BASIC INFRASTRUCTURE COMPONENT OF THE CREATIVE ECONOMY – MORE IMPORTANT THAN THE CANALS, RAILROADS, AND FREEWAY SYSTEMS OF PAST EPOCHS – AND A HUGE POTENTIAL SOURCE OF COMPETITIVE ADVANTAGE.”

RICHARD FLORIDA, “THE RISE OF THE CREATIVE CLASS”

HISTORY LESSON #3:

Research universities provide a unique and high-quality learning experience for students.

People tend to think of university research and university teaching as two separate things. But the two are closely connected. By expanding research opportunities, American universities are better able to prepare students to do great things – writing software code, running innovative companies, treating patients, discovering scientific breakthroughs, protecting the environment, creating art and

culture, working for social change. It is not a coincidence that places that became the nation’s top-ranked undergraduate schools in the past few decades happen also to have top-ranked research programs. Good examples of this are public research institutions like UCLA and the University of Washington. All of these places are the academic choice of undergraduate students in their own states and in other states and nations as well.





A LOOK AT THE HISTORY OF WASHINGTON STATE SHOWS THESE LESSONS IN ACTION:

Investment in higher education transformed Washington's economy and brought new opportunities to its citizens.

From the 1950s to the 1980s, Washington had two powerful and long-serving U.S. senators, Warren Magnuson and Henry Jackson, who saw how research would benefit the state and how the UW could make this research happen. "Maggie" and "Scoop" helped the UW win millions of dollars in research support, making it one of the top five federally-funded research universities by 1969. In the past four decades, the UW has continued this leadership in research, pushing the boundaries of scientific discovery and forging innovative interdisciplinary partnerships among Washington researchers and students. Today, the UW is the second-largest recipient of federal research grants in the nation.

This investment in research didn't just give Washington's people life-transforming medical and technical innovations. It also gave thousands of Washingtonians access to baccalaureate and graduate degrees in medicine, the sciences and engineering.

The UW is a major center of research activity in a state whose economy depends greatly on research and technology, and where few other state and local research investments historically have existed. Washington currently ranks 47th out of the 50 states in the amount that state and local sources spend on research and development activities.

The creation of Washington's Life Sciences Discovery Fund is a significant and positive step toward investing in critical biomedical and technology research. Opportunities exist for leapfrogging as Washington builds on its historical strengths in biomedical research and technology development. Past and present, the federal grants coming to the UW have been an engine of our state's dynamic economy – an engine that produces both research innovations and people prepared to lead in high-demand fields like engineering and health sciences.

" ... AMERICA HAS A MYRIAD OF INSTITUTIONAL STRENGTHS. IT STARTS WITH A NETWORK OF RESEARCH UNIVERSITIES, WHICH SPIN OFF A STEADY STREAM OF COMPETITIVE EXPERIMENTS, INNOVATIONS, AND SCIENTIFIC BREAKTHROUGHS – FROM MATHEMATICS TO BIOLOGY TO PHYSICS TO CHEMISTRY."

THOMAS L. FRIEDMAN, "THE WORLD IS FLAT"

**OUR INVESTMENTS IN HIGHER EDUCATION MADE THE UW
THE NATION'S SECOND-LARGEST FEDERAL RESEARCH GRANTEE**

RANK	INSTITUTION
1	Johns Hopkins University
2	UNIVERSITY OF WASHINGTON
3	University of Michigan
4	University of Pennsylvania
5	UCLA
6	Stanford University
7	UC, San Diego
8	University of Wisconsin, Madison
9	Washington University, St. Louis
10	Columbia University

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions, Fiscal Year 2003.





Washington made a strategic state choice – with big results – by creating UW Medicine.

In 1945, the state legislature established and provided funding for a medical school at the UW. More than six decades later, the UW’s cutting-edge medical care and research have saved lives from Forks to Spokane; from Vancouver to Sumas. It has brought talented people and new jobs to the state. Washingtonians receive world-class care from UW Medicine physicians based at UW Medical Center, Harborview Medical Center and a system of UW neighborhood clinics. UW faculty

also practice at sites such the Seattle Cancer Care Alliance and Children’s Hospital and Regional Medical Center. The UW-affiliated residency program at Spokane Internal Medicine is training new doctors in Eastern Washington. The WWAMI partnership between UW Medicine and the states of Washington, Wyoming, Alaska, Montana and Idaho has provided rural and underserved parts of our region access to medical education for over 30 years – a majority of those who have trained in the program remain in their communities to practice medicine. And UW Medicine also serves as the safety net of specialty care for the uninsured and underinsured in Washington state.

UW MEDICINE PROVIDES WORLD-CLASS CARE

FOR THE PEOPLE OF WASHINGTON

RANK	DIVISION OF UW MEDICINE
10	UW Medical Center (overall)
3	Rehabilitation
6	Cancer
9	Ear, Nose, and Throat
10	Orthopedics

SOURCE: US News and World Report, America’s Best Hospitals 2006.

Biomedical research conducted by UW Medicine faculty generates a thriving biotechnology industry that grew nearly 1300 percent between 1974 and 2002.

Today, many regions are competing to become medical and biotech capitals. Washington is already home to some of the world's leading centers for patient care and health sciences research, and to a dynamic medical technology industry – all set in motion by a state investment decision made over 60 years ago.

A strong research program at the UW has produced leaders in business, science and public service. "It's just because Bill Gates and Bill Boeing are from here," is an explanation people often give for Washington's high-tech economy. But that's not the case. Washington's economy grew because we invested in education and research at the UW. The University became a magnet for high-tech companies who brought good jobs to the state and gave us a dynamic and growing economy when other states were struggling to compete. It drew talented people from other places. As Microsoft co-founder Bill Gates says: "When Microsoft was first getting some traction, Paul [Allen] and I had to decide where we wanted to live and work. Many people in our position would have faced a choice: either go to a world-class city with a top research university that was a magnet for talent, or go home. Thanks to the UW, we were able to do both."

Today, hundreds of thousands of Washingtonians are employed in the research-driven technology sector, and their jobs on average pay over \$30,000 per year more than jobs in other industries. The independent statewide Technology Alliance estimates that about 1.2 million jobs – or 45 percent of Washington's total employment – are generated directly and indirectly by the presence of research-driven industry in our state.

Today, we Washingtonians face new challenges and must make new strategic choices about our future. Federal budgets are tightening dramatically, and more matching funds are required to win federal research money. Government cuts are being felt at UW laboratories, where federal grants dropped five percent in the third quarter of 2006 compared to the previous year – an ominous sign after 20 years of steadily upward growth. Other nations and other states are adjusting and making bold investments in higher education research, teaching and scholarships.

The accomplishments of Washington's citizens in research, teaching, patient care and service are the legacy of generations of strategic investments and policy decisions.

What will be our legacy?



Partners in Education

The UW is the product of a partnership among parents and students, the state of Washington, the federal government and the private sector. The UW serves the state and its students in three important and distinct ways:

#1 EDUCATION:

The UW Provides Excellence and Access

The UW serves a distinct function in the state public education system and serves the public need for quality, widely-accessible higher education opportunities in a research university setting. Many of Washington's best students make it their school of choice. Two-thirds of the entering freshmen in 2005 were in the top 10 percent of their high school graduating class, and 37 were National Merit Finalists. The middle half of the 2005-06 freshman class had high school grade point averages between 3.5 and 3.9.

At the same time, the UW's doors remain open to students regardless of geography, background or family finances.

- 31 percent of new entering freshman have family income that is less than the state median.
- 25 percent of UW students receive federal Pell Grants to support their education – this is the third-highest percentage of Pell Grant recipients at any of the nation's large public universities.
- One-third of entering freshmen each year will be the first in their families to earn a bachelor's degree.
- 32 percent of UW upper-division students transferred from community colleges.
- Because of generous financial aid grant programs, 50 percent of UW undergraduate students earn their degrees without accumulating any debt.

Few universities can match this combination of educational excellence and access.



25% OF UW UNDERGRADS COME FROM LOW-INCOME FAMILIES

According to the American Council on Education, 95 percent of Pell Grant recipients have family incomes of less than \$35,000.

RANK	INSTITUTION	PERCENTAGE OF UNDERGRADUATES WITH PELL GRANTS (2004-05)
1	University of Cincinnati	39.4%
2	UCLA	37.2%
3	UNIVERSITY OF WASHINGTON	25.0%
4	University of Louisville	24.4%
4	University of Oklahoma, Norman	24.4%
6	University of Florida	23.9%
7	University of Arkansas, Fayetteville	23.7%
8	University of Alabama, Tuscaloosa	23.6%
9	Ohio State University	23.0%
10	University of Tennessee, Knoxville	22.6%

SOURCE: The Chronicle of Higher Education





#2 HEALTH CARE:

The UW Prepares Students for High Demand Health Care Jobs

With UW Medicine, the people of Washington have made the Pacific Northwest a world-class leader in biomedical teaching, research and health care services. Jobs in the health sciences are in high demand and essential to building a strong, globally competitive economy.

The UW is the place where future generations of Washington's doctors, nurses and health care providers get their start – not only at its medical and nursing schools but also through undergraduate programs in the health sciences.

UW undergraduates participate in cutting-edge health research and learn about new innovations in patient care and disease prevention through undergraduate majors in Environmental Health, Medical Technology, Nursing, Prosthetics and Orthotics, Speech and Hearing Sciences, and programs in pre-medicine, pre-pharmacy and pre-dentistry.

INNOVATIONS IN HEALTH CARE

The people of UW Medicine made ground-breaking medical discoveries and innovations like:

- Long-term kidney dialysis
- Bone marrow transplantation
- Hepatitis B vaccine
- Identification and prevention of fetal alcohol syndrome
- The rapid-response system Medic One
- Medical ultrasound
- New understanding of infant development
- Remedies for autism
- Possible cures for Alzheimer's
- Portable medical devices for areas without access to health care
- The connection between air-borne pollution and cardiovascular health

#3 PUBLIC SERVICE:

The UW Puts Research Into Action

The innovations at the UW don't just stay in the lab but are actively improving the quality of life in Washington and the Pacific Northwest.

And undergraduate students are active participants in this research – giving back to their state and their fellow citizens.

Research on the environment and natural resources provides some powerful examples:

- In the 1950s, UW zoology professor W. Thomas Edmondson and colleagues showed public officials how the water quality of Lake Washington was declining, and provided a remedy that resulted in the cleanup of the lake and its successful return to a healthy ecosystem.
- Ongoing research initiated over 40 years ago at the School of Aquatic and Fishery Sciences helped lead to a ban on the use of high-seas driftnets – the so-called “curtains of death” that caused indiscriminate killing of dolphins and other marine life.
- The Pacific Northwest Seismic Network, developed by a UW professor in 1969, began monitoring all Cascade volcanoes in the early 1980s to detect early signs of impending eruptions, and continues to upgrade and improve seismic stations on the more dangerous volcanoes, Mount Rainier and Mount Hood.
- In the 1990s, research conducted by UW faculty provided a theoretical understanding of the mechanisms underlying El Niño, explaining the phenomenon's predictability. The work of UW scientists was instrumental in establishing the link between El Niño and mild winters in the Northwest.

Today, researchers at the UW's top-ranked programs in Forest Resources, Atmospheric Sciences, Oceanography, Fisheries and others are forecasting how climate change will affect Washington's mountains, forests, farms and water supplies; responding to the environmental and economic impacts of dwindling wild salmon populations and helping reestablish healthy salmon runs; and sending student-community teams to restore endangered wetlands and coastlands.

UW undergraduates study environmental issues in the classroom and in the field – connecting environmental science, law and policy.

After graduation, they go on to lead environmental organizations, integrate environmental values into the businesses they run and continue to widen scientific understanding of our natural resources and ways to protect them.

IN CONCLUSION:

The UW will always stay true to these values of educational excellence, accessibility and service to the community – and try to do an even better job of giving all Washington children the education they deserve. It needs the support of the state, its leaders and its citizens to make that happen.

