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Mr. Chairman and Members of the Committee:

My name is Diana Oblinger and I am the Executive Director of Higher Education for the Microsoft Corporation. I want to thank you for the opportunity to appear today to provide a perspective on how higher education is preparing the workforce. I have spent my career either in higher education or working with it, so I believe I have a perspective on American colleges and universities, both from the "inside" as well as the "outside."

Higher education has helped shape the socio-economic structure of American society. Higher education is critical in preparing the workforce for today, but especially for tomorrow. However, before I talk about how we are doing, let me say a few words about what we should be doing. I believe there are three things that citizens, employers, parents and students are asking of higher education. Those are to:

- Develop a skilled workforce
- Provide social mobility
- Encourage an active and engaged citizenry.

Skilled workforce. The competent, creative and continuously learning individuals created by US higher education have redefined what a "skilled workforce" means. College is almost a pre-requisite in today's workplace. And, according to the Association of American Colleges and Universities (AAC&U) report, *Greater Expectations*, future jobs and careers will require higher levels of education than in the past. That education must enable individuals to be able to discover what one needs to know rather than just having static knowledge. AAC&U and many others have concluded that the type of employees needed in a knowledge-based economy are college educated people with mental agility and adaptability.

Social mobility. For a country founded on the principles of equity, the opportunity to better oneself is a deeply held belief. As society has changed, that opportunity increasingly depends on access to quality education. Study after study has shown a strong correlation between education level and economic success. A post-secondary education enables people to interact with others from outside their sphere of childhood experience and to reposition themselves, sometimes recreate themselves, intellectually, socially, politically and economically. The US has used higher education to encourage social mobility. For example, the first college to admit women as well as men was Oberlin College (1830). In 1847, the City College of New York was established to serve students from low-income families. The Land Grant Act (1862) provided for the education of the sons and daughters of the working class. In the mid-1800s, the first historically black colleges were created. The GI bill transformed access to higher education after World War II. And in the late 1960s we took another major step with the expansion of the community college movement.

Active, informed and engaged citizens. Society also needs active, informed and engaged citizens. According to Jefferson, a democracy's success flows directly from the thoughtful participation of an informed and enlightened citizenry. Unless citizens are sufficiently educated, self-government is not possible. As a result, he felt it was imperative that the nation ensure that suitable education be provided for all of its citizens.

We expect that, in the process of their education, students will acquire the information and attitudes necessary to become good citizens and uphold a strong democracy. We have also learned that those who are well-educated participate more in their communities and vote more often. More importantly, an education grounded in civic responsibility helps citizens evaluate issues, making them better able—perhaps even more willing—to contribute to improving society.

To a great degree, personal and professional success depends on an excellent education. And social well-being is tied to a well-educated populace. Although the benefits of higher education accrue to individuals, higher education ultimately is not a private good _ it is a social, cultural and economic imperative for the nation as a whole. If education is an imperative, then we have the responsibility to not just ask how strong our educational system is, but to explore what we might do to make it even stronger.

How Are We Doing?

We are fond of saying that American higher education is the envy of the rest of the world. The United States has been _ and remains _ first in the developed world in terms of the percentage of its population with an undergraduate or graduate degree. But, will that _ and the benefits it promises _ continue?

Access to post-secondary education is a good predictor of future achievement. Although the United States once sent the highest percentage of high school graduates to college, other countries have surpassed us in the past decade. In 2001 the US ranked 13th out of 26 Organization for Economic Cooperation and Development (OECD) countries for entry rates into 4-year institutions; for two-year enrollments we ranked 10th out of 26 developed countries. The point is not that the US is doing poorly but that other countries are doing better and better.

Unfortunately, significant numbers of high achieving, low-income students are not going to college. The highest achieving low-income students attend college at the same rate (78%) as low achieving high-income students (77%), according to the Education Trust. Looking only at students in the highest quartile in standardized tests, those from the most affluent families are more than twice as likely to go to college compared to those from the poorest families. When the Educational Testing Service compared college-going rates among high school students from high vs. low income families, they found rates of 80% vs. 44% for 4-year attendance and 14% vs. 23% for 2-year attendance.

Of course, getting students into college is only one part of the challenge. Equally important is the capacity of post-secondary institutions to retain students and ensure that they successfully complete a degree _ or whatever their individual goal might be _ in reasonable time. Unfortunately, gains in college completion have not kept pace with gains in enrollment. What is unclear is the degree to which this represents the current enrollment and goal patterns of students. As more lifelong learners have entered the educational system, their goal is not necessarily to complete a degree, but to acquire the courses or skills needed for a new job or a promotion. The challenge of understanding completion rates has been exacerbated by students attending multiple institutions _ sometimes simultaneously.

However, it is important that we not just focus on where we might improve. We should also acknowledge the world-class education that so many of our college and university

students receive. The last decade has seen increased attention being paid to effective learning environments, such as problem-based learning or undergraduate research, and to student services as well as a range of other programs that are designed to improve education. Our colleges and universities _ and the individuals who work in them _ continue to be major contributors to so much that is good in our society.

What Has Changed?

In the last decade, US society has changed enormously with the proliferation of new technologies, the intensification of globalization and shifting demographics resulting in more students seeking a postsecondary education. To keep up with these changes, society's demands on higher education have changed to include lifelong learning; the assurance that students are gaining more sophisticated skills; a curriculum that encourages cultural sensitivity and global awareness; as well as access and real academic attainment for a larger share of the population.

Who are our students?

The undergraduate population has changed dramatically in the past decade. What was once considered the "traditional" student—some one who enrolls in college immediately after high school, lives on campus, studies full-time and depends on parents for financial support—is now the exception, not the rule; in 1999-2000, just 27 percent of undergraduates met these criteria.

In contrast, the National Center for Educational Statistics (NCES) found that nearly three-quarters of undergraduate students had one or more of the following "non-traditional" characteristics:

- Delayed enrollment between graduation from high school and entry into college;
- Part-time college attendance for at least part of the academic year;
- Full-time employment while enrolled;
- Financial independence from parents;
- Children or other dependents (other than spouse);
- Single parenting responsibilities;
- High school completion through a GED or other alternative means.

The student population is also much more diverse than it once was. For example, thirty-nine percent of all postsecondary students were 25 years or older in 1999 compared with twenty-eight percent in 1970. Women now represent fifty-six percent of the student population versus forty-two percent in 1970, and one-third of currently enrolled college students define themselves as non-white. Nine percent of undergraduates have a disability, and for the first time, a significant number of students speak a language other than English at home.

This diverse student population brings to college a set of life experiences quite different from those of most administrators, staff and faculty. Plus, the experiences and expectations adult learners have may be significantly different than those of younger students.

The "Net Generation," students born in or after 1982, have never known life without the Internet. Information technology (IT) is integral in their work, communication, entertainment and education. Most say they could not function without the Internet — it

is as essential to them as oxygen. From their earliest years, they learned to sort through and manage vast amounts of information. Rather than viewing computers as machines for analysis and data processing, they view technology as a natural extension of their lives: for work, entertainment and learning. They also bring with them a new set of skills and expectations due to this comfort with technology.

The patterns can be seen emerging among teens. Much of what they want from the Net relates to learning _ either formal or informal learning. For example, 100% of teenagers report they search for information about college, careers and jobs online. Seventy-eight percent say that they use the Internet as an aid to learning. Students conduct research on the Internet to help them write papers and complete class assignments; they correspond with teachers and classmates about school projects; they also participate in online study groups and take online classes.

Perhaps the most striking difference with prior generations is their comfort with the Internet as a communication channel; teens use the Net for communication and community. Sixty percent of teens say they use the Internet as their primary tool for communication. Fifty-six percent indicate they prefer e-mail or instant messaging to the telephone when communicating with friends and relatives. Although it may seem surprising on the surface, consider that the Internet is a technology most teens simply assume is available in much the same way that Baby Boomers always assumed there would be a telephone in the house.

How do students learn?
Learning for the Net generation, and, perhaps, for many generations to come, is not synonymous with school. The accessibility of the Internet has created a pervasive learning environment in which young people have anytime anywhere access to learning material in a variety of formats. They often fashion their own “curriculum” based on their ability to assemble accessible material.

Service expectations are high for this generation. Having grown up in a customer-service environment, they expect services that are tailored to their needs. They look for choice, immediacy and customization. These expectations apply to recruitment and admissions, food service and housing options as well as on- and off-campus interactions.

NetGen students favor different learning styles. For example, their learning preferences tend toward teamwork, experiential activities, the use of technology and engagement. This generation learns by doing. Having grown up in the age of multimedia, they want to engage all their senses. Their strengths include multitasking, a goal orientation, a positive attitude and a collaborative style. They are also very community-oriented and are socially conscious. Students believe that science and technology can be used to make the world a better place; they want what they do to make a difference.

The contrast between student and faculty teaching / learning preferences may be significant. To many of us, students communicate in a language we don’t completely understand; we are not facile with instant messaging and text messaging. Nor are we as comfortable with their interactive approach to learning or their use of complex mosaic of images, sound and communication. Many students are pushing learning into new dimensions.

What Must We Do?

In light of the changes in technology, the economy, and the student population, colleges and universities must continue to adapt to better serve the needs of their students and the community at large. In order to adapt, colleges and universities must ask a series of difficult questions. A colleague of mine from Brown University, Frank Newman, says that we should ask:

- Can we out think the rest of the world?
- Do we make it possible for students to succeed?
- Will our students get all A's and still flunk life?

Can We Out Think the Rest of the World?

Employers look for workers who can adapt their skills and knowledge to a quickly changing array of situations. It is no longer sufficient to bring to a job a static set of technical aptitudes or knowledge; instead employees must continuously develop new skills, competencies and approaches as companies take advantage of new opportunities and new technologies. In short, employees must learn how to learn, how to assess what they need to know, as well as how to obtain and apply those new skills.

Being able to "out think the world" may be the most important competitive advantage. To do that will require that we consider what makes individuals successful — in the short and long term — which is a complex task.

Successful intelligence. The goal of education is more than just knowing things. Facts matter; but facts are not sufficient. Learners must be able to solve problems, transfer learning from one situation to another and "learn to learn." Education must also prepare learners socially, not just intellectually. The concept of successful intelligence illustrates the desired outcomes of education. Coined by Robert Sternberg, "successful intelligence" encompasses analytical intelligence, creative intelligence and practical intelligence. *Analytical intelligence* — knowing facts, answering questions and solving problems _ has always been a strength of US education. But with innovation and discovery driving much of the economy, creative intelligence is required as well. *Creative intelligence* means individuals can conceptualize new products, design experiments to test theories and resolve social conflicts. *Practical intelligence*, the ability to get things done and to get along with others, is critical as well. All three are important to individuals and organizations.

Beyond successful intelligence, there are certain skills that graduates need. Companies like Microsoft are defining the competencies their employees need, how they can assess their level of competence as well as how they can improve. Let me mention a few.

Communication and interpersonal skills. Communication skills are often cited as an essential skill. However, the communication skills needed 25 years ago are not sufficient for today's environment. In addition to writing, speaking and listening, today's list might include negotiation skills, being able to provide feedback, give encouragement, delegate responsibility and share recognition.

Strategic perspective. Taking a strategic perspective involves seeing the "big picture," understanding the underlying forces that influence the system. It also involves the ability to sense change, to identify opportunities for future development, to define future direction and to manage the process of change.

Creativity. In an increasingly complex world, individuals need the ability to see patterns, find new alternatives and create viable solutions to problems. Creativity has become an important skill. Creativity allows individuals to define and redefine problems in different ways. Being creative is more than having ideas. It also implies being able to analyze and evaluate ideas, make a decision and translate that idea into a practical accomplishment.

Results-oriented. Whether in college, at work or in personal life, achieving results is important. Being results-oriented involves developing and implementing plans as well as achieving positive, concrete results. To achieve results, one must be able to make decisions, work as a member of a team, communicate and problem-solve.

Intentional learners. Beyond a list of specific skills, attitude is important. The Association of American Colleges and Universities has concluded that students should be intentional learners "who can adapt to new environments, integrate knowledge from different sources and continue learning throughout their lives." They advocate that learners be:

- *"Empowered* through the mastery of intellectual and practical skills
- *Informed* by knowledge about the natural and social worlds and about forms of inquiry basic to these studies, and
- *Responsible* for their personal actions and for civic values."

More specific skills are described, such as communicating, interpreting and evaluating information from a variety of sources, being able to use quantitative and qualitative analysis to solve problems and demonstrating the ability to deal with change. Beyond intellectual skills, they also advocate that students develop a deep understanding of global and cross-cultural communities, natural, social and technical worlds and the history and values underlying US democracy.

But that learning is not just theoretical. They suggest that the greatest impact will occur when students apply their skills to the world's significant problems.

Also recognized is the importance of social responsibility and ethical judgment. Intellectual honesty, taking responsibility and being an active citizen who understands the consequences of one's actions and decisions are cited as examples.

Do We Make It Possible to Succeed?
Admission to college is only the first step to student success. A great deal else will be required for students to graduate.

According to the National Center for Educational Statistics, our success in graduating students is uneven, at best. Only 7 percent of low-income students who begin college immediately after high school graduate by the time they are 24 years old. In fact, twenty-nine percent of African Americans and 31 percent of Hispanics leave college before completing their first year. It is unclear how many return and the number who reach their ultimate educational objective.

NCES has identified several risk factors associated with students not completing their degrees. The more risk factors a student has, the less likely he or she is to complete the first year of college or to graduate. When students are asked to explain why they have left school, they cite bureaucratic hurdles related to financial aid, poor counseling regarding academic choices and inability to manage conflicting demands. Early outreach

programs, grants and learning support communities have proven to increase graduation rates for first-generation students as well as low income or minority students.

One of the most important pre-requisites to college success is adequate high school preparation. Large numbers of students enter college unprepared. Nearly half of all college students need some form of remediation. This is symptomatic of inadequate high school preparation and oftentimes, of low expectations of what these students can achieve. Recently, we have come to embrace the understanding that all students can learn. Those who need remedial assistance are not incapable; too often, it is that we haven't helped them find the path to successful learning.

One of the best ways of ensuring that students succeed is to remove the barriers to their success. For many, the greatest barrier is the fixed time schedule of a traditional course. Programs designed for adult learners or distance education programs remove many of the barriers to education for adults.

For others, the barrier may be the length of a college program. For an individual who has retired from their profession, completing an entire 4-year curriculum to be able to teach in K-12 schools, for example, presents a formidable barrier. Western Governors University (WGU) has designed programs to remove such barriers. WGU is nation's first competency-based, fully accredited online higher education institution. It was designed to meet the needs of non-traditional students whose jobs and family obligations prevent them from attending daily college courses or relocating to earn a new degree.

Making students successful means we must have a range of programs and options available. Students have their own unique backgrounds, aspirations and difficulties. It would be a disservice to treat all of them the same.

Although I've spoken about student success, that is not necessarily synonymous with graduation for all students, particularly in an era of lifelong learning. Some students come to college _ or return there _ to acquire specific skills or courses. Graduation is not their goal. This may be increasingly true in the future as individuals stay in the workforce longer and seek alternative careers that provide them with increased earning power and personal flexibility.

Will Our Students Get All A's and Still Flunk Life?

College is not just about preparing for a job _ it is also about preparing for life. But, being an engaged and enlightened global citizen requires much more than simply reading and writing. Global awareness and cultural sensitivity are increasingly important in our world.

The rationale goes beyond a desire for everyone to "get along." The way we view situations and solve problems is based on our cultural perspective; what we see depends on what we have learned to look for. Our cultural perspective can constrain or enlighten. For example, someone from a western culture tends to think of medical remedies from a pharmacological point of view. Someone from Asia might consider a different set of remedies, such as acupuncture, herbal treatments, and so on. Most disciplines are situated in socially constructed contexts. If we only know and understand a single cultural perspective, our ability to interact globally is impaired, whether that be the ability to develop worldwide products, solve public health crises or find peaceful resolution to conflicts.

Scientific and technical literacy is also important to do well in life. Without an understanding of science and technology, how can individuals make reliable decisions about controversial issues such as global warming or the safety of genetically engineered food? Just teaching science is not enough; students must be able to apply it to their lives, use the principles to reason with and be comfortable finding new, reliable sources of information.

Education is linked to being an active, informed and engaged citizen. Our democracy depends on civic participation. This goes well beyond voting; it is about being involved in the community and about having the ethics and the will to do the right thing.

It is important to remember that although a large part of the higher education experience is about the workplace, the workplace exists in a much larger context _ it exists in the context of communities striving to improve the quality of life for all citizens. The workplace exists in the context of an increasingly diverse culture. And, the workplace exists in a world that cannot turn back the clock on globalization. Education helps people enlarge their perspective rather than narrow it.

Conclusion

What we have been talking about are expectations. Great expectations are a hallmark of our times. Putting a man on the moon was a great expectation that shaped an earlier generation. Erasing inequities, curing cancer and preserving our environment are emblematic of the great expectations that drive society today.

Change is also a hallmark of our times. Many of the changes that define our times –- such as globalization –- have been catalyzed by information technology. Technology has stimulated the economy and improved lives by enabling breakthroughs in existing industries as well as the creation of new industries. It has changed where, how, what and when we learn. And it has led to a new type of worker whose value hinges on education, creativity and the use of IT.

In the US, we have great _ and greater _ expectations of higher education. Higher education is a critical element in how we fare — as individuals and as a society. We all share the responsibility to be certain that higher education can help us actively compete with the rest of the world, ensure student success and be prepared for a life of active citizenship. A strong higher education system is critical if we are to be prepared for the future.