

# **“Building a Global Community for Lifelong Learning”**

**A Summary of the Second Annual Lifelong  
Learning Forum, San Francisco, CA., February 17, 2005**

*"The GELC is the most important community development project Sun Microsystems has ever been involved with." - Scott McNealy.*

## **Introduction**

An important part of successful lifelong learning is listening and talking with experts to acquire knowledge, to test understanding, and to spark creative and innovative thought. Sun Microsystems, a thought leader in the education industry since its inception, hosts an ongoing series of events, online communities, and Centers of Excellence, to foster the rapid diffusion of information and best practices. One of these ongoing events, the Lifelong Learning Forum, held February 17, 2005, in San Francisco, California, examines the confluence of learning and technology to promote economic and social development in the emerging global knowledge economy.

This was the second Lifelong Learning Forum. Out of the first, held last March in Madrid, Spain, came the seminal discussion between Sun Microsystems' Chairman and CEO Scott McNealy, representatives of 25 global Ministries of Learning, and other leaders, which led to the creation of the Global Education and Learning Community (GELC). If the theme of the discussion of the first meeting was "reaching out to many," then the theme of the second was "reaching out to many, one at a time."

During the forum, the topic of creating a community which recognizes and appreciates differences between cultures, languages, support infrastructures, learning modalities, and individual learners and teachers, surfaced repeatedly. From Ulf Lundin, Director of European Schoolnet, who said, "Let's face the cross border, cross cultural and cross language issues," to keynote speaker Frannie Leautier of the World Bank Institute, who voiced the need for "different pathways to learning in developing countries," this second Lifelong Learning Forum clearly set out the requirement for a rich and open foundation of content and infrastructure to provide a global environment to support *personalized*, inquiry-based learning and self-assessment.

As a result of these discussions, the model of the GELC is continually evolving to a more learner, teacher, and parent-centric global effort, focusing on several major initiatives to drive collaboration among existing communities to achieve the goals of the organization. These major initiatives include assessment, free and unencumbered K-12 content, K-12 teacher professional development, usability, and Java-based tools and content for teaching.

Sun Microsystems Vice President of Global Education Kim Jones opened the Forum, by giving a brief history of the GELC and some of the major projects it is currently working on. She concluded by emphasizing the importance of e-learning technologies which enable personalized learning by noting that "four or five years ago e-learning was still considered to be pretty radical. But there's been this huge push from society....we've moved very rapidly from the Industrial Age to the Information Age and there's a huge need to educate people throughout their lives. There's also tremendous benefits if you can customize curriculum and content so that people can actually move ahead at their own speed. People learn in different ways so it's an opportunity to actually provide people with education in different manners."

## **New Models for Lifelong Learning: The Intersection of Business and Education**

Sun Microsystems Chairman and CEO Scott McNealy has always been an advocate for education. But now that he's got four young boys – "it's science fair season," he quipped – the issue has taken on a much more immediate, personal nature.

Witnessing the impact of "No Child Left Behind," the United States program of standardized assessment testing to raise lower student's performance, McNealy now advocates a companion program, "No Child Held Back," encouraging the intersection of technology and learning to provide a rich, freely available, localized, inquiry-based online learning environment to allow motivated learners to acquire knowledge at their own pace, in their chosen style, from any of the nearly one billion Java browser-based devices, most anywhere in the world.

"I believe we as a community need to go find the best content out there and get it into one place where it's findable and usable for anybody at any point," said McNealy. Describing his experience of trying to use Google to find information on electricity for his fourth grader's science project, and finding the best, wonderfully animated, step-by-step self-paced class on a welding company's website, it was clear that the need is still largely unfulfilled.

At the first Global Education and Learning Community's Advisory Board meeting in Menlo Park, California, in September of 2004, McNealy laid out five broad goals for the GELC to deliver:

- A core curriculum, initially for K-12, that is open, globally accessible, quality controlled, and localized.
- An open, globally accessible, assessment tool so that students can test themselves on line against others on a topical level, with a reporting system to indicate to students and parents where the student stands against peers.
- An easy-to-use, open, standards and Java-based content and learning object development environment and process.
- An open, standards-based and component-based service delivery platform for integrating content and applications, which reduces complexity and increases interoperability.
- A global environment supporting personalized, inquiry-based learning.

There are significant barriers to overcome before this vision can be realized. "How to we get people to collaborate?" he questioned. "I believe the anthropology issues that we're facing are way greater than the technology issues. The technology is there to go do it," but "the anthropology of getting us all to work together in a common goal and picking key targets to go after is the real challenge."

Providing freely available, unencumbered and localized content is fraught with legal issues. "As we've started to put the GELC together, Kim (Jones) and I have found not little pockets, but literally tens of thousands of pockets of really great work going on to create online open source in whatever kind of environment. But not everybody thinks about the IP (Intellectual Property) issues.... We have big issues in IP to overcome."

Job security is also a major issue, especially for some education unions, who fear that

technology will replace them, as it has in many other fields. McNealy points out that there will never eliminate the need for people to help others learn – teachers, mentors, counselors, facilitators, and parents.

Lots of businesses wedded to the traditional model of formalized education, such as textbook manufacturers, are also threatened by the shift to web-based learning. Until secure delivery systems which protect intellectual property rights and are capable of allowing providers to charge for, and students and teachers to pay for, content, many businesses, from Microsoft to McGraw-Hill, will provide resistance to maintain the status quo.

Despite the fact that the technology is now available, much of the process and architecture still needs to be painstakingly defined. McNealy raised many questions, asking "Do we use Flash, MPEG, Real, or Windows Media Player? Whose developer tools? Which operating system? How do we standardize on a display?...Where are we going to put all this content? Are we going to have editors? Do we make the scoring results published or are they anonymous?" McNealy concluded the discussion before opening the floor to questions by saying, "There's going to be a lot of questions about this whole process along the way but I believe this is as big and important an opportunity to go drive as any one we have. "

Ulf Lundin, Director of European Schoolnet, voiced an opinion of many when he said, "We have all the content in the world." The key, he feels, is to make it relevant for different groups across the border. The European E-Twinning Project, according to Lundin, deals daily with the question of "how do we create or solve problems to get twenty-five countries to share the content across curriculum, across languages, across the pedagogical situations.... we recognize that in this situation you cannot bypass the school, you cannot bypass the teacher. You need to take an approach where you actually empower them. And in order to empower them, you have to address all these issues."

Roberta Artavia of Costa Rica presented a different viewpoint on global education. While the literacy rate in Costa Rica is 94 percent, in Guatemala, it's 60 percent. "The issue goes way beyond textbooks," he explained. "The structure of the school system is completely in disarray in the sense that in some areas of the country you will find 120 kids first through sixth in the same classroom being taught by one teacher where obviously technology can play a very significant role in improving the dynamics of such a classroom." There are so many social and infrastructure problems in poor areas that government concentrates on providing basic services, like water and electricity to the people. Only by creating support networks and a social platform around schools, involving parents, teachers, administrators, government, and the private sector, will the proper environment for meaningful learning to take place be created.

McNealy raised "NetDay," the creation of GELC Advisory Board member and Lifelong Learning Forum participant John Gage, as an example of a model for community involvement. The key to the global success of NetDay is that each school self-organized themselves into a community, bypassing bureaucracies and communications firms. But as McNealy cautioned, "My beef with Net Day is that wiring the schools accomplished nothing if you didn't have content to go deliver to the school ... which is what the GELC is all about."

The George Lucas Foundation's Milton Chen commented on John Gage's brilliance in focusing it on a day. The Foundation's Edutopia website<sup>1</sup> documents and disseminates information about exemplary programs in K-12 schools showcasing innovation and imagination. These stories are told through the creation of media, including films, books, the magazine *Edutopia*, e-newsletters, CD-ROMs and DVDs. Chen proposed a project called "A Day in the Life of Learning" which would include individually-submitted digital photographs of how learners used technology that day around the world. Brainstorming also centered on a "Donation Day for Local Schools," and an "eBay for Education."

Two other participants commented on the Digital Divide. Ernest Wilson of the University of Maryland suggested that the Digital Divide may not be based on technology but around anthropological and cultural issues and proposed that the GELC fund research in the area of Culture and Technology. Sulairman Yassin of the Kolej Universiti Sains dan Teknologi Malaysia reiterated that the cost of textbooks is too high in developing countries and freely available, localized content would be welcomed in many areas of the world.

Province of Alberta, Canada, Minister of Infrastructure and Transportation Dr. Lyle Oberg pointed out the importance of grassroots efforts by parents to effect change in local schools. Such was the case with standardized assessment testing in Alberta. "We can sit around this table as politicians or as university types and basically assume that we can go from on high and put it down to people. In reality if there's going to be a change, it's going to come from the bottom-up and you have to give the people the tools in order to do that. And there's no better tool than to have a test or an assessment that is standardized around the world so that people say 'Well my kid is doing poorer (or better) than so-and-so across the pond, across the ocean.' And I think that that's incredibly, incredibly powerful." The GELC plans to introduce this assessment tool to the world in late 2005.

McNealy agreed on the value of standardized assessments for student's parents. "My nine year-old got his second grade report card, and as a Stanford MBA, and a person who has been doing performance reviews and evaluations of people forever, I looked at his report card--I could not tell how he did! It was so politically correct and self-esteem preserving that there was no way to tell whether the kid was flunking out or was a rocket scientist," he marveled. "I think parents absolutely want to know the score for their kids. And if the GELC can provide a safe environment for kids to see how they're doing, how they're scoring, that you'll see the competitive juices in a lot of kids."

The challenges of categorizing content closed McNealy's session. Salem Al-Agtash of Yarmouk University in Jordan commented on the importance of dividing the content into "levels" and questioned who would review all the content to maintain high standards. "When categorizing all the wisdom and knowledge, there will be high differences," he stated. "How will the GELC incorporate all that?" McNealy pointed out that providing a framework so that students, teachers and parents can find information easily, will be an equally challenging task, but added, "I have faith in humanity to eventually get it right."

### **Lifelong Learning: Role of Technology and Education in Transforming Societies**

1 For more information, please go to: <http://www.edutopia.org/>

The Keynote Speaker of the second Lifelong Learning Forum was Frannie Leautier, Vice President of the World Bank Institute, recognized as a leading expert in infrastructure strategy formulation in developing countries. She discussed the knowledge revolution, global trends in education and testing, key issues for developing effective lifelong learning in developing countries, some of the more successful programs, and what needs to happen next.

The knowledge revolution has fostered many changes in global development and balance. New technologies, the rapid speed of innovation, productivity and upskilling of the labor force, as well as intensified globalization and competition, have characterized this revolution. The ability to create, not just acquire knowledge, and the ability to access and use knowledge, are seen as fundamental determinants of a country's global competitiveness.

Knowledge accelerates innovation and fosters an environment for increased competition. While manufacturing exports are important, research indicates that in the 30-member OECD countries<sup>2</sup> roughly two-thirds of these manufactured export goods are considered high or medium technology. This implies a rapid and continuous re-structuring of the economy and an upgrading of the labor force. Education and training therefore are the key enablers of the knowledge economy and important elements for increased global competitiveness and improved economic and social welfare.

Global trends in education and training are also impacting developing countries. After a burst of activity in the 1980s, the gap in lifelong learning growth between high income countries and low income countries has been widening since the 1990s. Tertiary education, most notably higher education and later career specific training, continues to pay high returns on investment relative to secondary education in many developing countries.

The globalization of knowledge means that 1.9 million students are studying outside their home country. As many as 30 percent of these students, amongst the top in their own countries, never return to benefit their home economies and benefit the recipient country instead. Education institutions are also going global, through physical presences in foreign countries, associations with local universities and Internet-based courses, which will help to keep these students home. But developing countries will have to make major investments to increase both the quantity and quality of education and training, and make them more efficient and competitive on a global scale. This will require major reform and innovation, as well as a re-alignment of public and private roles and domestic and foreign funding.

There are many key issues in developing countries around lifelong learning. New skills and competencies are being demanded by employers not based on traditional academic courses, skills such as problem solving, creative thinking, teamwork, and learning how to learn.

Many global jobs require expert thinking and complex communication skills, changing the nature of the labor market. Hiring companies expect employees who can

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2 For a list of the countries, please see:  
[http://www.oecd.org/document/58/0,2340,en\\_2649\\_201185\\_1889402\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/58/0,2340,en_2649_201185_1889402_1_1_1_1,00.html)

work remotely with minimal supervision, capable of effectively collaborating with co-workers around the world. More and more women are joining the labor market, and the return on investment for women's education is very high. But earnings gaps between males and females are increasing and women's contributions are not perceived to be a contributory to the economy as males efforts. Leautier noted that the same skills required for democracy, creativity and choice, are also the skills required for innovation.

There needs to be different pathways to learning in developing countries as well. In some African countries, where it may take textbooks and digital knowledge several years longer to reach rural areas than urban areas, because of poor physical and networking infrastructure, alternatives such as wireless networks and local digital repositories may be required. Individuals must be given increased access to learning opportunities, given a variety of way to learn in a number of diverse learning modalities, including just-in-time modular instruction and elearning. This needs to be coupled with different approaches to learning pedagogy, including curricula, technology and the role of teachers.

There are governance challenges around formal versus informal learning as well. Where the traditional model favors formal schooling, emphasizing acquisition of knowledge and repetition, providing limited options and standardized assessment, the new model of lifelong learning needs to include informal learning, creating and applying knowledge, and personalized demand-driven learning that includes a flexible recognition of soft skills. Challenges around funding this massive change in pedagogy and infrastructure also abound.

Going forward, Leautier sees three major challenges for education and training in developing countries. The first is the stock challenge, upgrading the skills of people already outside of the formal school system. The second is the flow challenge, expanding formal education enrollments and increasing the quality of learning. The third is the dynamic challenge, adjusting education and training to rapidly and constantly changing needs. Integration and coordination will be critical and the biggest constraint will be lack of finances and ideas.

The World Bank Institute applies a Knowledge Assessment Methodology (KAM) to benchmark how an economy compares to neighboring economies and to initiate policy dialogue regarding the capacity building and learning agenda for each country. It's Knowledge for Development Program is based on four pillars: an economic and institutional regime that provides incentives for the efficient creation, dissemination, and use of existing knowledge, an educated and skilled population that can employ the knowledge effectively, an efficient innovation system that connects research centers and universities with corporations and other organizations to tap in to the growing body of global knowledge and adapt it for local needs while creating local knowledge, and a dynamic information infrastructure that can facilitate the effective communication, dissemination, and processing of information. Leautier cited several examples of successful programs such as African Virtual University, the Shanghai Global Learning Approach, the Global Development Learning Network, and E-Leadership Capacity Development.

Developing countries must learn about cost-effective new approaches, tools and techniques and use these to close the gap more quickly with developed countries,

rather than employing traditional educational approaches. As one participant pointed out, technology is no longer holding us back. Now it is time to tackle the deeper issues, shifting the conversation from what to how, and as one global company states, "just do it."

### **Panel Discussion: Testing and Assessment**

Testing and Assessment was a major focus of the second Lifelong Learning Forum. Sun Microsystems' CEO Scott McNealy has always believed in assessment and during the first Lifelong Learning Forum in Madrid in March, 2004, he laid out these two goals for the GELC: Make available a core curriculum, initially for K-12, that is open, globally accessible, quality controlled, and localized, and second, provide an open, globally accessible, assessment tool so that students can test themselves on line against others on a topical level, with a reporting system to indicate to students and parents where the student stands against peers.

Sun Microsystems Senior Vice President and Strategic Insight Officer Larry Singer moderated a panel of three senior executives with insights into the two areas, Kurt Landgraf, President and CEO of Educational Testing Services (ETS), Kurt Moses, Vice President & Director, Systems Services Center of the Academy for Educational Development (AED), and California State Superintendent of Public Instruction Jack O'Connell.

Kurt Landgraf began the discussion by pointing out that testing and assessment are two different things. "When we test, we are testing generally for minimal standards," he explained. "When we assess, we are assessing for competency. The best example I can give you: All of us have taken a driver's test to get a license. That is a minimal standards approach. That does not assess how well you drive."

"Education, like religion and food, is highly localized, Landgraf said. "I do not believe that we will ever have a global educational environment in anything other than a specific core area." He also cautions that testing is not an end of itself but merely a means of diagnosing where learners are, what learning environment they are in, and what has to be changed in the curriculum to match desired outcomes. "We must clearly articulate what we want from assessment," he emphasized.

The Academy for Educational Development's Kurt Moses took a statistical approach when agreeing with Landgraf for the need of recognizing differences in learners, their environment, and their motivations around assessment. Moses pointed out that there are 6.4 billion people on Earth in 2004 and three billion of them exist on less than \$2.00 per day. One billion of them account for 80 percent of the world's wealth. To address these markets, the GELC must consider the impact the price point and the concept of volume when looking at services offered to developing countries.

Moses listed several critical success factors to education reform. First off, he felt that literacy and "learning to learn" were key to basic individual learning and that recognizing differences in learners was paramount, in providing multiple learning paths, in measuring multiple different ways of learning, such as visualization and aural recognition, in measuring in both relative as well as absolute terms, and providing mentoring with multiple different access points. Finally he felt that we should empower those who empower – both teachers and learners. The biggest

technological challenge to recognizing these differences is mass customization, personalizing the learning experience for everyone.

As leader of California's educational system, O'Connell sees things on a global scale. There are more students in California, 6.3 million, than some countries have in total population. The Golden State has the sixth largest economy in the world. There are about 9,000 schools, a population so diverse that there are over 100 languages spoken in some districts. The environment also imposes special challenges – 40 percent of the students come from low income families and one in four students is currently learning English as a second language.

O'Connell thinks that, despite being the home of Silicon Valley, California schools haven't taken full advantage of what technology can offer. He sees the need for more relevant technology classes to augment students technology and computer skills, skills necessary to compete in the global economy that is currently seeing many jobs outsourced from California to countries such as India and China. Problem solving skills, such as those that come from eight grade algebra, are also essential for students.

All the panelists talked about the barriers technology and assessment have in education today. Landgraf talked about "passive-aggressive subversion after the dialogue" and Moses cited "school memories" of the way it used to be to be the biggest barrier to educational reform. O'Connell lamented the "glacial speed of change" in schools.

Early assessment of students was a theme explored in the question and answer session that followed the panel. Dr. Lyle Oberg, former Minister of Learning of the Province of Alberta, Canada, and a GELC Advisory Board member, reported that assessment is most important in Grades 3 and under, so that students needing special attention, such as poor readers and those with learning disabilities, can be identified and remediation applied. Such assessment can also identify gifted students for additional learning opportunities. ETS's Kurt Landgraf agreed, noting that "real high stakes testing" is needed by Grade 3, because research indicates that if you don't identify those with learning difficulties by Grade 5, the student will never be able to catch up with their peers. In California there is an early assessment program administered in Grade 11 to allow teachers and students to be more proactive in preparing the students for higher education or life skills.

Roberto Artavia of Costa Rica reported that in Nicaragua and many other Central American countries, students educational performance is often determined by their parent's educational level. Parents have an enormous influence on their children as role models, in their ability to help with homework or stimulate intellectual curiosity, and as participants in helping set educational and life goals. The GELC has recognized the importance of parents in the lifelong learning process and will be providing a special focus on parents, especially in the role of supporting their child's assessment and understanding their needs.

All the participants and panel members agreed that differences in individuals, such as their location, learning style, native language, and even parental influence, must be taken into account in assessing students. While assessment tools can be rigorously developed, they are only as good as the public policy which establishes the

measurements. Individual differences, around the globe, must be recognized. But as Kurt Landgraf pointed out, "We must clearly articulate what we want from assessment....Technology holds the promise of tipping the scale."

### **Lifelong Learning Forum Participant Polling**

During the San Francisco Lifelong Learning Forum event, participants were asked questions concerning their views on the state of assessment, lifelong learning and the GELC. Real time polling devices were used so that the results could immediately be presented to the audience and speakers for their analysis and comments. A complete list of all questions and polling responses can be found in Appendix B.

The polled audience represented a cross section of global higher educational leadership, ministers, and policy-shapers. Participants included representatives from Asian, Australia, Europe, the Americas, the Middle East, and Africa, and nearly two thirds of the respondents were focusing on knowledge and skills development in developing countries.

According to the participants, the top public policy priority impacting lifelong learning in their countries was ICT Skills Building/Workforce training, demonstrating the importance of a skilled workforce in accelerating economic development. Parity of opportunities for all segments of society and teacher training were also major priorities. The top priority for budgetary investments in lifelong learning in the participant's countries was in the creation of on-line content, while developing a robust and reliable technology and telecommunications infrastructure and professional development of teachers were also seen to be critical priorities.

Assessment is clearly seen as an important component of today's lifelong learning discussions. Participants revealed that in a majority of cases, funding for their schools was tied in some way to assessment of student performance. However, the reliability and validity of these tests, and supporting the development of skills in teachers to effectively use assessment were seen as major challenges.

In terms of the key focus of technology investments in the higher education system in participant's countries, offering a leading research environment to increase international competitiveness, and enhancing student achievement results were deemed the most critical.

Participants were asked to give their opinions on the GELC. They felt that the GELC could best support their lifelong learning efforts by offering freely available content and sharing high quality professional development resources and content globally. GELC's role in providing opportunities for high-level collaboration and cooperation and sharing best practices in content and infrastructure were also recognized as important.

According to participants, the GELC should target, in order of priority, teachers, students, administrators, and ministry representatives. Both teachers and students represent mass markets requiring different types of communication approaches than ministers and reaching them with high quality, free and unencumbered, content, assessment, and teacher training will now be a goal of the GELC.

In all, these results from polled participants once again reinforce the importance of lifelong learning in developing national competitiveness. By providing an environment for both young and old to enhance their knowledge and skills on a personal level, nations enhance their global competitiveness as well.

### **Next Steps:**

Scott McNealy's comment, "getting us all to work together in a common goal and picking key targets to go after is the real challenge," accurately describes the next steps for the GELC.

In its first year of scanning the globe for existing initiatives and projects which fit within GELC's vision, community management has identified dozens of major projects which fulfill one or more of the five major objectives outlined by McNealy. The key over the next year will be forging the partnerships and sharing across organizations and national boundaries which will allow the GELC to become the default community for sharing, collaborating, and accessing open tools and resources for education around the world.

The GELC will be following a two-part, top down, bottom up strategy to achieve its objectives over the next year. The top down strategy will drive awareness, adoption, activities, and participation in the GELC through evangelism at the highest levels of ministries, partners, and associations. The bottom up strategy will employ viral marketing and supporting grass roots efforts that drive adoption at the teacher, student, and parent level. GELC leadership will target key associations and the media and equip them with easy-to-use communication tools, promotions, and other means to incite viral adoption.

### **Sun In Education:**

Sun Microsystems' history is in education, with three of its four founders coming from Stanford University 23 years ago, and the fourth from across the bay at UC Berkeley. Sun has made continuing contributions to the educational community with research and development funds, open source software, including most recently the Solaris operating system, equipment grants, specialized events, and forming communities.

Sun's mission, to solve complex networking computing problems, has guided it since its inception. Sun applies a systems approach to educational problem solving, providing engineered solutions and sound and proven strategies to solve critical global educational challenges today. Continuing its adherence to open standards, Sun delivers to education institutions access to the best commercial and open source solutions in the industry – all based on Sun's leading technologies including Solaris, SPARC and Java.

"Sun is committed to advancing education through technology at an affordable cost," said Kim Jones. "Collaborating with Ministers of Education, visionaries, technologists and educators from around the globe, we're leading the way in finally digitizing the campus on a worldwide level."

Lifelong learning for everyone is the responsibility of all: public authorities, social

partners, private enterprises, learning providers, communities, and individuals. Part of government's shared responsibility is selecting the right partnerships with innovation leaders, like Sun Microsystems, in order to address new economic models and to reap the benefits of innovation.

## **Conclusion**

Now entering its second year of existence, the Global Education and Learning Community continues to evolve, aiming to be both relevant and inclusionary. In trying to reach its goal of ubiquity, to be the primary global source of high quality, freely available, open standards-based content and tools, the GELC will have to embrace diversity, a message that came out loud and clear during the second annual Lifelong Learning Forum. Differences in languages, cultures, learning styles, and socioeconomic backgrounds must be understood and acted on.

Personalized, individual, inquiry-based learning will be realized through a delivery infrastructure employing identity management and intuitive navigation. Global assessment tools for students and their parents to test learning and compare results on a worldwide basis will allow individuals, families, and countries to assess their position in the global knowledge economy and provide tools for remedial action.

Properly applied, technology can make a measurable and lasting impact on lifelong learning in both developing and developed countries. The GELC can be the vehicle for this change but the task is not an easy one. As Scott McNealy remarked in closing the Second Annual Lifelong Learning Forum, "Lifelong Learning and the GELC have huge opportunities and great challenges. The GELC is the most important community development project Sun Microsystems has ever been involved with."

**Appendix A: Attendees of the 2005 Lifelong Learning Forum in San Francisco**

<b>First Name</b>	<b>Last Name</b>	<b>Organization</b>	<b>Country</b>
Suzanne	Adnams	Grant MacEwan College	Canada
Salem	Al-Agtash	Yarmouk University	Jordan
Mohamed	Alwi	University Teknologi MARA (UiTM)	Malaysia
Koji	Ando	ITC, Univ. of Tokyo	Japan
Roberto	Artavia	INCAE Business School	Costa Rica
Greg	Baylis	MERLIN	Canada
Chelsea	Behanna	Adams 12 Five Star Schools	United States
Kevin	Campbell	Alberta Education	Canada
Francisco Javier	Cardenas Medina	Secretaria de Educacion Publica	Mexico
Milton	Chen	George Lucas Educational Foundation	USA
Gustavo	Corradini	Dirección General de Cultura y Educación	Argentina
Eva	De Lera Tatjer	Universitat Oberta de Catalunya	Spain
James	Farmer	University of Michigan	USA
Les	Francis	Educational Testing Service	USA
Bruce	Geisert	Academy for Educational Development	United States
Hamid	Hadi	University of Malaysia	Malaysia
Elazar	Harel	UCSD	USA
Lorna	Jack	Scottish Development International	Scotland
Janja	Jakoncic Fagane	Gimnazija Poljane	Slovenia
Peter	Karlberg	Swedish National Agency for School Improvement	Sweden
Michael A.	Keller	Stanford University	USA
Vijay	Kumar	MIT	USA
Kurt	Landgraf	Educational Testing Service	USA
Frannie	Leautier	World Bank	USA
Chye-Seng	Lee	Nanyang Technological University	Singapore
Ulf	Lundin	European Schoolnet	Belgium
Jeffrey	Merriman	Massachusetts Institute of Technology	USA
Rick	Miller	California Department of Education	United States
Penny	Milton	Canadian Education Association	Canada
Fumio	Mizoguchi	Tokyo University of Science	Japan
Prof. Dr IR Zainal	Mohamed	Kolej Universiti Teknologi Tun Hussein Inn (KUiTTHO)	Malaysia
Kurt	Moses	Academy for Educational Development	USA
Alessandro	Musumeci	Ministry of Education	Italy
Francesc	Noguera	Universitat Oberta de Catalunya	Spain
Lyle	Oberg	Minister of Infrastructure & Transportation	Canada
Jack	O'Connell	California Department of Education	USA
Prof. Dr. Abu T	Othman	University Kuala Lumpur - Institut Infotech MARA	Malaysia
Brigitte	Parry	European Schoolnet	Belgium
Michael.	Pearce	University of Southern California	USA
Susanne	Pratscher	Vienna Business School	Austria
Juan Carlos	Pugliese	Ministerio de Educación, Ciencia y Tecnología	Argentina
Carrie	Regenstein	University of WI - Madison	United States
Mark	Ritchie	Scottish Development International	Scotland
Christian	Simm	Swissnex	Switzerland
Ulla	Skidén	The Stockholm Challenge Award	Sweden
Zvonimir	Stanic	Croatian Academic and Research Network	Croatia
Daniel	Tan	Nanyang Technological University	Singapore
Robert	Tierney	Faculty of Education, The University of British Columbia	Canada
Terrence	Verity	Seneca	Canada
Edward	Walker	IMS Global Learning Consortium	USA
Kehong	Wang	Dept.Of Computer, Tsinghua University	China
Allan	Wilson	Scottish Executive	Scotland
Ernest J.	Wilson III	University of Maryland	USA
Sulaiman	Yassin	Kolej Universiti Sains dan Teknologi Malaysia (KUSTEM)	Malaysia
Ismawi	Zen	International Islamic University	Malaysia

## Appendix B:

### Lifelong Learning Forum Audience Polling Questions St. Francis Hotel, San Francisco February 17, 2005

1. In what type of organization do you work?
  - 19%** 1. Minister of Education / Dept of Education (K-12)
  - 10%** 2. Minister of Education / Dept of Education (K-12 + university)
  - 14%** 3. University - public
  - 7%** 4. University - private
  - 10%** 5. University - public research
  - 2%** 6. University - private research
  - 10%** 7. NGO
  - 7%** 8. Private sector
  - 21%** 9. Other
  
2. In what geography do you place yourself?
  - 5%** 1. U.S.
  - 16%** 2. Canada
  - 14%** 3. Latin America
  - 26%** 4. South America
  - 2%** 5. Europe
  - 2%** 6. Africa
  - 5%** 7. The Middle East
  - 30%** 8. Asia Pacific
  
3. Is your organization serving developed countries or developing countries?
  - 37%** 1. Developed countries
  - 26%** 2. Developing countries
  - 37%** 3. Both
  
4. What is the top public policy priority impacting lifelong learning in your country?
  - 23%** 1. Teacher training
  - 10%** 2. Bridging the Digital Divide
  - 30%** 3. ICT Skills Building/Workforce training
  - 0%** 4. Occupational mobility
  - 3%** 5. English language training
  - 3%** 6. Convergence of public and private sectors
  - 25%** 7. Parity of opportunities for all segments of society
  - 8%** 8. Other
  
5. What is top priority for your budgetary investments in lifelong learning?
  - 41%** 1. Developing on-line content
  - 23%** 2. Technology and telecommunications infrastructure
  - 23%** 3. Teacher training
  - 5%** 4. ICT
  - 8%** 5. Other
  
6. What percentage of your lifelong learning investment goes to assessment?
  - 43%** 1. 0 - 10%
  - 10%** 2. 11 - 25%
  - 13%** 3. 26 - 50%
  - 0%** 4. 50%+
  - 35%** 5. Not sure

7. Is your investment in lifelong learning is generating the results you desire?  
**36%** 1. Yes  
**18%** 2. No  
**46%** 3. Not sure
8. Is assessment factored into the amounts requested and/or received when funds are allocated to lifelong learning?  
**44%** 1. Yes  
**19%** 2. No  
**36%** 3. Not sure
9. Should testing and assessment results be made public at the class, school, district level etc ?  
**72%** 1. Yes  
**21%** 2. No  
**8%** 3. Not sure
10. What is the relationship between public accountability and assessment?  
**30%** 1. Tied to funding, or access to critical resources  
**30%** 2. Tied to some funding or resources  
**16%** 3. Little or no consequences to poor results  
**19%** 4. Non-existent  
**5%** 5. Other
11. What is the biggest challenge you face due to increased focus on assessment?  
The second biggest challenge? The third?  
(number attached to priority questions do not represent a mean but the result of a weighted vote.)  
**5.24** 3. Reliability and validity of tests  
**4.41** 4. Supporting skills of teachers  
**3.95** 6. Funding  
**3.86** 2. Use of technology  
**3.30** 5. Teachers teaching 'to the test'  
**1.70** 1. Government reporting requirements  
**1.46** 7. Time  
**0.65** 8. Other
12. What is the key focus of your technology investments in the higher education system?  
**36%** 1. Offering a leading research environment  
**0%** 2. Vocational training and retraining  
**18%** 3. International competitiveness  
**18%** 4. Enhancing student achievement results  
**15%** 5. Supporting new or existing curricula  
**9%** 6. Increasing the availability of courses through distance learning  
**3%** 7. ICT  
**0%** 8. Other
13. What is the key focus of your technology investments in primary and secondary education system?  
**41%** 1. Enhancing student achievement results  
**19%** 2. Teacher training  
**6%** 3. Workforce preparation  
**0%** 4. Assessment tools  
**16%** 5. Supporting new or existing curricula

- 9% 6. Optimizing teacher-student contact time
- 6% 7. ICT
- 3% 8. Other

14. The Global Education and Learning Community could best support your lifelong learning efforts with which of the following?

- 5.75 4. Freely available open content
- 5.61 5. Sharing professional development resources and content
- 5.50 1. High-level collaboration and cooperation
- 4.45 3. Community sponsorship and resource sharing
- 3.70 2. Sharing infrastructure and solutions architectures
- 0.59 6. Other

15. If we had to prioritize, what assessment should we have at GELC?

- 5.71 2. Reading
- 4.14 1. Math
- 4.02 4. Science
- 3.07 3. Writing
- 0.71 5. None
- 0.67 6. Other

16. Who should be the 'target audience' for GELC?

- 7.79 2. Teachers
- 5.64 1. Students
- 4.26 3. Administrators
- 4.10 4. Ministry Representatives (State/Federal DOE)
- 2.69 5. Other

