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Innovative Teaching: A Look into the Future

A Report on the Innovative Teachers Forum

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A Report on the Microsoft Worldwide Innovative Teachers Forum

July 2005

"We are born incompetent and dependent. But we are born with an incredible capacity to learn. Education is the process by which incompetence is translated into competence, dependence into autonomy. This process takes place through learning."

—Eduardo Chaves

In every society, the ultimate purpose of education is to guide individuals toward making their way in the world. Teachers share a rare passion for engaging young people in imagining who they can become—and for fostering the knowledge, skills, and discipline that contribute to their quest for independence.

In July 2005, nearly 100 educators from 23 countries came together in Redmond, Washington, to explore their mission on the front lines of education. At the first Microsoft Worldwide Innovative Teachers Forum, teachers investigated leadership, teaching, and learning in thoughtful exchanges with peers and leading thinkers in education. Teachers also shared best practices and insights of their own.

Microsoft convened the gathering as part of its Partners in Learning initiative. More than 100 countries are participating in this initiative, which brings together education and government leaders to offer schools and administrators a spectrum of education resources—tools, programs, and practices—that empower students and teachers to realize their full potential.



Highlighting the Need for Innovation

Brazilian educator Eduardo Chaves, professor at the Universidade Estadual de Campinas, set the stage by asserting that change in education must be innovative and transformative, otherwise education risks becoming irrelevant to students, societies, and industries.

In the past 60 years, Western society has changed profoundly. Social, political, and economic changes—including invention of the computer, collapse of communism, end of the Cold War, emergence of countercultures, and rise of the Internet for commerce—have spurred a second renaissance of creativity, opportunity, and achievement. Technology, from the atomic bomb to the microchip, powered many of these changes.

As a social practice, education cannot stand still amidst this swirl of changes. “Every time society changes drastically and profoundly, education needs to change as well,” Chaves says. The institutions of schools must be reconcepted, reinvented, and redefined to represent a new beginning. Chaves contends that there are three key reasons driving the need for innovation:

Ubiquitous information. People have anytime, anywhere, affordable access to vast stores of information. There is no longer a limited, defined body of information that students need to learn. Information keeps changing.

Globalization. Information is no longer confined to a book or a building. People have fast access to experts, teachers, and peers around the world who can offer tremendous value to the learning enterprise. Learning is inherently a social activity. Interacting with others is a powerful way to build knowledge.

Shifting paradigms for learning. Learning is no longer limited to the K-12 (or even



the postsecondary) years. Learning is a lifelong endeavor that should be customized to meet the immediate and ever-changing needs of individuals. There is growing consensus that knowledge cannot be transmitted, transferred, or delivered to people. Individuals must build their own knowledge, connecting information from the world with their own knowledge to create understanding.

Today, students need to learn how to access, manage, and make sense of information; communicate and collaborate with others; and build knowledge and understanding. In short, they need to learn how to learn, so they can go on to lead fulfilling and productive lives.

How Does Innovation Come About?

In today's environment, standardized education is increasingly out of sync with society—and people know it. Education is often not perceived as effective in preparing young people for the challenges of the world.

However, Chaves says, that makes this an opportune time for innovation because innovation often springs from dissatisfaction with the status quo. Chaves cites three factors as paramount to innovation:

- Creative, talented people.
- Open environments that reward risk and tolerate failure.
- Resources and tools.

To some extent, the conditions for innovation are in place. Educators are creative and talented. Resources and tools, including technology, are available. The greatest challenge is creating open environments for innovation. The right environment is non-bureaucratic, stimulating, and diverse.



What Innovation Is and Is Not

Real innovation, Chaves says, demands thoughtful, purposeful change that creates an environment in which schools empower educators and students to realize their full potential.

Innovation in education does not mean teaching students to use technology. In many places, students are more skilled in using technology than their teachers. Innovation does not even mean simply integrating technology into the curriculum—a shift that might lead to gradual and incremental change, but not to innovation. Technology is a necessary, but not sufficient, ingredient for innovation. Real innovation requires a new vision of education, school, and the teacher’s role in the educational process.

A New Vision of Education, Schools, and Teachers

Education should help people realize their potential. It should be a process of shepherding students toward competence and autonomy.

In this vision, learning should become a two-pronged experience for students: to become capable of dreaming their own dreams for the future and to become competent to transform their dreams into reality.

Learning should be a collaborative experience as well. In the words of Brazilian educator and activist Paulo Freire, “No one educates anyone else. Nor do we educate ourselves. We educate one another, in the communion, in the context of living in this world.”

Learning should become a two-pronged experience for students: to become capable of dreaming their own dreams for the future and to become competent to transform their dreams into reality.



Schools that conceive of their mission as leading students to personal realization should be rich, stimulating learning environments. Such learner-centered schools should connect the life of the world and the life of the mind with real-life projects centered on the needs, interests, and discoveries of students. Learning should be active, hands-on, inquiry-based, collaborative, and individualized. Just-in-time learning, rather than semester-long courses, should develop the habit of lifelong learning that is always focused on building competencies for the future. Learning should be deeply personal, yet enhanced and mediated by technology.

Teachers should be working very differently as well, not teaching so much as using their creativity to help students think and act creatively on their own. Teachers should listen to students to find out what they are interested in, what books they read, what Web sites they visit, what chats they participate in. They should watch, orient, advise, support, cheer, instigate, question, provoke (gently), coach, mentor, model, and reward. They should empower students to use technology to learn.

Clearly, the work of teachers who rethink their identities in this way can be more challenging but also more rewarding than it is today.

Best Practice: Animating the Curriculum

Kate Norman,
United Kingdom

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Armed with a webcam, a Microsoft® Windows® operating system-based computer, and their imaginations, six-, seven-, and eight-year-old students in Wales are learning about storytelling, reading, and writing—and they're having fun doing it. The students make cartoon figures from a modeling compound, take pictures of their characters in action, and create a story. They use Microsoft Windows Movie Maker to put their cartoons together, adding sound, titles, and credits.



Leading with Relationships, Rituals, and Research

Innovative teachers who want to make a difference in the lives of students need to become educational leaders as well, according to Yvonne Caamal Canul, director of the Office of School Improvement at the Michigan Department of Education and winner of the Milken Educator Award.

“Innovation,” Canul tells educators at the Microsoft Worldwide Innovative Teachers Forum, “means to change from within.” By this definition, every educator, from heads of ministries of education to classroom teachers, can be an innovator—and a leader—by living an examined life instead of waiting for external forces to make things happen.

Leadership comes not only from titles but also from purposeful attention to three Rs that matter in learning environments: relationships, rituals, and research.

Relationships. Relationships in education are more than friendships. They are about recognizing everyone as a potential ally.

Innovative leaders interact in positive ways with others, share ideas on a personal level, and connect situations with real people.

Rituals. Rituals create a sense of stability and security that gives people the confidence to be innovative. In schools, rituals should focus on students—on organizing events, routines, activities, and technology tools around the expectations and daily lives of students. Students and teachers should be honored for trying new things and taking risks, even if the innovation does not work. Periodic benchmark events such as the culmination of projects should showcase and celebrate the work of students and teachers.



Research. Research that results in innovation is first about knowing oneself well. Research answers questions such as, “Who am I? Why are we here? Who are we as a group?”

Caamal Canul suggests that educators should create an inquiry-based environment for themselves that can serve as a laboratory for the learning environment envisioned for students. For example, she suggests finding a group of colleagues to talk with regularly about the craft of teaching. And be sure to seek out people with different points of view.

Research also involves developing an understanding of students. Once-a-year assessments don’t give innovative leaders much information. Instead, Caamal Canul recommends that teachers cull data from classroom teaching and learning; attendance, safety, and discipline records; and so on to develop an informed picture of what’s going on in a learning environment. Then use the data to innovate.

Best Practice: Making a Note of Student Progress

Stuart Ball, United Kingdom

A traditional science activity, like creating a journal of observations, is much more meaningful for 10- and 11-year-old students who can enter handwritten, typed, or recorded audio notes and add digital files in Microsoft Office OneNote® note-taking program. Students can organize and share their notes and flag questions for the teacher. “I can search a whole class’s notes instantly, and target those children who need help,” teacher Stuart Ball says. “This makes my teaching time much more effective.”



Innovative Leadership, Teaching, and Learning

Imagining innovation in education is inspiring, but it also raises practical questions. Educators at the Microsoft Worldwide

Innovative Teachers Forum targeted the crucial elements of leadership, teaching, and learning with questions like these:

- What effective strategies enable leaders to facilitate innovation within our schools?
- How do we go about creating an environment for individual learning?
- What is the skill set for the teacher of the future?
- How can we support teachers with time to learn?
- How do we expose students to new things they might not know they want to learn?
- How do we measure student competence?
- How do we know innovation is leading to positive change?

Leading educators are hard at work examining these issues. More importantly, they are working through these issues to develop effective solutions. At the forum, leading educators engaged in healthy dialogues about the implications of innovative leadership, teaching, and learning for themselves and for students around the world. Highlights of their insights are presented in the following pages.

Best Practice: Developing Mathematical Minds

Chua Guat Keng, Singapore

Thirteen-year-old students are learning to think and communicate mathematically using a combination of traditional pedagogy and technology. Working with partners, students conduct authentic inquiries about the concept of congruency. They learn how to generate and analyze ideas from the book *Wheel of Reasoning* by Richard Paul. And they learn how to explain their reasoning and purposes from the book *Sixteen Habits of the Mind* by Art Costa. Students use Windows Movie Maker and the Microsoft Office PowerPoint® presentation graphics program to think about math concepts and ask questions.



Key Issues for Innovative Leadership: Collaboration and Assessment

Innovative leaders, including teachers, can support dramatic change in education by fostering and supporting rich learning environments. Teachers who see themselves as innovators have a responsibility to inspire and lead others.

This takes courage, but unless innovators take the time to germinate ideas and build a critical mass of support for change, innovation cannot expand to scale in a school or school system.

Educators at the Microsoft Worldwide Innovative Teachers Forum identified two key issues for leadership in growing innovative practice: collaboration and assessment.

To collaborate effectively, both principals and teachers need powerful platforms for sharing. Principals need to work together and share ideas and best practices from their schools. Teachers need to collaborate across the school, school system, country, and even globe. Technology can be the tool that enables these critical face-to-face or online interactions. The technology must be easy to use so that even teachers who are resistant to technology might find it compelling.

Educators also are eager to understand how to assess individual learning in the twenty-first century. This issue is particularly challenging given that there are few accepted measures of today's valuable *knowing-how-to-learn* skills and an increase in standardized testing requirements already in place.



Best Practice: Online Learning and E-Portfolios for Preservice Teachers

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Ireland and Northern Ireland, like many countries around the world, face a twofold challenge: preparing students as well as teachers with information and communications technologies (ICT) literacy skills.

The two jurisdictions are implementing an approach that can be considered both top-down and bottom-up: online learning and e-portfolios for preservice teachers. The idea is that preservice teachers are uniquely skilled, and then to help both experienced teachers and students acquire these skills themselves.

For example, one ICT literacy requirement is developing critical thinking skills. Preservice teachers use online learning to develop teaching competence across the initial and induction phases of teacher education.

These teachers identify key issues in their teacher development, share their ideas in online forums, and research topics.

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Valid, reliable assessments are a priority according to innovative teachers at the forum. Assessments need to be ongoing, informative, and diagnostic, as well as responsive to the demands of students, parents, administrators, governing bodies, and the media.

Until such assessments are widely available, there are other ways educators can determine if they are making a positive impact. Student outcomes on traditional measures *should* improve with innovative teaching and learning. Or else students are engaged in *happy busy time* rather than learning time. Another indication that educators are on the right track is that students stay at school longer—and work nights and weekends—because they are interested in learning.

Recommendations for Visionary Leadership

The following recommendations for visionary leadership come from the work of teachers in breakout sessions at the forum:

- Understand the new vision for education, school, and learning.
- Get involved in substantive efforts to redefine learning.
- Collaborate and learn from educators who want to think outside the box.
- Build trust within your organization.
- Support teachers who are experimenting with pedagogy and technology.
- Create a safe, supportive environment for risk-taking.
- Celebrate success and initiative.
- Provide the infrastructure, forums, and tools for teachers to share and learn from one another.



- Provide professional development that supports innovation.
- Provide the technology infrastructure that supports virtual learning, real-world learning experiences, and communications such as e-mail, blogging, discussion boards, chats, teleconferencing, camera phones, and webcams.
- Develop assessments that are ongoing, informative, and diagnostic; tied to the real world; and constructive.
- Build relationships, understanding, and commitment from the community.

Key Issues for Innovative Teaching: Adapting to New Roles, Responsibilities, and Tools

Innovative teachers recognize that teachers' roles, responsibilities, and tools are changing in response to changes in society, technology, and learning. Educators at the Microsoft Worldwide Innovative Teachers Forum see their role shifting from lecturer to facilitator, from expert to sharer of expertise, and from ultimate to collaborative decision maker. Perhaps the biggest shift in roles is moving into the driver's seat as innovative leaders.

Innovative teachers are enthusiastic about redefining themselves in these ways. At the same time, they realize that their new roles require better, two-way communications with their school leaders, colleagues, and students. Technology can be a tool that facilitates communications, but teachers also understand that they need to instigate dialogue as part of their regular practice.

Innovative teachers recognize that their responsibilities are changing as well. They are responsible not just for teaching content but also for teaching students to thrive in an ever-changing, challenging world. Teachers must change their focus from

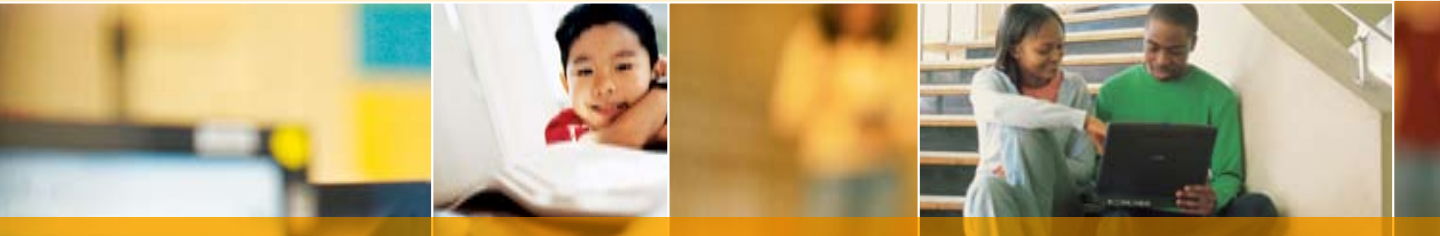
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Through collaboration and research, teachers develop lessons to test on students in the classroom. "Most student teachers simply want to survive the next lesson," says Dr. Victor McNair from the University of Ulster in Ireland.

"The whole objective is to try to embed more effective teaching into ICT literacy."

Online learning is now a key part of how preservice teachers learn to do this, combining inquiry with: experiences in schools, professional dialogues with peers, and ongoing mentoring and evaluation from university tutors.

"Students will be sharing about evaluation and critical thinking, validating evaluation processes," McNair says. "They start to implement what they find online, and then come back to share their experiences. The dialogue is fresh and rich."



Best Practice: Online Learning and E-Portfolios for Pre-Service Teachers

Genetic engineering is a hot topic in the news. In Korea, 15-year-old students investigated the issue from the perspectives of science, society, and technology. Teachers created an online space where they helped students understand genetic research. Then students demonstrated their conceptual understanding of genetic engineering, working in groups to consider its practical applications in different scenarios. They also presented their personal opinions about the issue in student newsletters and bulletin boards.

standards-based to process-based learning and from curriculum-based to lifelong learning. Innovative teachers also believe that they are responsible for bringing about personal change and character development in their students. They see that connecting students to their communities and engaging them in real-world learning are ways to accomplish these goals.

These responsibilities, too, require support and effort. Teachers need opportunities to continue learning, build pedagogical skills, reflect on their teaching practice, and share ideas with others.

Finally, innovative teachers face an array of unconventional tools that will reshape the way they work. Computers and portable digital devices are just the tip of the iceberg. Educators at the forum focused on an emerging educational technology: games. Games-based learning has the potential to make learning more like entertainment—fun, appealing, and exciting.

Innovative teachers recognize this potential, yet they identify the challenge of making games-based learning relevant to the curriculum, with built-in assessments. They also want educational games to be affordable, customizable, and available on the Internet. And they know they need to help administrators and parents understand that games-based learning is *fun with a purpose*.



Recommendations for Visionary Teaching

The following are recommendations for visionary teaching from teachers at the forum:

- Understand the new vision for education, school, and learning.
- Seek out and network with people outside your normal circle—outside your school, your community, and your country.
- Share your ideas with others and invite others to share their ideas with you.
- Offer and ask for support from school leaders.
- Ask for rewards for taking chances.
- Make it easy for others to use your work.
- Create rich learning environments that build students' competencies and independence.
- Recognize that the curriculum is not just content to be forwarded on, but instead is the skills and tools through which to learn.
- Model practices you want students to learn.
- Share your expertise with students.
- Expect students to take active roles in organizing, managing, and owning their learning.
- Engage students in their communities; in teamwork; and in research, critical thinking, and problem solving.
- Customize learning for individual students based on their needs and interests
- Celebrate student learning.
- Inform and educate parents about what students are doing.



Key Issues for Learning: Knowing How to Learn

Given dynamic learning environments, students all over the world are up to the intellectual challenges presented to them.

Innovative learning should enable students to acquire the following types of skills, according to forum participants:

- Imagination and creativity.
- Higher-order thinking skills, including researching, critical analysis, and problem solving.
- Life skills beyond the traditional curriculum, including competencies and independence.
- Active organization, management, and inquiry in learning.
- Collaboration with peers and mentors of different ages, abilities, interests, and geographic locations.
- Proficiency with a variety of digital learning and communications tools.

Fostering imagination and creativity surfaced as a key issue for learning. By their nature, imagination and creativity are pursuits that enable students to express themselves as individuals and cultivate passionate interests. Unleashing these innate capacities can inspire students to develop these interests, which can spark a passion for learning.

Multimedia technology enables students to produce and share creative work and ideas that are meaningful to them, and get instant comments from people all over the world. Ideas can build exponentially in this way with the dynamic give-and take between individuals and groups.

Best Practice: Technology Spurs Reading, Writing Achievement

Chinese students typically spend four years learning 2,500 characters of the hieroglyphic language before they can learn to read and write. Technology is cutting that time in half. Using computer games, six- to eight-year-old students learned more than 2,000 characters in just one year, putting them on track to read in just two years and write in three. Students are publishing their compositions on school Web sites. Visitors can read and comment on student work, which encourages children to write.



Innovative teachers can tap into these ideas to develop students' problem-solving and critical-thinking skills. Students should be challenged with questions to explore subjects in depth, taking them beyond basic understanding to higher-level knowledge and competencies. This kind of inquiry can enable students to become experts and presenters of knowledge.

Students also need to learn to take ownership of their learning, challenging themselves to push their interests in new directions and manage their own learning processes.

To do this, students need to know how to work in communities of learners in their own schools and in the world, including online learning communities. They need to have the skills to conduct their own research and to critically analyze their sources and information. And they need to have the ICT literacy skills to use technology effectively as a learning tool.

The Microsoft Commitment to Innovation

Teachers who participated in the Microsoft Worldwide Innovative Teachers Forum demonstrated that they are forging the future of education. They embrace innovative leadership, teaching, and learning.

Teachers are creative, talented, and eager to make education relevant in the twenty-first century. As they experiment with new ways of leading, teaching, and learning, they are reflective and insightful about the challenges ahead for education.

The Microsoft mission fits well with the mission of education around the world. Our role in education is creating innovative, effective tools that help educators and students imagine and reach their full potentials.

Best Practice: An Interactive Periodic Table

Tengku Azmi bin Raja
Ismail, Malaysia

In Malaysia, 17-year-old students take a demanding national examination to earn a general science certificate. One teacher used Microsoft Office software to create study tools for students such as an interactive, illustrated periodic table of the elements, crossword puzzles, and online practice tests. Students enjoyed studying this way—and test scores improved significantly.



Through our global Partners in Learning initiative, Microsoft is taking its long-standing commitment to education to the next level by helping individuals, communities, and nations develop and grow programs that provide access to technology tools and that foster technology skills and innovation. The Microsoft Innovative Teachers program, which is active in 35 countries, is dedicated to:

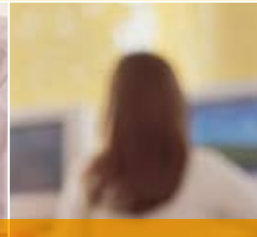
- Bringing together a community of teachers as learners.
- Facilitating the creation of collective knowledge.
- Creating a platform for the advancement of best practices and adoption of innovation.
- Providing training and access to technology resources.
- Helping teachers develop confidence using technology in the learning process.
- Engaging teachers intellectually and offering them opportunities to be active stakeholders in their profession.

To Learn More

For more information about the Microsoft Innovative Teachers program, visit www.microsoft.com/education/innovativeteachers.msp

For more information about Partners in Learning, visit www.microsoft.com/partnersinlearning.





18 Tapping Intellectual Capacity

Young people are interested and passionate about global issues such as educational quality, the environment, terrorism, drug abuse, and AIDS according to a 2003 study by Roper Research. Young people are aware of social responsibility. They are intellectually curious and technologically sophisticated. And they enjoy connecting with their peers.

Michael Furdyk, who spoke at the Microsoft Worldwide Innovative Teachers Forum, tapped into this youthful mindset by founding TakingItGlobal.org, a not-for-profit organization, to capture and channel the energy of youth all over the world. In just four years, the Web site has more than 2 million hits a day and has grown into a vast online resource that includes:

- The largest online collection of youth artwork where viewers can comment on what they see.
- Panorama, a monthly publication of essays and reports about global and cultural events.
- Grants, scholarships, internships, and volunteer opportunities.
- Focus on the top 10 global issues from the United Nations.
- Highlights of thousands of different projects young people are performing in their communities, plus a teacher guide that helps teachers take students through the process of learning about issues and deciding how to take action.
- Member profiles and blogs, which enable young people to connect with others worldwide with similar interests.



- Bimonthly focus on an issue such as media, music, social change, human rights, poverty, and gender equity.

Young people create much of the content for the Web site, customizing it for their city or country. "We have youth around the world working to translate the site into their own languages for practice with English," Furdyk says. "We've created a global community that operates in five different languages at once."

Does it work? What value does it have? In a survey, 67 percent of students who use the Web site said it inspired them to take action in their own country, region, or community. Additionally, 78 percent of students said they gained a different perspective or greater awareness of global issues.

In some places, teachers are now incorporating the site into classroom learning. But students still believe teachers are the single most important influence on their educations.

Effective learning involves a partnership between teachers and students, according to 165 young people selected to produce weekly or photo blogs on the future of education for TakingItGlobal.org. They believe education should respect and assist young people in achieving their goals.

Technology should be a tool, not a course, used to teach everything in different and more meaningful ways. And young people want learning environments that are more conducive to learning.

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