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## Paper Session III-C - Touching the Future: Space and Technology in Education

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## Touching the Future: Space and Technology in Education

**Richard A. Methia**  
**Vice President, Education**  
**Challenger Center**

I would like to address the theme of space, technology and education from the pragmatist's perspective and how Challenger Center's network is using space exploration and technology to make a difference in the lives of hundreds of thousands of children each year. But before we look at today, let's take a quick look back at where we were not so long ago.

Last fall in Portland, Oregon, the Council of the Great City Schools displayed a prototype 21st century classroom. Behind it were two enlarged wall-sized photographs of an 1894 classroom and a typical classroom of 1994. To the casual observer there were only a handful of really striking differences:

- b/w photo vs. full color
- chalkboard black vs. green
- desks were single rather than doubled up -- but still in factory rows
- kids and teachers were dressed differently -- but teacher behind her desk and kids behind theirs
- kids were allowed to smile

One visitor to the exhibit said innocently, "Looks like a teacher today would feel pretty comfortable in an 1894 classroom." What a damning indictment. Think of the same comparison between the technology found in a doctor's office in 1894 and one today.

Dr. James Comer, the well respected child psychologist/educator at Yale points out that for children to learn effectively -- and that goes for teachers too -- learning must be placed into a real life, meaningful context.

The first step in children or teachers approaching technology is to create in them a new understanding, a new paradigm of technology first as useful, then as liberating. In short we need to give it context from which the experience derives meaning.

And that's what we do at Challenger Center.

Challenger Center's mission is to use the excitement of space exploration to teach children how to learn and to teach teachers how to bring their students to that new learning. Our instructional model incorporates many of the best ideas that have proven effective over the last decade or so and presents them in a uniquely stimulating context.

- content (m/s/tech/communications)
- creative and critical thinking & problem solving
- teamwork (cooperative learning)
- responsible decision making

Challenger Center uses the theme of space exploration because it is especially motivating to children and because it is fully inter-disciplinary. We are a network of 25 institutions -- science museums and science centers, school districts, and colleges and universities.

The report of a special Labor Dept Commission on education and competitiveness (Secretary's Commission on Achieving Necessary Skills) claimed that most schools today fail to prepare the majority of their graduates with the thinking skills needed even by the modern blue-collar workplace much place the high-tech workplace. The report recommended schools teach "Five Competencies"

- The ability to allocate resources. (entry-level workers should be able to develop work schedules, budget money, and assign staff)
- Interpersonal skills: must be able to work as team members and engage in problem solving
- The ability to access information (and presumably make sense of that info) identify, assimilate, and integrate information from a variety of sources including the use of computers to gather and develop info
- The ability to understand work systems, understand how what they are doing integrates into what other workers are doing, especially important as more companies employ team approach
- The ability to deal with new technologies in an ever-changing workplace.

\*\*\*\*\* (VIDEO) \*\*\*\*\*

At Challenger Centers around the US and Canada youngsters live their own futures. They experience a benign vision of tomorrow where math, science, and technology are tools for human betterment. They become citizens of a micro-world where problems are prone to human solutions and where individual efforts do make a difference. Where technology is a liberator -- a transformational experience.

- John Gardner: "One of the reasons mature people stop learning is that they become less willing to risk failure."
- Will Rogers said: "You can't teach what you don't know any more than you can come back from where you ain't been."

The Scriptures tell us that without vision the people perish. I submit the same is true -- even more so -- with the children we teach. For that reason,

perhaps the singular most important job we do each year is to instill purpose, hope, faith in the future – in short, vision, into the children we touch.

Today as you know only too well our young people are faced each day and night in the media and in their neighborhoods w/messages of despair. Today, sadly, children don't play in tree houses much anymore and their view over the fence is likely to be blocked by blight and decay. It's our job to build for each child we touch that tree house and nurture their view from that treehouse into the future.

Helen Keller was asked if there were anything worse than being without sight. She replied, "Yes, having sight without vision."

Rachel Carson, the great environmentalist writer, said her hope for the world would be "a gift to each child of a sense of wonder so indestructible that it would last throughout life."

Christa taught a course at Concord High School. She taught her students that Americans are explorers and discoverers. It's part of our national character – part of what makes us uniquely American. And that's what Christa wanted most to pass on to her students.

Each generation of Americans has journeyed along an "exploration road." Whether that road be on land, in the sea, or in the air, those explorations and discoveries that follow have forever changed the face of our nation – and often of the world. Think, for example, how that one strikingly beautiful photograph of planet earth taken from the Apollo spacecraft on its way to the Moon forever changed the way we saw ourselves and ushered in the environmental age.

At the threshold of the 21st century the "exploration road" leads invariably to space. In the next few decades, we will return to the Moon and voyage to Mars and engage in other journeys yet un-imagined. We will not go for all the practical reasons, but in spite of them. It will be our children and our children's children who will lead those voyages. It is they who will cure cancer and AIDS, build great new cities – possibly on the ocean floor – and bring civilization to other worlds. Sitting in our classrooms today are members of that first crew to Mars. But they will do these great things only if the spirit of exploration is sparked in them. And that is our greatest challenge.

In a sense the CLC you saw in that slide is a 21st century classroom in which students experience science and tech in a totally new way and get excited about it. In a sense it's a 21st century workplace in which students elbow to elbow with their co-workers do real science, work with real computers, robots, communication equipment, and solve real problems. But more importantly this morning in 24 communities across the US and Canada CC will be a beacon hope for those young people upon whom 21st century America will depend.

It took humankind a millennium to dream the voyage to the Moon, ten years to create the machinery to get there, and only a few glorious days in July 1969 to live it. Because over the span of a very few years, a handful of humans spent a few days on the Moon, humankind will never again be the same.

"Eighty years after we learned to fly and 5000 years after we learned to write, the future is still up for grabs. A thousand years from now we will be judged on the stewardship of the earth and mankind's dreams. Our is the generation to which it is fallen to take the first steps outward from the earth. Perhaps it will be said that in the brief time allotted to us, we ran as fast and reached as high as we could." (unsigned editorial in Discover Magazine, 1985)

Our challenge is to be able to say that about our work today -- that in the brief time allotted to us, we taught our children and our grandchildren to run as fast and reach as high as they could."