Beyond Technology: The End of the Job and the Beginning of Digital Work

by Alan November of November Learning | **NovemberLearning.com**

The real revolution that technology brings to society extends well beyond how to use computers, or in school terms, computer literacy. It is more complex than integrating computers across the curriculum or learning about multimedia or even using the Internet. The profound impact is that information communications technology is completely reorganizing how, where, when, with whom, and even why people work. The concept of the very structure of the way that many people work today, the job, is finished. As William Cook observes in Strategic Planning in America's Schools, "Truly educated people of the next century will not apply for a job. They will create their own."

"The modern world is on the verge of another leap in creativity and productivity, but the job is not going to be part of tomorrow's economic reality." writes William Bridges in Fortune magazine (Sept. 19, 1994). In its place is an emerging enterprise where workers will become more and more responsible for managing their own businesses and selling their services to many different customers across a globally connected market.

This transformation of the workplace is well underway. For example, a few years ago there were 10,000 people working for IBM in the Chicago office, a fifty story black tower. There used to be a clear sense of schedules, reporting lines, and physical space. Today, there are only 3,500 people based from Chicago. And, 80% of them work out of their homes.

The office tower is for sale, and the management reporting lines are streamlined. At Motorola, there is a new corporate policy that will relocate 40% of all workers (secretaries, managers, designers, facilitators, educators) into their homes. Many of these workers will have to unlearn how to work in a highly prescribed manner. Instead of expecting problems to be highly structured and defined and handed to them, these workers have to identify their own problems to solve, manage their own productivity, and seek and structure collaborations from around the world.

The "end of the job" concept is not just limited to well educated white-collar workers. John Deere welders have moved from a traditional job format where they were told what to do, when to do it, and how well they were welding to a position of directing and managing their own work. Information and communication technologies enable these workers to manage a network of robot welders. A welder in Moline, Illinois, is connected in real time with another welder in Germany. Through the network, they collaborate to help each other to become more proficient at managing their work. They no longer report to a quality control engineer for their directions. In the words of one welder, "I no longer park my brain at the gate before I come into the plant." The quality of work has significantly improved at John Deere without the college educated managers. "Less is more."

If technology is the enabler that is turning the concept of the job into a social artifact, what kind of planning should educators consider to prepare students for economic reality of a high tech economy? Simply adding technology to the current highly prescribed school culture will not help very much. Technology planning becomes much more complex than providing students with access and skills with computers or even with the Internet. And,

     NovemberLearning.com

integrating technology into the existing curriculum may be an awkward and perhaps misguided retrofit.

In order to prepare students to be flexible, adaptive, and interdependent we will need to re-engineer the organizational design of learning. For example, educators may be the most physically and intellectually isolated profession in America. We are probably the only profession that is getting computers before we get telephones. Think about how ridiculous this would be for any other business. We must provide the communications infrastructure to connect educators and students to the world. But, wiring America's classrooms will probably have an insignificant impact on the quality of learning unless we can help students manage their own experiences, including: managing their time, designing their own homework, co-creating assessments of their work, and continuously extending their collaborative work around the globe.

RE-ENGINEERING THE ORGANIZATION OF LEARNING: MAYO DEMONSTRATION SCHOOL OF SCIENCE AND TECHNOLOGY

The Mayo Demonstration School of Science and Technology in Tulsa, Oklahoma has begun to address the difficult organizational issues and is working hard to prepare students for a world where they will have much more responsibility for creating and managing their own work.

Imagine an elementary school where every teacher has about 40 students and two full time paraprofessionals. There are no grades. The students begin school at age four and finish when they are eleven. In total there are 153 students and five certified teachers. It is a full inclusion school. Every morning for 45 minutes there are family units of 18 kids managed by the paraprofessionals. Children of all ages are in every family unit and the older kids take responsibility for helping the younger children work on social service projects or hands-on science projects.

After family time, students move to an academic organization that typically spans the equivalent of two grades. Networked computers are conveniently arranged across the building for children to do everything from learning basic skills to researching and publishing on the Internet. By the way, four year olds are expected (and easily can) log onto the computer network to manage their own work. One of the advantages of the team of one teacher and two paraprofessionals is that teachers have the time to work with students on authentic assessment of more complex problem solving. For example, if students are presenting their field notes of the environmental quality of a local pond, complete with sketches and Internet research that compares water quality across the southwestern United States, teachers can spend the time with small teams of students while the paraprofessionals are helping other students.

What is critical about the success of Mayo is not the use of technology but the expectations of children and educators to work in a collaborative environment. As Dr. Beverly Edwards, Curriculum Specialist/Teacher Trainer, Tulsa Public Schools, and past Coordinator of Mayo observes, "Education in the United States has to prepare students to be more responsible for managing their own learning and to work collaboratively. It is critical that we support these children with a learning environment that will lead to self-managed, self-directed learning and a heightened responsibility for others. We have no choice. The changes in our culture are demanding these skills."

Organizational Design Issues for Education Leaders

STUDENTS AS LEARNING ASSOCIATES: REENGINEERING THE JOB DESCRIPTION OF STUDENTS

Students need to take increasing responsibility for designing their own homework and co-designing assessment. Support is needed for those teachers who want to teach students how to manage their own learning. This change will require a massive parent information and education program. At Mayo, students are also given choices about how they would like to be assessed.

STUDENTS AS KNOWLEDGE PRODUCERS

All students should be expected to create knowledge products and publish them for authentic feedback. Examples include: National Geographic Kids Net, where students can contribute to a national database about acid rain. Students in Illinois contribute to a statewide database of energy use in school and community buildings called Energy Net.

CONNECT STUDENTS TO COMMUNITY

Students should be expected to communicate with partners around the globe and in their communities. Start 'em young by installing a fax machine in every kindergarten classroom and connect young children to their own community through a fax network. Little kids do a great job managing the fax communications center, and can successfully send and receive faxes. Kids can fax their questions to the police department, the florist shop, the natural history museum, and the senior citizen's center. Drop off old computers in senior citizens' homes so that older kids can exchange e-mail with seniors.

COLLEGIALITY

Move away from the isolating industrial model of teaching where "this is my classroom and these are my students" to one where the entire faculty is networked and available 24 hours a day to the entire learning community. Some teachers say that it is not possible for another teacher to understand how to work with "my" students. To these teachers I would say, "Let go." All of our students need to understand how to interpret feedback about their work from many different sources, some face to face; others will be across digital networks. We need to provide our students with a balance of both. Otherwise, we are cutting them out of connecting them to opportunities of learning. This means that we must build the communications infrastructure to link every teacher to the Internet and every family as well. Schools should set guidelines for every teacher to publish on the school home page, including: most frequently asked questions from parents goals for every course examples of past student's work, recommended homework assignments for the entire year, hot button connections to other sites on the Web that support learning, and action research projects.

TEACHER EVALUATION

Also, let's fundamentally change the way that teachers are evaluated, which is one at a time. Instead place teachers at the center of their own evaluation in collaborative teams, where the team evaluates itself. Otherwise, there is a disincentive for teachers to share their knowledge and wisdom with each other.

    NovemberLearning.com

EQUITY

It does not make sense anymore to define equity of technology resources as being within the school. As the gap of home ownership grows, equity should be defined as every family having capacity to use information resources. We need to offer families opportunities to learn about technology, including take-home programs for families that do not own computers.

PERMEABILITY

This is the key leverage point for any organization to evolve. Is information, knowledge, and wisdom permeable within the structure of the organization? Typically, schools are purposely designed to be impermeable to the flow of information, knowledge, and wisdom. There are boundaries between departments, between grades, between schools and families, and schools and the community. Do teachers value each other for their knowledge and wisdom? We will have to take down as many organizational barriers as we can in order to apply the flow and application of information.

CONCLUSION:

As these emerging information and communication technologies continue to have a profound impact on society, one of the most important leadership skills will revolve around helping educators, families and community to let go of existing structures. It is always more difficult to unlearn than to learn new skills. Also, as we move from one of the most isolated professions in America to one of the most connected, the key leadership skill will be the capacity to promote teamwork and coalition building with the local and global communities. The real revolution is not about computers, just like the industrial revolution was not about engines. We need to look beyond the technology to seek the ways of collaborating together to help children become independent, critical managers of their own work.

About November Learning

Alan November has been an education technology consultant since 1995. Since then he has helped schools, governments and industry leaders improve the quality of education through technology. In 2004 Alan expanded November Learning to include a team of educational specialists and a wider range of educational materials. The November Learning Team is a highly specialized group of educators. We have a range of expertise in educational issues, with a primary focus on community building and technology integration. The November Learning Team is dedicated towards supporting and challenging teachers and students to expand the boundaries of learning.

Find us on:
Twitter (@nlearning), Facebook and LinkedIn.

For more information, please contact:
donna@novemberlearning.com or +1 (781) 631-4333

     NovemberLearning.com