Ahead of His Time

By Diana Fingal

Illustration by Percy Franklin

It seems quaint, even preposterous, to read an impassioned plea calling for high school students to be allowed to use calculators in class. But that was a hot topic in 1974, when Dave Moursund launched *The Oregon Computing Teacher*. Moursund started the journal to advocate for technology in education back when calculators were controversial and overhead projectors couldn't display much more than a teacher's notes scribbled on plastic sheets.

The periodical went national in 1979 when it became *The Computing Teacher.* That same year Moursund founded the International Council for Computers in Education (ICCE). In 1989 ICCE became ISTE, and *The Computing Teacher* morphed into *L&L* in 1995.

As ISTE and NECC celebrate 30 years in 2009, we thought it would be apt to take readers back to when this whole thing began.

It all started with Moursund tirelessly prodding, pushing, cajoling—even scolding if the situation called for it—educators, administrators, policy makers, parents, and anyone else who would listen that using computers in school was vital. Things have certainly changed since May 1974, when Moursund penned his first editorial titled "Where is Instructional Computing Headed?" In that editorial, Moursund outlined three goals:

> All students should become computer literate at a level commensurate with their overall level of education; all students having a personal and/or professional need for additional knowledge in computer science (such as computer programming) should have adequate opportunity to gain the desired skills and knowledge; teaching using computers (computer-assisted instruction, computer-augmented learning, and computer-managed instruction) should occur whenever computers are an appropriate and educationally sound aid to the overall instructional process.

ISTE's First Executive Director Dave Moursund Wrote Editorials Predicting Technology's Impact On Education

Technology has advanced so rapidly in the past decade alone, one might feel tempted to conclude that Moursund's goals have been met. Most schools are equipped with computers that are thousands of times more powerful than anything available back in 1974. Web 2.0 tools allow students in Australia to swap information in real time with kids in the United States. And that old overhead projector is gradually being replaced by a Web conferencing system that lets educators in different cities attend meetings, collaborate, and trade files from the comfort of their home offices, classrooms, or backyard decks.

But Moursund cautions against calling the fight over:

> The way current facilities are being used is strongly hampered by a lack of appropriate teacher education and by a testing system that is antiquated…. Teaching and learning in any discipline or part of a discipline should be strongly oriented to gaining an increased level of expertise. Such expertise is demonstrated by "doing" things—solving problems, accomplishing tasks, doing performances, doing

presentations, producing products, and so on. Nowadays, information and computer technology is routinely thoroughly integrated into the professional work of people who have and make use of expertise in any of the academic areas.

As we begin a yearlong look at ISTE and NECC, we'd like to share some of the best kernels from Moursund's writings because we think they illustrate not only the rapid progression of technology over three decades, but also the prophesy and foresight of one of the pioneers of education technology.

1974

Moursund: "Work toward developing a student's level of computer literacy should begin in grade school. As a simple example, when a child is learning to add, subtract, multiply, and divide, the child could also be learning that machines (for example, electronic calculators) can perform these same operations, often cheaper and more accurately than people."

Tech fact: Robert Kahn and Vinton Cerf publish a paper outlining the protocols of the Internet. The first Universal Product Code, or bar code, is scanned on a pack of chewing gum in the United States.

In the world: U.S. President Richard Nixon resigns in the wake of the Watergate scandal. Boston's public schools begin busing students to achieve racial diversity. Scientists warn that aerosol sprays will deplete the ozone and lead to global weather changes.

1977

Moursund: "By the time elementary school students come to seek a career, massive changes will have occurred due to computers (among other things). The teacher should be aware of how computers are affecting careers and educational training needs, and orient students to this changing world concept.… Elementary school students should be oriented toward a world in which computer-assisted communication and information retrieval are commonplace."

Tech fact: Apple Computers incorporates under Steven Jobs and Steve Wozniak and unveils the Apple II, the first pre-assembled, mass-produced PC. AT&T installs the first fiber-optic cable. RCA sells a videocassette recorder for $1,000.

In the world: Jimmy Carter becomes president of the United States. The miniseries *Roots* is broadcast in the United States. Leonid Brezhnev is named president of the USSR. Elvis Presley is found dead of a drug overdose at 42.

1980

Moursund: "My conclusion is that the computers-in-education movement faces a very difficult future.… Will students learn to use computers as a tool in coping with the problems of their disciplines? … The time is now ripe to hold some national working conferences on the role of computers in the various subject-matter disciplines. How should math, business, social studies, science, art, or English change because of computers? Who will develop the content? Who will train the teachers?"

Tech fact: Sharp releases a handheld computer that sells for $123 and measures 6.9" x 2.8" x 0.6". The 59-key keyboard is designed for writing BASIC language programs.

In the world: The U.S. Department of Education is created. Poland's Solidarity becomes the first independent labor union in the Soviet bloc. John Lennon is shot and killed outside his New York City apartment.

1982

Moursund: "If our technologically oriented society continues, then eventually computers will be commonplace. Children will grow up in homes, schools, and neighborhoods in which everyone uses computers. Computerized information retrieval, word processing, and problem solving will be as widely used as paper and pencil techniques are today."

Tech fact: IBM predicts it will sell 200,000 microcomputers in North America in 1982, while Apple and Radio Shack expect to sell a total of 350,000 microcomputers.

In the world: Ronald Reagan is president of the United States, where the median household income is $20,000. Leonid Brezhnev, Soviet leader, dies.

1986

Moursund: "High tech is shrinking the world, populations continue to increase, and the people of this planet are becoming more interdependent. To me this suggests our educational system needs to combine high tech with high touch. The high-tech aspect of our current era indicates that we need a number of highly trained,

ISTE and NECC are celebrating 30 years of ed tech excellence in 2009. In honor of this milestone, L&L will bring you several articles throughout the year acknowledging how far we've come and where we're headed on the path to effective technology integration to improve teaching and learning. Thank you, readers, for accompanying us on the journey.

Occasionally I think that the progress has been disappointingly slow. However, for the most part, I have been quite optimistic throughout the years. I always feel that the best is yet to come. Even now, I feel that the field is just barely emerging from infancy!

technically oriented workers….The high-touch aspects of our society have considerably different characteristics. High touch refers to people skills such as knowledge of self, knowledge of others, and good abilities to use this knowledge. High touch relates to getting along with others, which is essential since high tech has led to weapons of mass destruction."

Tech fact: Compaq beats IBM to the market with the Deskpro 386, the first computer to use Intel's 80386 chip, a 32-bit microprocessor with 275,000 transistors on each chip. The chip gave PCs as much speed and power as older mainframes and minicomputers.

In the world: The space shuttle Challenger explodes, killing the entire crew, including teacher Christa McAuliffe. The world's worst nuclear accident occurs at the Chernobyl nuclear power plant north of Kiev, Ukraine.

1988

Moursund: "Education would be better…

…if teachers had more status in our society.

…if our society valued education more.

…if there were more money and better pay.

…if teachers were more professional.

…if teachers were life-long learners.

…if teachers had the opportunity to visit each other's classes and to observe master teachers at work.

…if more and better inservice opportunities were available.

…if administrators and school boards would let teachers teach and quit interfering so much—for example, quit assigning teachers so many nonteaching duties."

Tech fact: A computer worm named Morris unleashed by a Cornell University graduate student clogs 6,000 university and military computers but causes no real damage.

In the world: The United States bans smoking on flights shorter than two hours. Mikhail Gorbachev becomes president of the Soviet Union. A magnitude 6.9–8.0 earthquake kills up to 55,000 people in northern Armenia.

1990

Moursund: "In my opinion, our educational system is poised on the brink. Massive change agents such as distance education, computer-assisted learning, transportation of students, and corporation-run schools could lead to massive, relatively rapid, revolutionary changes in our current system."

Tech fact: The Hubble space telescope sends back its first photographs. Microsoft releases Windows 3.0.

In the world: Nelson Mandela is released from a South African prison after being detained for 27 years as a political prisoner fighting against Apartheid. McDonald's opens its first restaurant in Moscow. The Persian Gulf War begins.

1994

Moursund: "It takes many years of training and experience to achieve one's full potential in any area of academic endeavor. Students who have good access to computers at home and routinely use them for communication, information retrieval, problem solving, playing intellectually challenging games, studying, and so forth will gain a significant advantage over students who only have access to computers at school."

Tech fact: Apple introduces the Power Macintosh, which uses the PowerPC chip co-developed with IBM and Motorola. The PowerPC processor puts the Macintosh on par with Intel's newer processors.

In the world: Nelson Mandela becomes the first black president of South Africa. Some 100,000 men, women, and children flee ethnic slaughter in Rwanda. Israel begins its final withdrawal from the Gaza Strip.

1997

Moursund: "Consider a scenario 20 years in the future: Every student has a personal portable microcomputer for use at home and at school. Wireless connectivity to local and worldwide networks is provided in every classroom. A wide range of software tools and educational software is available to every student. Computer-assisted learning and distance education are routine parts of the teaching and learning environment, both at school and at home. These methods of instructional delivery provide access to instruction in the full range of coursework that is appropriate to K–12 students. The combined power of current hardware and software supports high-quality voice-input systems. Tool and educational software are both 'intelligent'—that is, they reflect the steady progress that has been occurring in artificial intelligence."

Tech fact: Phillippe Kahn develops one of the first camera phones. Jorn Barger coins the phrase "weblogs" on his Web site, Robot Wisdom.

In the world: Scientists clone Dolly the sheep. Princess Diana dies in a car

crash. The devaluation of the Thai baht triggers a currency crisis that devastates the economies of Asian countries.

1999

Moursund: "We are still in the early stages of a megatrend toward computers becoming invisible—much in the same way that electric motors are built into all kinds of appliances and are no longer emphasized. When a technology reaches the appliance stage, the focus switches from learning the technology to learning to solve problems and accomplish tasks using the appliance."

Tech fact: Fears that Y2K will cripple the world are unfounded as the new year passes with no computer-related glitches.

In the world: More than 10,000 people protest the World Trade Organization gathering in Seattle, shutting down the city and leading to hundreds of arrests. Two students kill 12 classmates and a teacher before shooting themselves at Columbine High School in Colorado.

2001

Moursund: "From my point of view, progress in the field of IT in education has been quite slow. Occasionally I think that the progress has been disappointingly slow. However, for the most part I have been quite optimistic throughout the years. I always feel that the best is yet to come. Even now, I feel that the field is just barely emerging from infancy! I look forward to seeing what the future will bring."

Tech fact: The first podcast is created. Wikimedia Foundation launches Wikipedia. Apple launches the first iPod, boasting that it will put 1,000 songs in your pocket.

In the world: George W. Bush is elected U.S. president. Three commercial jets crash into the World Trade Center and the Pentagon shortly before another jet crashes in Pennsylvania in the worst terrorist attack in U.S. history. The world's first paying space tourist, American businessman Dennis Tito, joins the crew of the international space station.

Acknowledgments

The feature illustration of Dave Moursund was created by ISTE's first and longtime artist/graphic designer, Percy Franklin, in 1996.

Resources

Computer History Museum: computer.org/portal/cms_docs_computer/computer/timeline/timeline.pdf

Dave Moursund's Web site: http://iae-pedia.org/David_Moursund_Editorials.

Infoplease: http://www.infoplease.com/yearbyyear.html

Timelines of History: http://timelines.ws/

Diana Fingal is the senior editor for L&L. *She has been writing for and editing periodicals for more than 20 years.*