

And? And...

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A Personal Note

I established the Oregon Computing Teacher periodical in the spring of 1974. In 1979, I changed the name of this periodical to The Computing Teacher when I established the International Council for Computers in Education. Effective with the May 1995 issue, the name was changed to Learning and Leading with Technology. I served as Editor-in-Chief of this periodical until the end of March 2001, and I have written a large number of editorials for it.

My formal employment with the International Society for Technology in Education ended at the end of March 2001. I continued full time employment at the University of Oregon through the 2001-2002 academic year. I then entered into a five-year program of "reduced tenure" in which I work 1/3 time for the University of Oregon.

As part of the agreement made when I left ISTE, I have permission to make all of my editorial messages available on my Website.

In addition, it was agreed that I could write an editorial for the September 2001 (Volume 29, Number 1) issue of Learning and Leading with Technology. This editorial is given below.

And? And...

Introduction to This Editorial

The title of this "final" editorial is a play on words and reflects two different ideas:

1. In the past, I have done a lot in the field of IT in education. And, I will continue to do a lot in the future. As long as my mind and body will allow, I intend to continue to work in the field of IT in Education. Over the next few years I expect to move toward retirement and an increasing level of involvement as a volunteer.
2. As a teacher grows in capacity, the teacher can facilitate more and better learning in the same amount of time. As a teacher, consider what you do to facilitate learning. Ask yourself: "And, what else might I do simultaneously to increase student learning and retention?" "And, how can I structure my teaching and other professional work so that it simultaneously helps me to continue to increase my professional capacity?"

A Problem That Won't Go Away

I have previously written about the five languages: oral, written, mathematics, science, and IT. Writing and mathematics were developed by humans more than 5,000 years ago. The IT "language" was developed during my lifetime. Note that Robert Logan (2000) discusses computer programming and the Internet as two separate languages, while I have combined them into one for simplicity. Microcomputers, calculators, information appliances, and the Internet have brought the IT "language" to worldwide significance.

We all know that it takes a great deal of time and effort to become "fluent" in reading, writing, arithmetic, and science. Computers and other IT allow us to quickly learn to do some IT-language things, but IT is also a complex and large language. Achieving a contemporary knowledge and skill level in this new language area takes many years of study and practice. Fluency is increased by being immersed in a rich environment of IT users and by having to continually "speak" (use) the language.

I have to bite my tongue to avoid a wisecrack response when a superintendent tells me: "All teachers in my district are computer literate. They have all had 50 hours of instruction." I also have trouble not making a cutting response to the statement: "All of the younger students entering our teacher education program know a lot about computers, because they have grown up with them." My observations suggest that the "50 hour wonders" and the young preservice teachers do not meet the ISTE 5th grade National Educational Technology Standards for Students. They have a very long way to go in order to meet the ISTE NETS for teachers, which include a combination of the 12th grade standards for students and an appropriate level of knowledge and skill in uses of IT in curriculum, instruction, and assessment, and in one's other professional work.

A kinder, gentler way to say the ideas stated above is that we have made a lot of progress in preparing teachers to make effective use of IT. However, the field of IT in education is changing quite rapidly. The continuing rise in contemporary standards is outstripping the IT improvements in our preservice and inservice teacher education programs. This is a problem that will not begin to go away until after the rapid progress in IT ceases. And, that is unlikely to happen during the teaching careers of all current preservice and inservice teachers.

Lifelong Learning and Capacity Building

I have been quite fortunate during my professional career to work in environments that provide both the time and the encouragement to learn on the job. This has allowed me to parlay my original mathematics doctorate into a reasonable level of knowledge and skill in math education, computer science, computers in education, education, and some other fields.

We know that every teacher learns a great deal on the job. The transition from being enrolled in a preservice teacher education program of study into being a full time teacher is quite stressful, partly because it requires so much learning.

Even after one becomes a reasonably experienced teacher, however, there are innumerable knowledge and skill areas that can still be added to a one's repertoire. For example, a General Education teacher can learn about Special Education—how to better meet the needs of the learning challenged and the gifted and talented students in one's classes. Teachers can learn more about diversity and meeting the individual needs of their students. Teachers can learn IT, and to

routinely integrate effective use of IT into curriculum, instruction, assessment, and other aspects of their professional work.

One of the best ways to accomplish such capacity building is through a combination of inservice instruction and by working in a strongly supportive environment. Of course, every school and school district should be providing such an environment for their teachers. However, teachers can also help to create such environments for themselves.

IT-Assisted Project-Based Learning

Nowadays, every inservice teacher faces the challenge of increasing and maintaining their IT in Education knowledge and skills. IT-Assisted Project-Based Learning provides an excellent opportunity for teachers to help create an IT-rich environment in which they can learn on the job (Moursund, 1999); Moursund, 2001). The first column of the table given below lists a generic set of goals for a typical IT-Assisted PBL lesson. The second column contains a brief analysis of each goal from a teacher learning point of view.

Lesson Goal	Opportunity for Teacher Learning
1. Learn the ("traditional") subject matter content of the project.	Because students have significant choice on the details of what they will study and do in a project, many students will gain knowledge that the teacher does not have. Teachers can learn from their students.
2. Learn IT as integral part of the content area.	IT is now woven into the very fabric (content) of each academic discipline. Most teachers do not know how IT has become an integral component of the various disciplines they teach. They will need to do some research to increase their knowledge in this area, in order to facilitate student learning of this new content.
3. Learn some general aspects of IT, applicable across many disciplines.	Many computer tools are generic—useful across many disciplines. When students in a project are expected to use a generic tool (word processor, spreadsheet, database, draw graphs, paint graphics, Internet, and so on, the teacher will have ample opportunity to gain increased Generic IT tool knowledge and skill.
4. Learn how to do a project.	Students need instruction and guidance as they learn to break a big project into pieces, assign tasks to themselves and/or teammates, develop a timeline, and so on. The teacher will gain skill in helping teams learn how to carry out such tasks.
5. Learn to work as a project team member,	Many teachers have already learned a lot about facilitating cooperative and collaborative work.

doing collaborative learning and cooperative project work.	Others, however, have had little [practice in this area and so will learn a great deal about this important educational area..
6. Learn to be a project proposer, a team member, a problem solver, and a "higher-order" thinker.	In some sense, the teacher acts as a consultant to each of the teams doing a project. This consulting should focus on big ideas, higher-order thinking skills, effective communication, students learning to deal with new and unexpected problems, and so on. This is an exciting and challenging learning opportunity for the teacher.
7. Teacher learns alongside the students, role modeling being an active learner. In addition, teacher learns how to assess students engaged in an IT-Assisted PBL lesson.	In brief summary, item 7 and the previous items all provide the opportunity for teachers to learn on the job. Item 7 is a catchall that can be used to list specific things that a teacher needs to be doing when being an effective facilitator of IT-Assisted PBL. Teachers will need to learn how to effectively assess IT-Assisted PBL lessons.
8. Note: There are many other possible goals in an IT-Assisted PBL lesson.	A teacher may well design an IT-Assisted PBL lesson to include some components that will specifically add to the teacher's learning.

Final Remarks

I have enjoyed my many years of writing for *Learning and Leading with Technology*. Many of my editorials have been based on knowledge that I have gained shortly before I wrote the editorial. I first used the ideas given in the above table during a talk in New Zealand a few weeks ago. The ideas were refined during a workshop presented in Montana earlier this week. In the future, I expect to be using the websites listed in the first section of this article to continue to publish my new insights and suggestions on IT in Education.

References

- Logan, Robert (2000). *The Sixth Language: Learning a Living in the Internet Age*. Toronto, Canada: Stoddart Publishing Company.
- Moursund, David (1999). *Project-Based Learning in an Information Technology Environment*. Eugene, OR: ISTE.
- Moursund, David (2001). *Workshop on IT-Assisted Project-Based Learning* [Online]. Accessed 5/17/01: <http://darkwing.uoregon.edu/~moursund/PBL>.

Retrospective Comments 10/17/01

The Oregon Computing Teacher, The Computing Teacher, Learning and Leading with Technology: This has been a good trip. I can remember back to when I was struggling with English Composition as a freshman at the University of Oregon. Math and the hard sciences were my thing—certainly not writing or teacher education! I never imagined that I would start a periodical and serve as its Editor-in-Chief for many many years.

The position of Editor-in-Chief gave me the opportunity to speak my mind. The editorials that I wrote were think pieces, reflecting my current thoughts about the (then) present and possible futures of IT in education.

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.

The Web represents one really nice part of the present and the future. It is allowing me to continue to "speak my mind" to those who are interested in what I have to say.

Retrospective Comments 12/22/04

The two years and a little more since my previous "Retrospective Comments" have been good to me. I have been teaching 1/3 time at the University of Oregon and finished up a PTTT grant and its year-length extension. I have written extensively, and I have read extensively. I have gotten into the general area of Brain Science as it relates to education and the field of computers in education. And, I have managed to achieve the age of 68.

The courses I have been teaching are designed for preservice elementary education majors who are taking a specialization in Information and Communication Technology (ICT) in education. This specialization is designed to help them become ICT leaders in their first jobs and later as they proceed through their professional careers.

For many years, I have been writing books, editorials, and other articles that serve as the primary reading materials in the courses I teach. As I teach, this leaves me in the situation of "What do I do in class? The reading materials cover the content better than I can present them in class, and I have already assigned these readings." My solution to this situation is that the classes are mainly free wheeling discussions, but are guided by the detailed syllabus and the assigned readings. Sometimes we stick to the topics, and sometimes we go off in other directions. In either case (but, especially in the latter) the teaching is fun. Any class meeting in which I learn things from my students is especially fun.

More and more, my classes have a unifying theme of roles of ICT in problem solving. Teachers are faced by the problem of teaching effectively. What roles do ICT play in this endeavor? Students are faced by the problem of learning. What roles do ICT play in this endeavor? ICT can solve or help solve many problems that students have (in the past) been asked to learn to solve "by hand." This has created a problem that a significant part of the current curriculum is terribly out of date. ICT is the reason for this, and is also provides a major set of resources to help address this issue.

Retrospective Comments 9/5/2008

I am now fully retired from the University of Oregon. I have made a transition into retirement.

In this retirement, I am doing many of the “fun” things that I did while I was fully employed. I communicate with a lot of people, I do a lot of writing, I occasionally give talks and workshops, I do a little consulting, and I do refereeing of papers submitted for publication. I read a lot, and I think a lot about how to improve our educational system.

I have created and I am funding a non-profit company named Information Age Education. Its goal is to help improve education at all levels and throughout the world. It currently communicates with the world through three vehicles:

1. A Wiki, IAE-pedia.org.
2. A Website for books, articles, and other e-publications: I-A-E.org.
3. A free newsletter, available at http://iae-pedia.org/IAE_Newsletter.