TECHNOLOGY IN EDUCATION:
THE ADMINISTRATOR'S ROLE

BY DAN LIM

Schools can no longer ignore the impact of rapidly evolving technology, which is changing how we work, learn, play, and communicate. Used appropriately, technology will not only prepare students for the 21st century workplace, but also enhance and expand their learning potential while in school.

Increasingly, parents, who are buying computers in record numbers, expect schools to keep up with technology. Adventist education has an opportunity to create a marketing niche for a strong technology-based private education. This will help prevent the decline of some

Adventist education has an opportunity to create a marketing niche for a strong technology-based private education.

schools, and position the Adventist educational system for the next millennium. Most importantly, Adventist young people must be prepared to serve in the real world of ever-changing technology in order to advance the cause of God.

Making technology mission-critical in schools is very important. Technology must be integrated into the school's mission and goals to ensure that it has a central place in the school's funding and operation.

Changing the Culture

For technology to change education, schools must make a total commitment to this

throughout the curriculum. This will be reflected in the budget allocation. Technology funding cannot be an afterthought; it must be a long-term recurring process. The "add-on" mentality must be replaced by planning ahead to remain on the cutting edge of new developments.

Technology as servant, not master. Education should "drive" technology rather than vice versa. Technology applications should be shaped to fit how teachers teach, rather than forcing them to adjust their lesson plans to suit the software. Wherever possible, technology should make the work of teaching easier or at least more enjoyable. The desired learning outcomes and teachers' agendas should play a central role in determining what software to buy and how to use it. The question is not whether a school has the latest technology, but whether the technology meets the needs of teachers and students.

Focus on teachers. Rather than investing heavily in equipment and software, schools should invest in training teachers to fully utilize available technology. Teachers often fail to use technology because they do not know how. Therefore, training and development are a vital part of any plan for implementing technology in education.

Promote teaching and learning theories, not technology. It is easy to focus solely on technology, as if it can work magic. Principals and instructional technology coordinators should concentrate their efforts on improving teaching and learning. The need for technology becomes apparent as soon as teachers become excited about improving instructional design. If they have access to technology, teachers who are motivated to improve teaching and learning will take full advantage of it to enhance learning. Promoting technology without relating it to teaching and learning may increase resistance or anxiety among teachers because they see it as an added burden.

Implications for the world field. What developing nations lack in funds and resources can be made up for in creativity and resourcefulness by using available facilities and resources. By using the Internet and global communications, schools in developing countries can team up with local businesses and organizations in

Technology must be integrated into the school's mission and goals to ensure that it has a central place in the school's funding and operation.

Picture Removed

more technologically advanced countries to acquire an infrastructure that benefits everyone involved. In countries where parents are willing and able to invest in their children's education, schools can involve parents in funding technology.

The Vital Role of the Superintendent

The conference education superintendent is the vital force in successful technology implementation for K-12 education. The following are some things superintendents can do to strengthen their role in technology implementation:

• *Be knowledgeable, versatile, and excited about technology.* Attend conferences to stay informed. This is probably the quickest and most effective way to get acquainted with the latest technology in education. Try to attend the pre-conference workshops and tutorials, which are usually more in-depth and hands-on. You should also visit schools that have successfully integrated technology into the curriculum.

• *Become an instructional technology consultant.* Even if you have a full-time technology coordinator in your conference, expand your role to include this area. Although you do not need to know about every aspect of technology, you do need to guide the choice of software and hardware for your schools. You also need to know when to seek the help of technol-ogy professionals.

• *Be an active and enthusiastic user of major technologies in education.* This will help you understand teachers' struggles and recommend appropriate equipment and software. The conference education department may be able to secure site licenses for major software used by schools, making the costs more affordable.

Provide Strong Support for Principals and Teachers

• *Offer focused training (comprehensive and just-in-time).* Conference-wide training should be based on a master plan and an ongoing analysis of the present and future needs of schools and teachers.

Technology funding cannot be an afterthought; it must be a long-term recurring process.

Specific outcomes must reflect the goals and objectives of each school's technology plan. Course-like workshops with in-depth training, hands-on activities, and projects are more likely to carry over to classroom implementation. Just-in-time sessions are also needed to target computer skills. Training can be provided on-site, at some central venue, or at a distance (classes broadcast on TV, videos, CD-ROMs, and the Internet). Time scheduling and ease of use are important for busy teachers.

• *Provide funds for teachers to attend conferences and present papers.* The conference office of education may have to take the responsibility to maintain regular funding so that teachers' professional development is not compromised when there is a large turnover of staff or drastic local budget cuts. Attending seminars and presenting papers will help teachers expand their horizons, learn new ideas, and find new ways to use technology in classroom.

• *Develop a site on the World Wide Web with resources for principals and teachers.* Although each school should have its own Website, a conference education department Website will benefit all schools. A chat room lets teachers help each other on technology topics and tech support, exchange ideas, and discuss pertinent issues like discipline and scheduling. Featuring projects and technology implementation in process at various schools will encourage teachers to start thinking of new possibilities. Be sure to post available resources, funding, grants, and training opportunities. The Website can serve as a virtual training site for some remote schools. Interactive online tutorials will meet some basic training needs.

• *Fund conference-wide instructional technology support.* One of the most effective ways to implement technology is

to hire a coordinator to serve as the project manager for all schools. Technology implementation may get lost amongst other important things if no one is specifically responsible for it. Most importantly, the coordinator can provide support for teachers, the most crucial part of technology implementation in schools.

• *Conduct regular assessments to measure progress and identify obstacles.* Documenting the implementation process helps identify the weaknesses and strengths of the plan. Share your results with other schools and conferences as they plan similar technology implementation.

• *Team up with other conferences to form partnerships with IBM or other vendors to lease or buy laptop computers.* This not only helps schools upgrade technology implementation, but also improves school image and serves as a marketing tool. Most schools who use this program charge a technology fee for each student per month or semester.

This is a major initiative and involves some calculated risks. But it has many advantages: no more expensive computer lab maintenance, full access to technology and support for all students, rapid improvements in teaching and learning, better student preparation for college and the workplace, new marketing strategies, and keeping up with advancing technology.

The Vital Role of the Principal

The school principal is the most important person in school technology implementation. Here are some things principals can do to promote technology in their schools:

• *Regularly attend technology conferences.* This is one of the quickest ways to learn about leading-edge technologies. To provide strong leadership, you must be knowledgeable and excited about using technology in education.

• *Take enough courses in instructional technology to become a consultant.* To gain credibility with teachers, principals need to have formal technology training. It is very difficult to promote the use of technology if you don't model it yourself.

• *Teach a class and experiment with technology infusion.* Nothing is more convincing than a principal who actually uses technology in his or her teaching. This will also help you understand the plight of

Picture Removed

teachers as they use technology in their classrooms.

• *Be excited about using technology to enhance learning.* Your enthusiastic support will help "jumpstart" technology implementation. But the challenge is to maintain that excitement throughout the infusion process, especially when there are problems with implementation.

• *Keep board members and parents informed about technology use at school.* By including information in the school handbook and newsletter, you may get

parents and others to donate hardware or software. Be sure to reassure them that you are taking precautions to prevent student access to inappropriate Internet sites and chat rooms. Adult supervision and blocking software will ensure your students' safety while surfing the World Wide Web.

Restructure to Infuse Technology Into the Curriculum

• *Restructure and reallocate financial resources.* Funding technology is not a one-shot deal. To implement a long-lasting and comprehensive technology plan, internal resources must be restructured and reallocated to provide for staffing, software, and training. This can be accomplished through staff reassignment, redirecting the budget to fund technology-based curriculum, restructuring the facilities budget, and streamlining other budgetary items. Initially, some staff may be unhappy about their rapidly changing roles and what they perceive as an over-emphasis on technology. It may take several years before some of them begin to

see the need to use technology to advance the school's mission.

• *Invest in fiber-optic infrastructure.* The first priority in upgrading your technology infrastructure is to reallocate funds for computing anywhere, anytime (including using laptops) and school-wide Internet access. Larger schools and districts can set up a local area network for more efficient use of equipment and software. Without easy access to technology and information, implementation will be painstakingly slow and difficult.

• *Fund a full-time computer coordinator (or at least begin with a part-timer).* A "dream" technology infrastructure will not go anywhere without a full-time champion. The biggest hurdle to successful technology

implementation is probably a lack of technical and instructional support for teachers. The coordinator must have wide experience in teaching, faculty support, and interactive technologies. The main task of any computer coordinator is to bring technology to teachers—not teachers to technology.

• *Foster a strong technology climate*

Picture
Removed

among teachers and staff (late bloomers are as important as early adopters). Both the principal and the computer coordinator must relentlessly promote a new teaching and learning paradigm through the use of technology. The attitudinal change must begin with the administration. Everything from mission statements to budgetary process to bulletin boards must be driven by this new paradigm. Allow for "late bloomers" who may need a little more time by being gentle but firm.

Provide Ongoing Support for Teachers

• *Regularly assess teachers' and students' technology needs.* This will help you know what services are needed, as well as how and when to provide them. Talk to students to see how they are progressing and to help those with high anxiety levels and special needs to use technology more comfortably and effectively.

• *"Push" the need to improve instruction.* Educators sometimes think of technology as an end in itself. When they realize that it is a means to an end, a useful tool to re-engineer learning, they will shift the focus from technology to instruction. When teachers see how technology can

---

Recommended Software

•••

Authoring Tools for Interactive Multimedia Development:

1. *Toolbook II Instructor 6.1* - Full scripting/authoring software, very flexible, powerful, and interactive. Ideal for full-scale development. No royalty for commercial distribution. Cons: PC only, very expensive.

2. *Toolbook II Assistant 6.5* - The drag-and-drop version of *Instructor 6.1*, easy to learn and use, many reusable templates. Ideal for quick and easy development for interactive learning. Affordable for education. Cons: PC only, less flexibility and power than *Instructor 6.1*.

3. *Authorware 5.0* - A widely used authoring tool in education. Ideal for multi-platform development and distribution. Cons: Difficult to learn for average teachers, no scripting capability, less flexible, academic version requires royalty, very expensive to distribute commercially.

4. *HyperStudio 3.0* - Probably the most widely used authoring tool in K-12 education. Ideal for simple authoring and less elaborate projects. Easy to learn and use. Affordable for most teachers. Cons: less power and flexibility, not object-oriented.

Graphic Tools: I recommend *PaintShop Pro 5* for teachers. Easy to use, very affordable, and relatively powerful.

Web Authoring: I recommend *Netscape Composer 4.0* for Web authoring. Easy to use, free, and WYSIWYG (What you see is what you get).

Office Tools: I recommend *Office 97* (with *Outlook 98*) for school-wide implementation. Wonderful integration among the office tools for file sharing, communication, and Web interface.

help students learn better, most will be willing to try it, provided it does not take too much of their time. An 80/20 teaching/technology time allocation encourages teachers to gradually infuse technology into their classrooms. Once they get excited about improving instruction, they will demand the technology to help them achieve instructional goals.

• *Schedule ongoing and comprehensive technology in-servicing.* Research has shown that haphazard training does little to integrate technology in the school program. A one-time technology in-service is often a waste of time and energy. Ongoing and comprehensive training must address not only instructional design and skills, but also foster a climate that encourages innovation in teaching and learning. Ongoing training will keep everyone abreast of emerging technologies. Principals should conduct some of the training sessions themselves. Continually seek ways to use training to encourage more technology use, to maintain the momentum, and keep your school up to date with technology.

• *Provide cash grants and time incentives to encourage teachers to use technology in the classroom.* Teachers' most frequent complaint about using technology is lack of time. Release time gives teachers the incentive to develop technology-based instruction. They also need intrinsic motivators like a positive climate and the nec-

Ongoing training will keep everyone abreast of emerging technologies.

essary infrastructure and resources.

One of the most effective motivators is to let students set the pace of technology implementation. If students have full access to technology (e.g., a notebook computer), their enthusiasm will influence teachers to embrace technology more quickly and aggressively.

• *Conduct regular technology presentations by teachers for teachers (within the school or with other schools).* It is very compelling to witness other teachers, especially in one's own discipline, enthusiastically using technology to enhance learning. This helps teachers visualize how to incorporate technology in the curriculum. Hold regular staff meetings where teachers discuss solutions or exchange ideas on using technology to enhance learning.

• *Provide laptop computers for all teachers.* A laptop with adequate memory (Pentium II, 32 megabytes of RAM, and a five-gigabyte hard drive) and additional components like an external keyboard, mouse, and monitor will allow teachers

more flexibility and independence and enable them to work on applications outside the classroom.

Many teachers find existing software inadequate, inappropriate, or just plain difficult to use. Technology should be adaptable to each person's style of teaching. Interactive templates should be developed to enable teachers to spend more time in instructional development rather than technical setup. This empowers them to design and create interactive learning modules. It may even rejuvenate their teaching career.

• *Feature teachers' work on the school's Website.* Featuring the creativity of teachers on the Website will foster a unique identity for the school's technology implementation. The Website will serve as a resource for teachers to use in developing new ideas for integrating technology in teaching and learning. ✐

Dan Lim *is Director of the Instructional Technology Center at the University of Minnesota at Crookston. A frequent presenter at national conferences in multimedia and educational technology, he recently earned a Ph.D. at Andrews University in Berrien Springs, Michigan. His dissertation dealt with the impact of teachers' attitudes and background on computer use in schools. He can be reached at (218) 281-8381 or E-mail: dlim@mail.crk.umn.edu.*

Picture
Removed