The E-xam

Dear Dr. Thornburg and Dr. von Oech,

As a course requirement for my Master's Degree in curriculum and instruction, I have been invited to describe the educational system that I see as necessary in the future. It is also required that I e-mail a copy of this description to the two of you. We have studied many of your papers, Dr. Thornburg, and read your book, A Whack on the Side of the Head, Dr. von Oech. I have enjoyed reading your ideas and I hope that you will enjoy reading mine!

As I prepare to enter my fifteenth year as an educator, I have come to see that there is an entirely new way to educate children and we must not languish in excuses as a means of postponing the obvious. The communication age has arrived and it is sending us into an educational revolution where the widespread use of technology as a teaching tool is becoming mandatory. It is time that we prepare ourselves to give students the tools necessary for success in the future. The time for rapid implementation of technology is here and educators must see the value that technology will bring to their students. The information has shrunk, will continue to shrink, and if education fails to take advantage of arming children with the weapons to take advantage of the phenomenon of widespread information access, then we don't deserve to be included in the profession of education.

In order to attain an efficient setting where technology gains the most for the students of the future, we must put in place a plan to squeeze every drop of productivity from everyone involved in the technological revolution. That includes students, teachers, resource personnel, administrators and the community. The first place to start is with the proper training of teachers. Too many times teachers have been given technological tools and said, 'That's nice, but what do I do with it?' We must reverse the order of implementation and train teachers so that when the tools arrive in the classroom, the teacher will know exactly how to develop curriculum with the machinery they are given. It is imperative that we utilize all available resources for this training including the students. Much of my training on my classroom computers came from one of my fourth grade resource students who would work with me after school. This type of teaching where we helped each other was beneficial to both of us. Seven years later, when I have a computer question, I simply e-mail him and he still helps me. He laughs first, then helps! Teachers are busy with the explosion of responsibilities that have been placed upon us. Training on any subject matter needs to be provided during the school day where the teacher is released for the day, week or whatever time period is required so that the teacher is fresh and receptive to the information being taught. After teaching for six hours and then sitting for two more during inservice training sessions, the efficiency of the system must be questioned. Yet, teachers who have the tools but not the skills to include technology in the program are faulted. It makes no sense. A buddy system for teachers to work with technologically fluent people needs to be developed so that we can build upon the gains that are made in technological education. Time for teachers to plan and implement technology must be provided if effective change is to occur. The qualifications of a teacher are the single most predictor of student success. It's time to realign priorities and train teachers efficiently so that the students benefit. We mustn't stop at the teachers though. Anyone who works with the students needs to become proficient with technology. We must utilize the expertise of the entire school community to implement change and get the revolution rolling.

The next step to successful full-scale implementation of technology would be to continue reducing the size of the classes. It is beyond realistic expectations for anyone to take on the revolution that is approaching and still teach 34 students in the classroom. It simply spreads the resources too thinly. Is it not enough that teachers account for fourteen standards in
language arts/math for all 34 students, but that now the technology entree has been placed on our finest dining plates and we are expected to devour it? Twenty students in a class is more manageable and productive. It's time to make education realistic and set class size to a proportion that encourages success. If we cannot reduce the size of the class, then the districts are responsible for employing multiple teachers within each classroom. Good teachers set their students up for success, so why not set the teachers up for success too?

When teachers are properly trained and the student/teacher ratio has been reduced to ensure the best atmosphere for learning, there are attitudes which must be changed. The community must support the need for technology and see the importance of training our youth for the future. Trained teachers will be able to show the community that skills and learning are actually furthered through technology. It must be a basic mindset that educational skills are changing at this time. The skills necessary for a productive society have always been dynamic. John Dewey stated that educators must prepare students for their future even when we don't entirely know what that future holds. We do, however, get glimpses of what it holds and the notion that technology is part of the future is glaring. The community must be brought into the revolution and enlist on the side of change. Classes to educate the community have to be developed and employed to raise the fluency of the parents who must work with their children. The classes can be held in the evenings or on weekends in the community's school. The teachers of these classes can be fluent community members themselves, district personnel hired specifically to teach community classes, members of the business community who have a vested interest in seeing that technological skills are developed, and the kids as well. Once people see the value that technology puts into the community, then support should swell and the school can move forward into the new phase of skill development. The revolution will gain strength by adding another army!

As for the actual equipment which must be placed in the classrooms, that is open to debate. The equipment must depend upon just how deep a school is willing to go into the revolution. Guidance by the district to ensure that all schools go full force is essential. Thus, each school site should be given the same tools so that the battlefield is level. Assuming that class size reduction is implemented and that each class has only twenty students, then a minimum of six networked computers with audio and video capabilities for multimedia need to be placed in each room. One of those must be for the teacher, solely. Thus, the teacher can teach from it on the large screen television that has been given to the classroom. The printers should be networked within each room and a scanner should also be made available. Digital cameras should be purchased for each block of three classrooms. To further multimedia opportunities, a VCR needs to be in each classroom and a laser disc player should be positioned in the room as well. Each grade level should be allowed to select a set of laser discs that coordinate with the curriculum that is taught at that level. A video camera for each set of five classrooms will ensure that students can be creative in their multimedia presentations of the information that they choose to teach to others. In addition to being networked for the internet, the computers should be networked to each other throughout the school. That way, cooperative learning can be achieved not just within one classroom, but throughout an entire school, too. Liquid crystal displays need to be available to the school so that presentations can be made to large audiences. The number of LCDs should be based upon how many classrooms there are, but there should be one to every three rooms. If this can be achieved, then the trained teacher with only twenty students can win the battle of the revolution which will allow technology to take its place beside the other teaching tools that teachers have at their disposal.

All revolutions are costly. But when it is a necessary course of action, it is far more costly to stand by and maintain what was. "What was" no longer fits when the winds of change
are wafting across the land. A community is only as good as its members and it is time that the community provide for itself so that all members are guaranteed to strengthen the community in which they reside. If large corporations can build stadiums for their community, then why can't they provide education too? It is past time for businesses to pitch in and help schools. They have an interest in the success of this revolution, too. Businesses are the ones who will be hiring these future workers, and the workers must be trained. If the workers are to be of value, then they must be properly trained. The training can only come at a monetary cost, and businesses can help to supply that cost. In the long run, the cost for the businesses will be lower than training the workers once they hit the job market. The financial backing for the revolution needs to come in part from the communities which will benefit from the victories of the revolution.

School districts also need to reprioritize their spending. Budgets are huge and when monies are properly allocated, then a great deal of technology and training can be purchased. It is also necessary for the state to require publishers to include technology as a major portion of their program that they design. It may be that books become less important in the communication age if more up to date information can be downloaded right in the classroom. Thus, publishers need to change their product or they may be facing extinction. When a new adoption comes up before a school district, the choices need to be geared around what technology is offered by the publisher. With the last language arts adoption in SJUSD, the publisher made CD ROMs available at $65.00 each. They were nice but not very challenging and each classroom needed six; one for each theme in the book. That would only put one copy on one computer at a time. The cost for the product was not realistic. Rather than hearing publishers say, "Oh and we have a CD to go along with your textbook," the thinking needs to be, "And we have a textbook to go along with your class sets of CD's and internet lessons." There need to be laser discs and video available through the adoption. Activities to teach skills and technology need to be the thrust of the new material rather than a cute extension of the information. Lessons designed for kids to build multimedia and apply their thinking need to be part of a publisher's new material. The revolution must include those who provide educational materials to schools and the money spent on future adoptions will ensure that schools get the technological materials necessary. Without change by the publishers, they will be casualties of the revolution and theirs will be the empty buildings within which we house the old textbooks.

Lastly, the government needs to step forward and say that it is time to invest in our kids. Money needs to be delivered to the schools to allow the purchasing of technology to become reality for all school districts. Without the backing of the government in our nation's future, then what kind of future does that suggest? There has to be a breakdown of the current situation that reflects technological "haves" and "have nots". The nation, as a whole, must become a one of "haves" so that the revolution delivers equality for all.

The training of teachers, reduction of class size and proper funding will build the strong pedestal for which we will place the statue signifying our triumph in winning the technological revolution. However, we, as teachers, must finish the job by installing our own form of government and that takes the form of curriculum and standards. We must teach thinking skills and foster creativity in our students. Basic skills are fundamentally necessary but without the extension and application of those skills, they are worthless. The current thinking is building a nation of "bubble-fillers". Standardized tests do not measure thinking but do measure a student's ability to fill in bubbles next to the correct answer. Where is that on Bloom's Taxonomy? The last time I was required to correctly fill in a bubble on the job was when I had to fill some in for the ethnic section of my student's standardized tests! Now that's relevance! New standardized tests to measure a person's ability to think will need to be developed. Problem solving and real world situations are the skills that beckon in the next century. Technology can help us to achieve the goals of
creating thinkers. Students will be able to create their own websites within the classroom which will strengthen the power of the internet as each newly added site does. They will be able to communicate with other students across the country and they will then be counted among the soldiers in the revolution. Learning must be defined as the creation of knowledge rather than the regurgitation of basic skills which are not put to the test in any form of relevance.

We must develop standards for teachers to adhere to so that the schools keep moving forward. Timelines for reaching predescribed technological levels must be created and stuck to. Whereas it is important for schools to reflect their communities, it is vital that, as a nation, there are set standards that we all follow. The unification of education must be a goal so that students across the United States come out of their K-12 years with the same opportunities. A child should not be at a disadvantage simply because the educational system which produced that student lacked in resources, quality teachers or unified standards of achievement. Teachers must come forward to embrace the revolution as a good thing. Never before have we seen such potential in teaching so much material. The statue to celebrate our accomplishments must be erected but only after the new constitution has been written. The constitution must reflect new standards and high level curriculum or the fight will have been reduced to a hollow battle.

Neil Postman, an educator, remarked that, "Children enter school as question marks and come out as periods." This speaks volumes for what our current educational system does for children. It bores and drains them of their desire to pursue their natural curiosities. The communication age and technological revolution have the capacity to erase the question mark. Developing life-long learners is an investment in our economic future. Technology is another tool that can be used to achieve this lofty goal. There must be a balance between all methods of instruction. Technology will take its place alongside all of the other tools that have been used successfully. The human touch and experiential learning are crucial elements to continue to employ. However, to keep pace with the changes in the world, we have to begin with people when they are young. The future is screaming, "technology" and we must act immediately. Once we do, the future is ours to write.