

COLLOQUIUM

The 4 Rs

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About 10 years ago, I had an experience that changed me irrevocably. I was teaching a class for K-12 teachers about using telecommunications in the classroom. After I described the expectations for the final project for the course, a student raised her hand and asked, "May I submit a video instead of a paper?" What followed in reality lasted only a few seconds. But in my mind, an indeterminably long confusion unfolded as old thinking and new paradigms chafed against each other like psychic tectonic plates. I couldn't just dismiss the student's request. After all, as director of one of the most rapidly evolving disciplines at my university, namely, educational technology, I was making a living teaching others how to incorporate the swiftly moving information age into their lives and classrooms. "Sure," I finally squeaked halfheartedly. I was just stalling as I tried to figure out what that moment meant.

I would eventually understand that this moment marked the beginning of my realization that a new world was upon us in which the written word, whether on screen or on paper, was no longer the primary way to present information or facilitate communication. This student was unique at the time because she was one of the few who had access to expensive, sophisticated video equipment. But now, with relatively inexpensive, easy-to-use multimedia-authoring technology becoming available in many U.S. schools, students combine words, pictures, sound, and movies in unified presentations. Because of the emergence of multimedia technology, we are being forced to expand one of the cornerstones of our academic culture. The 3 Rs are becoming the 4 Rs: Reading, 'Riting, 'Rithmetic, and aRt.

Multimedia technology is commonly understood to be all that cool "stuff" used to create the desktop equivalent of glitzy television. But it is much more than that. Multimedia technology is assistive technology for those who might consider themselves "artistically challenged." In much the same way that the world of writing prior to word processing had been limited to those who came to feel at home with the often laborious mechanics of penmanship or typing, the artistic world had been reserved for those who spent countless hours learning how to draw, paint, play musical instruments, and manipulate media. We became a two-tiered culture: those who created art and those who appreciated what others created.

Then along comes multimedia. Want to draw a straight line? Make orchestra sounds? Create a movie? Write a rap song? The tools of multimedia can make it all possible. Those who gave up trying their hand at creating art because of the work involved

finally get a chance to express themselves in ways they had only dreamt about. Artists used to working with traditional media have whole new palettes of tools with which to work.

Nowhere has the popularity of multimedia grown as much as on the World Wide Web, which offers many contributions to paradigm evolution. It allows the creation of distributed learning communities. It facilitates associative learning through the use of hypermedia (media that are linked). And it provides the first truly interactive form of mass media in which almost anyone can become a publisher. Yet its largest contribution goes largely unnoticed: it requires students to communicate as designers and artists. The citizens of the Web, who number in the many millions, employ the multimedia presentation as their Esperanto. The effect is to spread the language of multimedia throughout the international networked world. In retrospect, it seems inevitable that World Wide Web users would move away from language-dependent text and towards more universal languages like pictures to facilitate communication.

With the growing popularity of multimedia comes a proportional increase in the need for workers skilled in the language of multimedia. Thanks to our struggle to use multimedia effectively, the language of art is taking center stage.

There are three major components of this language: an understanding of the "grammar" of aesthetic presentation, loosely referred to as "design"; a grasp of the skills needed to manipulate media in meaningful ways; and the ability to use these skills to express a vision in terms others can appreciate. The three components are fully integrated within the domain of art, a field that, unfortunately, is currently considered outside the scope of an essential education. For years, art has been viewed as a skill only for the hobbyist and the hopelessly romantic, to be cultivated after mastering Reading, 'Riting, and 'Rithmetic.

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The age we live in has changed this forever. The rapidly growing domain of employment, in which presentation, media, entertainment, and education converge, now embraces the Arts out of necessity. Each of the 500 inevitable channels of video, the millions of incipient CD-ROMs, DVDs (Digital Video Disks), and World Wide Web home pages, as well as the new media we can't even conceive of, will be a cooperative effort, involving musicians, videographers, graphic designers, script writers, choreographers, creative consultants, and hundreds of other positions commonly associated with the Arts. In an equation: Art = Jobs.

During the inevitable transition period from text to multimedia, teachers will experience a loss of control. They will not be able to guide and evaluate student multimedia projects nearly as effectively as the text-based projects they are used to. I see art teachers working across the curriculum, teaching others the language and skills of art. The "writing across the

curriculum" movement of the past decade will be followed by a similar movement in which art is infused across the curriculum. There will be a long transition as the text-based culture that dominates the educational structure retires and makes way for one based on multimedia. But in time, students and teachers will be expected to communicate with a number of media in much the same way that they are currently expected to read and write effectively, regardless of their field of study.

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At present, the most pressing need is for graphic literacy: using pictures to communicate and present information. There are two primary reasons for this. First, the creation of graphics has been within our grasp longer than other non-text media and is, therefore, more commonplace. After all, expanding mass literacy to include graphics was the meta-message of the Macintosh revolution. Second, the transmission of graphics typically requires less memory, bandwidth, and other technological support than sound and video, which is why graphics and text currently dominate the Web.

But once video, sound, music, and animation are better understood in terms of their ability to communicate ideas and information effectively, and the technology that supports them becomes cheaper, more pervasive, and less specialist-oriented, art literacy will embrace all of these media and more. New media are certain to evolve, including holography, virtual reality, and others that we cannot presently discern, and promise to assume positions of pedagogical importance. Regardless of their forms, they will be folded into a multimedia context and learning the language of art will be essential for those who seek to use new forms effectively.

What will happen to the written word? As art and design begin to challenge the primacy of text, which has dominated our culture since Gutenberg, we should not fear that we will lose text. Instead, we will rediscover it. We will emerge from the current Age of Presentation with a better understanding of when text offers the best vehicle for communication, the ultimate goal in using any medium. Is all this a "good" thing? In trying to make sense of a world changing at an unprecedented rate, we need to remind ourselves that print only seems conservative because we have had half a millennium to get used to it. True, books seem to be a stabilizing cultural force. They offer inexpensive, readily accessible sources of information that don't break down or need 110 volts to work. But they have also created caste systems of literates and illiterates, wreaked havoc on indigenous, non-text-based cultures, and, in general, caused considerable social upheaval.

Similarly, multimedia technology and the new literacies offer us much, but for a price. Even though multimedia tools are relatively cheap, they are still presently expensive enough to be out of the reach of the information underclass that already ex-

ists, further separating the empowered and the disenfranchised. Also, using these tools demands new, technical skills that will perhaps blur the lines between commercial and fine art more than we would like. And while we routinely expect our students to develop an argument with text to convince the reader of a particular viewpoint, when they do so with multimedia, it looks suspiciously like advertising.

While many respond to the coming Age of Art with excitement when I talk about the 4 Rs, it is precisely the power of multimedia to overwhelm our senses and manipulate our emotions that worries discriminating consumers. Already sensitive to an entertainment industry that values special effects and battle scenes over dialogue and thematic substance, they want to know: Will using multimedia take the place of learning an artistic craft? Never. Will the general public come to accept technical dexterity in lieu of artistic vision? Perhaps. But, as the saying goes, while you can fool some of the people some of the time, you can't fool all the people all the time. While multimedia can act as assistive technology, it cannot take the place of vision, talent, or skill, whether developed or inherited. However one views multimedia, this new age of technologically driven communication makes clear the need for a critical analysis of the relationship between people, technology, and ethics in new and urgent ways.

But these are the concerns of the cognoscenti. Back in the real world, parents dominate the discussion of education in simple terms. They stick with the very understandable bottom line that I have heard them espouse since I entered education more than a decade ago: I want my kid to be able to get a good job. As education works to become more responsive to preparing students for the world of work, we must keep in mind that one of the true growth areas in the future will be the Arts. The literate, knowledgeable person will be expected to be well versed in the 4 Rs. If we are to be proactive and give our kids the skills they need, then art and design should become staples of K-12 literacy.

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