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| **Overview** | *John H. Strange* |

This issue of *Metropolitan Universities* contains a number of articles on technology and education that raise nine basic issues.

First, there is the issue of equity. In this group of articles, only Marcee Martin, in her article "Bringing Technology To Education: A View From The Superintendent's Office," identifies the equity issue as a serious one. But this issue concerns me greatly, and I would imagine many others as well. If educational institutions do not provide access for all to the new information technologies, and encouragement to learn to use these technologies, I foresee major redistributions of power and wealth that run counter to my personal value system. The new technologies are currently, at least to a very large extent, the domain of young white males. Blacks are especially under represented in the access to and use of the most powerful new information tools. If the equity issue is of concern, where else will it be addressed than in the educational institutions of this country?

Second, post-secondary education is playing a key role in assisting secondary education to implement the use of technologies in instruction, with major financial assistance being offered by the federal government. Mary Poston Tanner and Frederick W. Obear, in their article "Realizing the Potential of Educational Technologies: A Challenge to Metropolitan Universities," outline the efforts that are currently underway in Tennessee and through the University of Tennessee at Chattanooga. Carol Whelan in her article "Innovative Technology in Louisiana" notes the leadership that the University of Southwestern Louisiana, through its Educational Technology Review Center, has provided in assisting schools to use networks and multimedia for instructional purposes. Marcee Martin questions, however, whether post-secondary education is paying as much attention to the use of technologies in their own domain as they are in the domain of others. She reports she has ended the payment of tuition for university courses for her teachers because higher education talks about using technology in instruction but does not practice it. Charles Connell in his article "Information Age Challenge for Metropolitan Universities" details the efforts at the University of South Alabama (USA) to look at technology in a larger instructional context and suggests that similar efforts at other institutions will be rewarding and beneficial. He does not mention the fact that the efforts at his own institution have not been implemented. In my article "A Cultural Revolution: From Books to Silver Discs" I strongly imply that higher education is not adequately addressing the issue of internal reform in the area of technology.

Third, we find that a new effort has begun at the national level to engage higher education in the process of incorporating technologies into the instructional process. Carol Twigg in the interview titled "Implementing A National Learning Infrastructure," relates the efforts of EDUCOM to establish a National Learning Infrastructure Initiative (NLII), and invites educational institutions to be part of that ground breaking effort at change. The NLII seeks to generate new instructional software and faster and more powerful networks for the rapid transfer of multimedia data by encouraging the establishment of partnerships among universities, publishers, technology companies, and the public sector. EDUCOM's efforts offer some new and exciting possibilities for real change at the institutional level.

Fourth, multimedia are cited as a key part of the media of the future. In my article "A Cultural Revolution: From Books to Silver Discs" I contend that the new

generation of listeners/watchers can possibly be transformed into listeners/watchers/authors through the use of multimedia. Whelan describes uses of multimedia in Louisiana, and CD products published by the CD Press housed at her institution. Robert Kennedy, in the interview titled "Technology and Education: A View From the Outside," describes how multimedia has captured the attention of educators at all levels, and how the Internet is increasingly becoming a network of multimedia instead of text. Connell notes the importance of including multimedia in the plans developed for new technologies, and Martin is implementing a set of teaching strategies that make full use of new multimedia products.

Fifth, the Internet can play a key role in education now, and the new networks that emerge will be even more important. Kennedy, Whelan and Twigg describe in detail the powers of instant worldwide access to people and data as a learning tool. Twigg and Kennedy are especially convinced that the new, more powerful networks that we will have within fifteen years will lead us to revolutionary educational change.

Sixth, traditional methods for distributing information, including the book and classroom lectures, will be radically changed. In my article "A Cultural Revolution: From Books to Silver Discs," I contend that books will be replaced by silver discs. Although none of the other authors make so wild a prediction as that, Whelan, Martin, Twigg, Connell, and Kennedy certainly set forth numerous reasons, and offer many examples, that support the general thrust of my argument. In an article in the October 1993 *ASCD Update* that came to my attention yesterday, Karen Peterson, Technology Coordinator for Peakview Elementary School in Cherry Creek, Colorado, reported that in her school students routinely use computers to prepare multimedia projects or presentations....The addition of multimedia resources has also reduced the school's dependence upon textbooks as vital sources of information. We have no math, social studies, or science textbooks.   Maybe my prediction is not so wild after all! And libraries are becoming more electronic everyday. Whether books totally disappear or not, it is a certainty that education must radically rethink how it collects, stores, provides access to, contributes to, and uses information in the instructional process. Do we really need any more library buildings?

Seventh, the increasing use of video and sound is cited as a major development that will require new approaches in education. All of the authors deal with this issue in one form or another, and at one level of intensity or another. One special note that I would offer would be that last night one of my colleagues through the Internet had live motion pictures of five people on his computer. Only one of the five with whom my colleague was conversing had the appropriate equipment to send audio data live. One participant in this "conversation" was in France, another in Belgium. The others were in the United States. My colleague was using a $1,500 computer, a $99 camera, and free software called CU-See Me being developed by the Advanced Technologies and Planning Group of the Network Resources Division of Cornell University Information Technologies. The contact for information about the software is LISTPROC@cornell.edu. Demonstration sites include several science museums around the country, including the Ithaca Sciencenter and the Exploratorium in San Francisco. Kennedy predicted interactive video and audio conferencing over networks within 15 years. Early versions are happening now! The implications for worldwide conversations and learning are profound!

Eighth, all of the authors offer suggestions about how to get started. My two articles address this issue directly. Kennedy does as well, especially when he chides me for not exploring the Internet adequately. All the authors stress that read-

ing about these new technologies is not sufficient. You cannot stop with these articles. You must get out of your chair and use the new technologies yourself! And I suggest in my article "Seeking Guidance About Technology: Whom Can You Trust?" that if you do not know enough about the new technologies to evaluate the advice you are being given about them then you may make serious errors in your decisions. I contend you have to use the technologies and imagine a very different future.

Ninth, all of the authors are excited about what is happening. They urge you to join in that excitement, to learn first hand what they are talking about, to think about what all this means for you and your institution. The old ways will not suffice. You are encouraged to help invent the ways of the future.