Forces Shaping Education in the Next Decade
21세기 교육 방향의 결정요인에 관한 고찰

Richard St. John (English)

리차드세인트존 (교양영어)

ABSTRACT : Forces are currently at work that will have a clear impact on the direction that education takes in the next decade. The most obvious of these are: (1) the increased pace of globalized trade and the borderless nature of the movement of goods and services and transfer of investment funds. (2) the re-definition of the competencies required for being considered adequately ″educated″ to take one′s place in the workplace of the future. Since it is not within the power of educators to change this globalization reality, the paper examines its impact on how we educate our young people to be active participants in this global economy. The bulk of the paper, however, will focus on the shift in emphasis that the new curriculum will take in the decade(s) ahead and also the innovative means emerging to deliver that curriculum.

1. INTRODUCTION

To read the Seoul newspapers these past nine months, you would think Koreans were the only ones having problems adapting their educational system to meet the changing needs of the new world order. The emergence of the global economy (what Don Tapscot has called the ″digital economy″) has caused educators in many countries to examine the underpinnings of its educational system. What are these changing realities in the workaday world, and why do they require adapting of the present educational system?

2. EDUCATING FOR THE GLOBAL ECONOMY

The primary change is in the nature of the job market and what it takes for young people to equip themselves to add value to the goods and services produced in their country. At the root of the change is the fact that anyone doing business can pick up the phone or go on-line (via the Internet) and shop for the best quality at the best price. That means that with instant communication to line up the best deal and jet-age transportation to deliver it, the enterprise with the most competitive offer wins the market. That means that young people have not only to train for those types of fields for which there is a demand but also compete with others for their services to be chosen. The competition for jobs has set a tight agenda for today′s graduate, one in which academic grades and vocational training
performance are major determinants as well as a good balance of

participation in extra-curricular activities and volunteer work in the community. Obviously, the type of graduate the corporate world is looking for today must have skill sets different from what they were even five years ago.

There may be market forces of a global nature impacting on education, but I believe these are secondary to the momentous forces within the educational enterprise itself and intrinsic to the changing nature of the learning paradigm itself. What I wish to establish in this paper is a clear delineation of some of these changes. But first, a brief look at the type of skill sets that leaders in business and industry are looking for in the graduates they hire. In characterizing what it takes to fuel the "digital economy," Tapscott (p. 198f) enumerates a number of them: effective critical thinking skills, strong interpersonal skills, computer facility, collaborative teamwork skills, and a passion for ongoing learning. One that he mentions later only in passing, but which I believe is crucial to interpersonal skills in the global marketplace is cross-cultural awareness or what Hall (p. 115)calls openness to "situational dialects." This need for greater cross-cultural understanding becomes more apparent as people's "circle of inclusion" widens and they experience more and more cultural diversity in their contacts. Business educators are scrambling to incorporate the huge body of insights derived from Cultural Anthropology in their textbooks and case studies, a sure sign that Cultural Anthropology will have a strong place in the curriculum of the next decade.

3. RE-DEFINITION OF COMPETENCIES

To understand the next major force at work in shaping education in the next decade, we need only ask ourselves: what makes an enterprise competitive in times of rapid change? Why, innovation, of course. The Japanese have a word for it that captures its essence – keizen (continuous improvement). It suggests not only the idea of discovery but also the notion of perseverance to follow up on its development and refinement. Now innovation is not something that we can automatically program. The closest that educators can come to cultivating creativity among students is to put in place programs that ensure that students develop what are called "critical thinking" skills. One of the problems with schools traditionally has been that they tend to reward predominantly convergent modes of thinking (e.g., seeing entities as either right or wrong, good or bad) at the expense of nurturing equally important divergent modes of thinking (e.g., breaking the "functional fixed" pattern by thinking of some unconventional uses of common objects).

Cognitive scientists of every stamp have pointed out that piecemeal

knowledge of factual information is a very inefficient way to master a body of knowledge; instead, they advocate organizing information into larger "gestalts" by means of controlling principles that go to make up the "cognitive structure" of a subject. It is this sense of cognitive structure that enables students to conduct systematic inquiries into any subject they're studying. In the computer age when look-up skills are highly prized, acquiring the cognitive structure of core fields is vital. Not only does it enable students to search increasingly complex databases, but it also enables them to formulate intelligent questions. It is the dogged pursuit of answers to difficult questions and problems that calls forth the best work in creative enterprises. It is no accident that some of the most forward-looking companies in North America have incorporated the word "solutions" in their commercial name ("Creative Solutions," "Business Solutions," "Digital Solutions," etc.). They see the primary value they can offer their clients is solutions to their most challenging problems. In the past year, computers have doubled their speed and storage capacity, and network users have grown by close to 10% a month.

4. CONVERGENCE OF MEDIA AND ITS IMPLICATION FOR EDUCATION

At the heart of the "digital economy" is the convergence of computers, networks, and the content-packaging media. Fueling this economy are the raw resources of information, knowledge, and expert systems. The most interesting feature of the computer revolution is the way in which information levels have risen. Confronted with information overload, the best learners resort to pattern recognition. The enormous increase in the amount of information that can be quickly accessed from the memory storage of a hand-held computer will definitely force educators to shift the ratio between memory work and information processing skills. This is reflected in the revolution currently going on in the testing industry as test designers are moving to reverse the ratio of 90% content representing factual detail committed to memory and the 10% involving critical thinking and an understanding of how a specific domain of knowledge is organized and operates. This shift in emphasis involves acknowledging the brain's great capacity for reasoning and creative thinking in contrast to its limited memory storage capacity and limited ability to retrieve stored information. Hall (p. 195) reminds educators that "the fact that the brain is, among other things, a forgetting organ is seldom recognized in schools."

What are the implications of this for instructional design and delivery for students in the age of networked knowledge? The new curriculum will focus on using information content only as a means to develop in students the critical thinking skills, information processing and presentation skills, and

collaborative interpersonal skills needed for participation in the globalized workplace of the next century. In his 30-chapter book, Computers as Tutors: Solving the Crisis in Education

(http://www.yahoo.com/Education/Instructional-Technology/),Psychologist Fred Bennett makes a case for the "wired classroom" of the next decade.

5. NEW CURRICULA RESPONDING TO NEW TECHNOLOGIES

With the rapid advancement of Internet technology, students from various regions will be able to develop websites from which to interact and exchange information. Up till this past decade or so, history studies, for instance, tended to be limited to one's own country or those of neighboring nations within its immediate sphere of influence. With globalized trading now making it necessary for people to develop a better understanding of other cultures and become more sensitized to multi-cultural issues, there is a greater need than ever before to acquire a basic knowledge of the geography, history, and customs of many other countries and regions. Hall(p.88f) points out that the study of high and low-context communication styles in various cultures has already brought fresh insights to our understanding of differences in learning styles. Thus, survey courses in cultural anthropology will become a prominent part of curriculum in the next decades. This will only be part of the curriculum change students will begin to experience shortly. The traditional 3 Rs (reading, writing, and arithmetic) will come together as information processing skills and will be extended smoothly into the 3 Cs (critical thinking, communication, and computing), which will continue to provide a foundation for all forms of advanced learning. De Bono's CORT thinking skills program is now a decade old and has proven itself in a number of developed and developing countries.
  Advances in the technologies available to the three science domains (the physical, life, and social sciences) will give rise not only to stronger communication and collaborative partnerships but also to much greater use of simulation, experimentation, and expert system dialoguing in the learning and advancement of knowledge in these sciences.

6. THE INTERACTIVE MULTIMEDIA TECHNOLOGIES

Electronic technology is taking mental processing to new levels as the means for a new era in representing knowledge are being developed. We're currently witnessing the amalgamation of all previous media. In this dawning of the multi-media revolution, innovative software tools are enabling users to discover new ways to integrate print, graphics, photography, art, animation, video, audio, and programmed learning

technologies. New "virtual reality" applications are being created that replicate real-life experiences that, in effect, take one on a guided tour of an environment and allow one to interact with various parts of it. Multi-media are giving educators and trainers the capability of simulating very specific scenarios and involving trainees in authentic case studies. They enable educators to customize simulations, tailoring them to local conditions. Programmers deploying photo morphing, animation, techniques for editing graphics, video and audio clips, sound-effect mixing, multi-screen layering, and hypertext with multiple fonts, colors, and textures are using these tools to produce virtual reality creations that can take learners into any kind of artificial world (real or imagined) and present them with scenarios that test their decision-making, problem-solving, and conflict-resolution skills. Teachers can use button-driven hypertext screens and sound tracks to provide students with instant feedback on their performance. Such simulation tools are ideal for modeling a wide range of skill-based behaviors.

7. CONCLUSION

Bennett (chapt. 9) sees a cadre of master teachers emerging to collaborate with ppublishers to create the interactive, multi-media software of the next decade. Once adequate Computer Managed Instructional (CMI) software systems are in place, its authoring teamcan use the feedback they get from students' use of it to determine where students are experiencing the most difficulties and revise those units for clarity on a continuing basis. One point that Bennett makes quite convincingly is that all students can learn the basic skills of reading, grammatical analysis, and elementary math – subjects that require considerable drill work – much better by strong field-tested computer-managed learning systems than they can from the recitational work in teacher-led classrooms. He sees the big advantage in using computers to teach the mechanical skills requiring considerable individual drill work and to present factual information is that it frees up teachers to do what they do best: assign and mark written assignments, model and test creative problem-solving strategies in various subjects, structure opportunities for group interaction and discussion, and help students apply the skills and knowledge they're learning on computer to address real-life problems. Thus, learning moves away from being static learning of syllabi and becomes more task-driven and thus more relevant and dynamic to the student.

What is the role of teachers in this scenario? Teachers' jobs will not be eliminated, only changed. Though much of the learning will be student-centered, teachers will have the task of showing students how to

apply what they're learning and integrate it into their lives. One decided advantage of computerized education is that it will stimulate massive new studies into teaching methods and learning styles that are impossible today. The results of this research into learning processes can then be used to improve the quality of instructional techniques used in computer-assisted instruction programs. Undoubtedly there will be problems making the changeover, but, on the whole, the networked classroom of the next decade looks like a very promising venture.

REFERENCES

(1) Bennett, F., 1996, *Computers as Tutors: Solving the Crisis in Education.* Internet. http://www.yahoo.com.Education/Instructional Technology.
(2) De Bono, E., 1995. *Thinking Creatively.* Convergence Press, New York.
(3) Gilster, P., 1997, *Digital Literacy*, John Wiley, New York.
(4) Hack, S., May 1997, "Web-based Learning", *Educational Technology*, Vol.38, No.5, pp. 5~9.
(5) Hall, E., 1976, *Beyond Culture*, Doubleday, New York.
(6) Hirsch, E.D., 1996, *The Schools We Need*, Morrow, New York.
(7) Kerckove, D., 1997, *Connected Intelligence*, Somerville House, Toronto.
(8) Martin, M., 1996, "The Virtual Classroom", *Educational Technology*, Vol.37,No.5, pp. 51~5.
(9) Murphy, E., 1996, *Leadership IQ*, John Wiley, New York.
(10) Tapscot, D., 1996, *The Digital Economy*, Doubleday, New York.