

BIG POINTS FOR TEXTBOOKS IN THE ELECTRONIC ERA

We are witness a tectonic change in the way our civilization creates and keeps its information. Traditionally, since Gutenberg printed his Bible, we worked mostly with books. Especially in the classroom, the textbook remained the exclusive information environment for all purposes. However, in the last fifteen years the situation has started to change, and the change is dramatic. Students, in the developed countries and even beyond, now receive and create information more and more not from books but from the screens of their computers. The book as a standard record keeping media is losing its status. The scope of this truly global process is still yet to be understood. We can only begin to discuss some of its implications.

In these theses I suggest discussing two ways in which we should use the new information environment in the classroom. I refer here not only to high and middle schools but also to colleges and universities.

- I. We know how essential memory is for any learning process. We try to stimulate different sorts of memory in the minds of students.

Advantages of computer vs. book:

1.1 The book provides the platform for the interaction of student's alphabet recognition mechanism and the text in the book; through alphabet recognition and printed sign recognition the text stimulates and wakes up other sorts of memory (visual, olfactory, sensory, audio). We can describe this situation in the following terms. A book still represents a one-dimensional intellectual space. Electronic processing of information represents a multidimensional intellectual space in which we can activate all forms of memory that a student has: visual – through graphics, images, clips of movies or documentaries, or animations; audio – through music, sound or speech performance.

1.2 Another relevant difference is related to the linear nature of the book vs. the multidimensional nature of electronic space. I refer here to the simple fact that we are supposed to process the book from the beginning to the end. We might return back and jump to the end disregarding everything in between, but we still move in one direction, one line¹. In an electronic format, extensively using links, we can

¹ Since the early 1900s we try to overcome this quality with indexes at the end of books.

move through offered material in any direction we want, choosing our own parameters and coordinates for the movement.

1.2.1 More importantly, using links we can move (and choose) from one level of material to another; for instance, studying the history of the American Revolution, a student can, using links, jump to the history of other countries and compile for himself/herself a picture of these changes and events in a wider context, or entering the field of marine biology it will be possible to jump into data provided by marine archeology, or paleontology.

1.3 Interactivity of the computer generated text.

1.3.1. First, we can program the textbook in such a way that the student will be forced to interact (answer questions, fill blanks, multiple choice, provide dates and name places).

1.3.2 Second, we can introduce strong elements of the game in this interaction (for example, for small kids we can allow them to choose in the beginning among several potential mascots or cartoon characters that will accompany each one of them in this educational journey helping, answering questions, addressing their intellectual problems.)

1.3.3 Third, we can create in advance validation files for terms, concepts and main operational entities, thereby providing for the student a possibility to recall and consult these files during each step of the course.

1.3.4 Using these possibilities we could also indicate the most often surfacing mistakes in operating with these entities.

II Such a change in the technology of textbook and manuals publishing would require new forms of organization and financing. Perhaps the change will move us more to the type of organization and structure accepted in the production of movies or musical compact disks.

III Another venue for taking advantage of electronic information in the learning process might be the use of archival materials in humanities.

3.1 The temptation to use genuine documents in the learning process (in such courses as history, political science, social science, history of art and culture) is not something new. Education practitioners have been discussing it at least since WWII.

3.1.1 The main difficulty always was the reluctance of archival specialists to allow unprepared customers to handle documents which often are in a poor condition and invaluable at the same time.

3.1.2 Now with electronic technology we can overcome this difficulty by scanning archival materials and placing the images on the computer screen.

3.2 Students could read the scanned document, work with it: rotate, zoom, look for details, etc. An obvious advantage is that they can do it individually or collectively, during the preparation of their papers or independently to satisfy their intellectual curiosity.

3.2.1 It is worth providing through the computer not only the image of the historic document but also contextual data: portraits of persons who signed the document, dates, contextual events, then accepted technical means of distribution of the document, other documents generated in response to the first one, etc.

3.3 It should be noted that the proposed use of archival materials in the learning process through electronic media does not exclude the traditional use of historic documents in the archives, but rather stimulates students for future research in archival depositories.

- IV. Two venues for the use of electronic media in the learning process open for us a new area and the questions strongly outweigh the answers. However, it seems proper now to initiate the discussion of these issues and my presentation was prepared exactly with this purpose in mind.