A Brief Historical Analysis of Education


The current pace of technological change is outstripping the ability of our educational system to accommodate change. Our educational system is falling further and further behind in meeting the needs of the children of our society.

Of course, our educational system has changed a great deal over the years. This article presents a very brief overview of the history of education. The goal is to bring a fresh perspective to the difficulties that technology is bringing to that system.

**Ancient History**

Up until about 10,000 years ago, all people on earth were hunter-gatherers. Knowledge was preserved and passed on from generation to generation in two basic ways: 1) oral tradition; and 2) how to make and use tools. We can think of the educational system in those days as being an informal apprenticeship system. Most of the responsibility for education of children rested with the extended family and/or clan.

This early type of educational system had two important characteristics. First, it was a hands-on and practical. Knowledge and skills that were being learned tended to be of immediate use. Second, there was a relatively low student-to-teacher ratio.

Agriculture supported increasing concentrations of people and increasing specialization. A person might become quite skilled at making and using just a few specialized tools, and might gain a livelihood through such skill and knowledge. A more formal, crafts-type of apprenticeship educational system developed. A formal apprenticeship might extend over many years, but usually the apprentice was making useful contributions to the work of the "master" quite early on. The student-to-teacher ratio remained low.

After the agricultural age had existed for a few thousand years, the early rudiments of writing began to be developed. Initially, a typical city/state didn't need very many people who could read, write, and do formal arithmetic. The vast majority of the earth's population remained illiterate. While a crafts type of apprenticeship educational system continued to suffice, the seeds of change were being sown. The apprenticeship in reading and writing is long, and the apprentice is not of much productive value to the master in the early years.

**Accumulating Knowledge**

Over the centuries, knowledge continued to accumulate. This led to increased specialization. It also, very gradually, led to an increased value in learning the rudiments of reading, writing, and arithmetic.

Finally, in our current millennium, came the great breakthrough. The development of [alphabet-based] movable metal type for the printing press and relatively inexpensive paper led to an explosion in the availability of books. (As an interesting aside, it is estimated that 20 million copies of books were printed during the first 50 years after Gutenberg. Contrast that with
It takes many years of study and practice to become functionally literate in reading, writing, and arithmetic. Time spent teaching a child to read and write is time that both the child and the teacher cannot spend milking the cow or tilling the crops. It can be argued that a search for more cost effective ways to help children learn the three Rs led to our current educational system. The current design facilitates a relatively high student-to-teacher ratio.

A very important aspect of this emerging formal educational system was the growing level of formal education in families. Family members could aid their children in learning the three Rs. This allowed the family to continue to play an apprenticeship role in education.

Modern Times

This brings us up to relatively modern time. The historical patterns of knowledge accumulation have continued and there has been a steady acceleration in this rate of accumulation of knowledge.

In addition, several major changes have added to the difficulties of our educational system. First, in certain countries such as in the United States, there has been a substantial change in the nature of the family makeup and its time structuring. Single parent families and families in which both parents work long hours outside the home decrease the educational apprenticeship role of the family. Second, computer-related technology has come into our society very rapidly. Thus, relatively few parents have the computer-related knowledge and skills that their children are being exposed to in schools. Third, computer hardware and software are relatively expensive and have great diversity. Thus, even when the family has needed knowledge and skills, it may lack the appropriate hardware and software to fit well with the educational needs of the child.

There are still other major difficulties that computer technology has brought to education. The pace of change has far outstripped the resources of the inservice teacher training system. The mechanism for making major changes to curriculum is not designed for rapid change. The assessment system is not designed for rapid change. Budgeting processing and equipment replacement processes are not designed for rapid change.

The net result is that we have had a simultaneous breakdown in the abilities of both the home and the school to help children obtain the computer-related technology education that they need.

No Simple Solutions

While the problem seems clear, solutions do not. It is evident that the rapid pace of computer-related technological change will continue for many years to come. Thus the dual problems of the family apprenticeship system-knowledge and facilities-will continue. The problems faced by teachers and the formal educational system will also continue.

However, there are many things that we can be doing. Some will be discussed in future articles in this series. As food for thought, think about the idea that parents and teachers might be apprenticed to children-the children might play the role of masters!