One Consequence of the Information Age


According to John Naisbitt, in the United States the Information Age officially began in 1956.

Outwardly, the United States appeared to be a thriving industrial economy, yet a little-noticed symbolic milestone heralded the end of an era. In 1956, for the first time in American history, white-collar workers in technical, managerial, and clerical positions outnumbered blue-collar workers. Industrial America was giving way to a new society, where, for the first time in history, most of us worked with information rather than producing goods.

While the milestone was passed in 1956, the trend has not stopped. The number of blue-collar jobs in the United States is now less than 20% of the total and is still declining. The magnitude of the change is not unlike the change that occurred as the United States moved from being an Agricultural Age society to being an Industrial Age society. When the Revolutionary War began in the United States in 1776, about 90% of the population lived on farms. Now, about 3% of the work force are classified as farmers.

It is relatively easy to count the number of workers in different categories. It is more difficult to understand the meaning of the changes that have occurred. And it is still more difficult to design an educational system to appropriately meet the needs of people in this changed society.

Part of the difficulty lies in the widespread acceptance of certain models of success. To a large extent, we have come to believe that almost everything worth measuring in school can be measured by a multiple choice test. Moreover, we tend to believe that such “objective” tests are reliable and valid measures of what we are attempting to accomplish in school.

There is an interesting parallel here with what is going on in educational research. A large amount of current educational research can be divided into two categories—quantitative and qualitative. The quantitative researchers are the number crunchers. They measure things and carry out statistical computations on the results. The qualitative researchers draw on careful observational techniques from anthropology. They observe, and they provide “rich” descriptions of what they observe.

A quantitative study may gather data on hundreds of subjects and report results as being significant at the .05 level. A qualitative study may gather data from one or just a few subjects, and it will report results in a long, carefully written document.

Interestingly, both methodologies of research can be applied to almost any educational problem. Moreover, it appears that the pendulum is swinging from quantitative research to qualitative research. More and more educational researchers are acknowledging that many educational research problems are better addressed by qualitative methodology or by a careful blend of the two methodologies.
Teachers have long known that both quantitative and qualitative methodology is needed in the assessment of students. They realize that there is a substantial difference between the numbers in a gradebook and the mental model they have of a student. However, the (Industrial Age) educational system has forced teachers to place the greater emphasis on the quantitative model of student performance. It is a rare teacher who adds more than a few sentences to the student grade report at the end of a term. Generally, the permanent record is merely a number or a letter—quantitative data that may be completely divorced from the mental model that the teacher has formed of a student and the student's performance.

Now we are at the essence of a major educational problem. Computers make it even easier to gather quantitative data and to represent a student as a set of numbers. A computerized gradebook may help in this process. Indeed, the computer system may even include a list of “canned” comments that a teacher can select and have added to the grade report. These are stock phrases that give an illusion that the teacher is providing individualized, carefully-thought-out comments about a student.

Some proponents of computer assisted instruction point to the record-keeping abilities of the computer and the ideas of computer managed instruction. In computer-assisted instruction, we can keep detailed records on every keystroke the student makes, and we can subject this data to careful statistical analysis.

The problem is, we have very good and increasing evidence that this quantitative model of education is inappropriate and inadequate. If the model is inadequate, no matter how good we get at quantitative measurements of student performance, we will not succeed in making major improvements in education through this approach.

There is an excellent discussion of quantitative and qualitative educational research in the October 1989 issue of Educational Researcher. It is written from the point of view of a researcher in the year 2009 looking back to 1989 as a time of major change in educational methodology. The article suggests that researchers will come to understand that both methodologies are quite important and in most instances need to be used in conjunction with each other.

Let’s assume that this prediction is correct and that the same holds for the “mini research” that each teacher conducts on each student each term. Then the research report that a teacher writes on a student (the end-of-term grade report) should be based on a carefully crafted combination of quantitative and qualitative methodologies. The report should be a blend of succinct “statistical” statements and “rich” description.

This gives teachers and teacher unions a target to shoot at. The size of classes and the demands placed on teachers must allow teachers to use both quantitative and qualitative methodologies in determining and reporting student progress. This is a simple statement with far reaching implications. For example, it suggests that teachers need careful training in both quantitative and qualitative methodologies and in the reporting of results obtained from use of these methodologies. It means that if we want to permanently store student records, we need facilities that store both quantitative and qualitative reports. It means that we need to educate school board members, taxpayers, parents, and legislators on the merits of this more broad-based perspective.
The task is formidable. The general public has been educated to expect reports such as, “The SAT scores for the school district were up two points over last year.” Such reports do not question the meaning or value of the SAT. They do not reflect that perhaps teachers have been “teaching to the test” or that students have had increased access to computer software specifically designed to improve SAT scores. They do not reflect the large and increasing percentage of students who do not take the SAT test (they have long since dropped out of school) and for whom such measures are totally inappropriate.

What can we do about this? Here is a little piece of an answer. You, the individual teacher, can begin to experiment with qualitative methodologies. Select a single class or a few students in a class. Begin to create a “rich” description for the students you select. If you want to use a computerized gradebook, select one that allows you to type in substantial comments on a daily basis. At the end of the term, compare your qualitative description with the quantitative description. Begin to think about the similarities and differences between the results. Pay careful attention to how this different methodology can help you be more effective. You will likely discover that this new perspective on student evaluation is making you into a better teacher!

References