Standardized Testing and Computer Assisted Instruction


There is one sure way to get a rise out of the students in my graduate computer education courses. Just mention standardized testing and the increasing role it seems to be playing in education. Most of my students become quite agitated in thinking about this, and some become downright hostile towards the school systems where they work.

Students face a barrage of standardized tests, beginning in grade school and often continuing on into graduate school. Moreover, some teachers are now being evaluated by how well their students do on standardized tests. Increasingly, teachers themselves are being required to take standardized tests, either to obtain a teaching certificate or to maintain their teaching certificate.

The educators I work with give a variety of reasons why they are troubled by the major emphasis on standardized testing. Reasons given include that such testing is a waste of time, irrelevant to the curriculum, focuses too much on lower-order skills, and is a major force moving education in an inappropriate direction. The tests seem to be driving the curriculum—teachers are teaching to the tests and students are studying methods specifically designed to raise their test scores.

Interestingly, I pick up nearly similar feelings of disquiet and fear when my students discuss computer-assisted instruction. Much of the CAI material is rather superficial, focusing mainly on lower-order skills. Deeper aspects of the human elements of teaching remain elusive to most CAI developers. There is a distinct possibility that eventually the content of CAI-based courses will become the curriculum.

Standardized Testing

Generally I maintain a neutral stance in discussing standardized testing. I have some understanding of the processes that have been followed in developing and evaluating the test items. I know a little about validity and reliability. And, of course, I understand some of the roles that computers now play in the overall process of developing standardized tests.

In recent years computers have played an ever-increasing role in standardized testing. Two trends are evident. First, there are large databanks of possible test questions, along with item analysis and other statistical data that have been gathered through use of the test items. Thus, it is growing easier to create standardized tests or other tests with specified characteristics. Second, an increasing amount of testing is now being done online. In one type of online testing, called adaptive testing, the computer system adjusts the selection of questions to the particular person being tested, making changes based on performance during the test.

Adaptive testing has many characteristics of computer-assisted instruction. Indeed, much of the CAI that is currently available can be considered as tests, with some feedback and perhaps some remedial instruction being provided while the test is being taken.
Perhaps it is the close similarity between objective testing and routine drill and practice CAI that agitates so many of my students? In both cases, a large part of education seems to be reduced to a lower-order skills, multiple choice or short answer format. The multidimensional aspects of a good student/teacher rapport are missing, along with much of the richness of a good classroom environment. Many educators find this objectionable. They know education has many important dimensions that cannot be measured through such a testing format.

**Coachability of Objective Tests**

Recently I read None of the Above: Behind the Myth of Scholastic Aptitude written by David Owen. In large, it is an attack on the Educational Testing Service and their widely used test, the Scholastic Aptitude Test (S.A.T.). But at a deeper level it questions all standardized tests. It is a powerful book, and I strongly recommend it to all educators.

There are a number of important points discussed in Owen's book. One is the nature of the standardized test questions themselves, and the fact that many questions are subject to multiple interpretations. Thus, one has to have or to develop a mindset somewhat similar to those who create the questions in order to interpret the questions in a manner leading to "the correct" answer.

But a deeper problem that Owen raises is the "coachability" of standardized tests. It is possible to teach to the test or to coach students so that they will do well on a particular test. A number of companies publish books that are designed to help students improve their test taking ability, and many of these books are geared toward a particular test such as the S.A.T. Indeed, there are now a number of pieces of software designed for the same purpose. Some companies advertise the purchase price will be returned if the user doesn't make a certain specified gain in their S.A.T. test score.

Owen discusses several companies that run short courses specifically designed to help students learn to make higher scores on specified standardized tests. In these courses, students learn a wide range of tricks, almost none related to increasing their understanding of the material being tested. It turns out that because of the way standardized tests are created and the way that the test constructors think, it is possible to correctly guess answers to many questions without even reading the questions!

Earlier in this editorial I suggested that the feelings my students have about standardized testing and about CAI seem to be similar. Owen's has increased my understanding of this issue. The real world does not consist of a sequence of objective questions, where success is measured by one's ability to select the one correct answer from a short list of choices. But both standardized testing and most of the currently available CAI view the world in exactly this manner. Thus, both foster teaching to the test, teaching objective test taking skills, and rewarding students for developing a good objective test mentality.

**A Confrontation?**

The problem of an objective text approach to education is not easily solved. Objective testing has become institutionalized, and it is now a driving force in our educational system. Moreover, most currently available CAI seems designed to contribute to this approach to education.

I suspect that eventually there will be a major confrontation between the forces that support standardized testing, objective testing, and objective oriented CAI, and those who feel that this represents a major threat to education. Currently I side with the latter group.
References