

Following the Money: Responding to the Pressures of the Educational Testing Marketplace

William G. Harris
Association of Test Publishers (ATP)
Washington, DC

An earlier version of this paper was presented as part of the symposium, "What is Going to Make Educational Testing Better in the Future?: Our Prediction," at the NCME Annual Meeting in Montreal, Quebec, Canada. April 20-22, 1999.

In many markets, including the educational market, investment experts are usually in the best position to discern market trends and direction. These investors see the U.S. educational system being re-engineered to meet the pressures of global competition, an ever evolving knowledge-based economy, and the demands of a world driven by the omnipresence of digital technology. Alan Greenspan, Chairman of the Federal Reserve Board, notes that "human skills are subject to obsolescence at a rate perhaps unprecedented in American history. (see [Gay & Moe, 1996](#))." Astute investors and business leaders echo his concern. One investor, [Michael Milken \(1994\)](#) insists that, "with the emergence of the information age, the strength of a country is based on knowledge. National greatness will arise not from our natural resources or our factories, but from our people--people with new ideas and skills." Although these two sophisticated observers may differ philosophically on the type of securities to add to one's investment portfolio, they are in total agreement that an innovative educational system is vital to a strong, vibrant economy.

These quotes of Greenspan and Milken offer valuable insight into the possible direction of the U.S. educational system. One interpretation is that as the economy shifts full gear into the information age, it will set in motion a volley of changes in our educational system. This interpretation appears relatively risk free. In other segments of the marketplace, movement towards a knowledge-based, net-centric economy is already prompting traditional business models to be discarded for new models. For example, International Data Corporation expects online revenues to skyrocket from \$32.4 billion to \$425 billion by 2002 (Block, 1999). This huge jump in revenue from E-commerce businesses and investors' unabashed willingness to speculate on any security with ".com" in its name are prominent signs of a new economic direction. Such signs confirm the permanency of this shift.

This new economic order clearly changes the way in which business occurs. The businesses driving this new order are expected to put similar pressure on the way in which education is delivered and taught in the United States. The pressure from the business community affects all aspects of the educational marketplace, from the management of the education process to the assessment of the scholastic achievement of each student. Some investors liken the changes occurring in education to those that occurred twenty years ago in the healthcare industry. Analyzing the similarity in the transformation of these two markets is unfortunately beyond the scope of this discussion. This view does, however, suggest that more and more of the educational effort in the foreseeable future will be managed by commercial organizations with a strong profit motive.

As business pulls education, education will pull the test publishing industry into the new economic order. The U.S. educational system represents the largest consumer of tests and assessment tools. As such, it stands to reason that educators and administrators of a newly reformulated education system will place greater pressures on test publishers to develop new tools to assess the progress of students, schools and programs.

Since understanding the direction of testing is so heavily dependent on knowing which direction the educational system is headed, a further analysis of the quotes of Greenspan and Milken is in order.

The key resource fueling this new economic order include information, education and training. Workers, commonly known as knowledge workers in this new order, are expected to possess the necessary skills to acquire, deliver, and process information. These and other skills demand focused training and an educational system capable of meeting the challenge of a knowledge-based economy.

It is a well-established fact that 65% of all jobs in the U.S. by the year 2000 will be for skilled workers (Gay & Moe, 1996). The change in the percent of skilled workers needed over the last 10 years is 20%. Even today, these workers require regular training and education to maintain key skills and to add to their skills set. The skilled worker shortage in the Information Technology (IT) field is substantial, with more than 10,000 jobs unfilled. IT companies are hiring qualified workers from other industries and retooling their skills for the IT industry. This shortage of knowledge workers is expected to become even more acute over the next several years.

A skilled workforce is critical to the new economy. The economic architects are inclined to secure an effective workforce either by harvesting qualified workers from the U.S. educational system or by attracting immigrants with the requisite skills to the U.S. These quotes from Greenspan and Milken also suggest that training and education will span a worker's lifetime and that a knowledge-based economy demands an educational system nimble and agile enough to provide quality services throughout the life cycle of a worker. Implicit in this demand to re-engineer the educational system is the need to find new ways to deliver educational services in a timely, cost-effective way. Part of this need is to find ways to make testing a natural component of the educational process. The seamless inclusion of testing, including E-testing into the process becomes possible with the development of E-education formats.

Revamping the educational system requires the introduction of new learning platforms. Efforts to develop these platforms are centered on using the Internet and multimedia formats. Although many of these nascent efforts merely regurgitate textbook information on a computer screen, innovative uses of digital technologies to create new learning experiences are beginning to emerge. Still, it is important for the cognitive sciences to understand thoroughly the ways in which learning occurs when humans of all ages interact with machines. These new learning platforms provide test publishing with an opportunity to construct new testing platforms that exploit the richness and the uniqueness of digital technology.

Investors seeking to capitalize on a changing educational market are armed with more than an awareness of a new knowledge-based economy and a digital technology explosion. A recent Wall Street Journal/NBC News Poll shows education is second to the economy as a national priority (Gay & Moe, 1996). Using 1996 data, the U.S. spends more than \$600 billion dollars annually on education services. In absolute terms this dollar amount is more than the expenditure of any other country in the world. It is more than the GDP of Spain, Canada, or Brazil. Investors also realize that only 50% of all public school funds find their way to classroom employees and only 3% of these classroom funds are spent on books and materials (Gay & Moe, 1996; Block, 1999). Included in this 3% are funds directed at purchasing test and assessment materials. Obviously, investors are not drawn to a market when they anticipate only average returns on their investments, but investors are keenly aware that some educational service corporations are growing rapidly. Many corporations in educational management (e.g., Apollo, DeVry), in specialty services (e.g., Sylvan, Learning Systems, Kaplan Educational Centers), and in education content (e.g., Edmark, Scholastic Corp, National Educational Corporation) are producing annualized rates of return that rival the S&P 500.

Other events buoy investors' enthusiasm for the education market. Michael Milken, with significant support from Larry Ellison, the CEO of Oracle, is actively engaged in this market with the creation of Knowledge Universe (KU). This nonprofit organization is capitalized at \$1.2 billion dollars. KU plans to benchmark its digital educational services against leading universities in the U.S.. Knowledge Universe is now a leading organization in providing tutorial services for IT certification programs. Another promising event is the recent accreditation of Jones International University (JIU). JIU is accredited by the North Central Association of Colleges and Schools to grant a baccalaureate degree. JIU is one of the first exclusively virtual universities with no brick and mortar facilities available to students. Columbia University's School of Business is providing course materials to the Internet company, UNEXT.com. For its contribution to UNEXT.com, Columbia University expects to receive an equity position in the company's initial public offering (IPO). The Washington Post Co. is offering the entire coursework for a degree in law through Concord University. These are only a few examples that help to explain the growing investment interest in the education market and provide further evidence that testing must position itself as an important component in the educational value chain.

GROWTH DRIVERS FOR TEST PUBLISHERS

The excitement within the investment community about the education market extends to the test publishing community. There are several signs that point favorably toward increase investment in test publishing. A knowledge-based economy demands more testing rather than less testing. In recent years one of the fastest growing segments of the test publishing industry is certification-licensure testing. This surge in testing comes at a time when many occupations are creating specific education and training requirements for workers before considering them as competent.

Much of the testing in the certification-licensure market is computer-based. Moreover, testing in the IT market segment is moving rapidly toward Internet-based testing. Once the test security issues of the Internet are adequately addressed, it is expected that most testing programs will develop versions for E-testing.

Qualifying examinations such as the GMAT and TOEFL are currently available on demand and in computer-based formats. Other standardized educational tests are available in digital formats or are being readied for use in a computerized version. The logistics of rolling out many of these tests solely in digital formats is still problematic. However, the need for immediate test results and feedback will undoubtedly prompt a move away from paper-and-pencil to technology-driven formats.

Herein lies the challenge and opportunity for the test publishing community in the new order. In this new order test publishers must create new item formats, improve the diagnostic capabilities of the report function of their tests and, in some instances, provide customized training interventions for test takers. In some segments of the test publishing community, new item formats are in use. In IT certification testing "drag n'drop" items and simulation exercises are either replacing or complementing traditional multiple-choice items. For E-testing to overtake traditional methods of testing, more innovative forms of sampling a test taker's understanding of a specific content domain are needed. One possible approach is generative testing. Although this method of item construction is based largely on the multiple-choice format, the principle that underlies generative testing is applicable to other item formats. Each item presented to the test taker is generated instantaneously. This item creation effort includes the item stem, the correct answer, and a set of distractors. The total number of items presented to a test taker is determined by an IRT or similar algorithm. Generative testing offers a new layer of test security and is highly amenable to a digital format such as the Internet.

The emphasis on E-testing means that current test and assessment tools will probably be replaced by electronic versions or by new tests with exclusive online use. The cost to test publishers to develop or convert tests to digital formats will be high, but ignoring the full range of

online capabilities will only open the door to new competition from nontraditional test publishers. The Internet and the new economic order lowers the obstacle for new entrants to compete in the test publishing market. This access to key segments of the testing market makes it imperative that test publishers begin to redefine the competition and act accordingly.

E-testing must accomplish several key objectives to establish itself as a financially attractive component in the remaking of the U.S. educational system. Cost containment is a requirement, but it must not interfere with providing high quality E-testing services. Moreover, these services must eliminate distance and time barriers. E-testing must also become an integral element in the accountability equation of the transformed education system. This may require the development of different types of tests to assess a range of questions from student academic performance to the educational progress of a nation. Adding complexity to the accountability issue for test publishers is the growing trend toward the privatization of education. Test publishers must ensure that the privatization movement does not close them out of key portions of the market.

Whether an individual is using an on-demand software training program or a distance learning internet course of study such as calculus, there is still a need to assess the individual's comprehension and mastery of the material. In a digital format training and testing will be viewed more as subfunctions of a larger process than as separate, discrete operations. The growing popularity of on-demand, Internet-based coursework will increase the need for tests that offer relevant diagnostic information about a test taker and provide tailored strategies for overcoming deficits in the test taker's understanding of the course materials. Tests that are capable of producing only scores will become irrelevant in an Internet environment.

The more diagnostic, individualized, and developmental test information becomes, the more valuable testing will be to the education market. Offering deep insights about a test taker's skills and abilities in a manner that is relevant and immediate will help to mitigate the stigma that often swirls around testing. It is conceivable that interactive, digital testing will be regarded as a force that motivates all test takers rather than as dampening the motivation of some.

Building test and assessment tools to meet the demanding challenges of a revamped educational system makes test services and publishing organizations a good business and a good investment.

References

Howard, B. M. (1999). *The age of knowledge: The growing investment opportunity in education, corporate training and child care*. San Francisco: NationsBanc Montgomery Securities.

Gay, R. K., & Moe, M. T. (1996). *The dawn of the age of knowledge: The emerging investment opportunity in education*. San Francisco: NationsBanc Montgomery Securities.

Milken, M. R. (1994). *Fueling America's Growth: Education, Entrepreneurship and Access to Capital*. Los Angeles: Milken Institute for Job & Capital Formation.

