

Great Expectations.

By Anthony Paustian, Ph.D.

Diversity. In its most common form, its definition reflects current Equal Employment Opportunity (EEO) law that narrowly defines diversity in terms of race, gender, ethnicity, age, national origin, religion and disability. Broad definitions may also include sexual orientation, values, personality characteristics, education, language, physical appearance, marital status, lifestyle, beliefs and economic status. (NCRVE, 2003)

When identifying changes in student composition, educators today traditionally refer to these forms of diversity. Subsequently, efforts within education tend to be focused on improving the process of valuing, managing and working with diversity as it has been traditionally defined. However, I believe an additional, and often underappreciated, form of diversity exists, one that is rapidly growing in today's college classrooms and is especially related to the use of technology. I call this Diversity of Expectation.

Diversity of Expectation refers to the rapidly growing variability of what students expect and require in terms of an acceptable learning process and environment. With changing demographics and psychographics, student needs and perceptions can no longer be assumed nor can a faculty member use a single teaching strategy to reach an entire class.

I am reminded of two advertisements that I recently came across in a couple of technology journals. One was from the Adobe® Corporation which featured a young Asian American schoolgirl with a laptop, PDA, cell phone and digital camera. The caption read, "Ready or not, here they come," followed by the sentence, "If you think today's college students are tech-savvy, wait until you meet tomorrow's." The other advertisement was from Hewlett Packard® Corporation which featured a young African American schoolboy with a PDA in hand and a digital mobile learning cart in the background. The



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caption read, "There's no one way for a class of 22 kids to learn. There are 22."

Both of these advertisements present the growing racial diversity that exists in schools today. However, I also believe that both ads shed light on the changing expectation for the use of technology in the classroom as well as the growing divide between students and institutions of higher learning.

Prior to 1977, computers were large behemoths that filled entire rooms for what today would be deemed as basic computing processes. Computers were routinely viewed by people as technological wonders and were frequently highlighted in things ranging from the Apollo moon missions to science fiction entertainment such as "2001, A Space Odyssey" and the original "Star Trek" series.

Since that time and the introduction of the first highly successful mass-produced personal computer, the Apple II in 1977, however, children have been born and raised within the context of personal computers that brought computing power to the mainstream. Today, anyone who wishes to own a computer can, which has ultimately changed how it is being used and perceived, especially by children.

Through empirical evidence and observation, I would also go so far as to suggest that we have arrived to a point today where some children even view personal computers and computer-based technology (i.e., digital cameras, MP3 players, Game Boys®, Sony® Playstations®, etc.) as nothing more than appliances, similar to microwave ovens and televisions; they are machines that serve a purpose, a means to a desired end.

According to research by Diana Oblinger (2002), today's younger "Information Age" students tend to share the following common views: the Internet is better than television; doing is more important than knowing; multitasking is a way of life; typing is preferred to handwriting; staying connected is essential; reality is no longer real; and they have zero tolerance for delays. Where as a Baby-Boomer might view a computer as "nice to have," a person from a later generation views it as a "must have."

There's no one way for a class of 22 kids to learn. There are 22.

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In other words, as the college classroom becomes more diverse according to how diversity has been traditionally defined, so does the degree of perception relating to how technology should be used in that classroom and within the educational delivery process. This Diversity of Expectation in terms of technology ranges from students who have little or no computer background to students who expect in some way all things digital.

I believe that few would disagree that the context of students today is changing in the classroom and that there is no longer the “typical” college student for whom to design classroom delivery models. Over a span of almost 30 years (from 1970 to 1999), college-based enrollment has changed dramatically: two-thirds of students now attend two-year colleges, the number of part-time students has increased from 28% to 39%, the number of women in the classroom has increased from 42% to 56%, the number of students older than 25 years of age has increased from 28% to 39%, 73% of all undergraduate students are non-traditional, 27% of students have dependents and 80% are employed (which is certain to continue growing with increasing tuition costs) (NCES, 2002).

With the demands of their employment and personal lives, many students are finding it increasingly difficult to maintain regular attendance in a traditionally structured class and/or lecture schedule. Therefore, institutions of higher learning must provide increased flexibility and access to meet the changing needs and subsequent demands of today’s learner.

Learning theory research reminds us that students of all ages learn better when they are actively engaged and interacting with their learning materials. Such interactivity involves the student at a higher energy level, which enables improved recall and application and is more likely to sharpen critical thinking and problem solving skills required by business and industry. (Mercer, 1999)

However, sometimes faculty members are challenged to find new ways to engage today’s learner. In a 1993 article, “New Students – New Learning Styles,” Charles Schroeder extensively discusses the frustrations faced by many faculty in post-secondary education in the 90s. He details the mismatch in learning styles between the faculty (most from the Baby Boomer generation) and students (most from the Generation X group) as the primary contributor to that frustration. Although the article is now more than a decade old, I believe the only difference today is an even wider gap in learning and lifestyles combined with a rapid increase in consumer adoption of technology as a part of daily life. For example, to achieve a 25 percent penetration rate in U.S. homes, it took 35 years for the telephone, 26 years for television, 16 years for personal computers, 7 years for the Internet, and 3 years for personal digital assistants (PDAs). (Daggett, 2003)

Mobility and flexibility also seem to be primary requisites of the adoption of technology. In the first quarter of 2003, global sales of cellular telephones are up

18 percent over the same time last year, and over 40 million phones are being sold each month. (American City Business Journal, 2003) A study by Cellular One (Business Wire, 2000) found that over half of all college students own a cell phone, and of those who did not, about 60 percent said they were going to purchase one. The “connectivity” that the phones provide seems to be one of the primary attractions of the phone as almost two-thirds of all college-level cell phone users reported a monthly income of less than \$1000.

A study by the Intel Corporation and Gartner Research (2002) found that consumer laptop PC sales are the fastest growing segment in the PC market. Consumers will also have purchased one-third of all notebooks sold in 2002 which represents an increase over prior years. Over the next four years, laptop sales are expected to grow at almost twice the rate of the overall PC market, and 92 percent of corporate travelers use a laptop when traveling.

According to CDG (2003), sales of PDAs and handheld computers are growing at a rate of about 35%, and the trend is expected to continue as the technology continues to improve. *InformationWeek* (2003) reports that consumers are responsible for over 70 percent of PDA sales. Greater degrees of convergence and integration are also occurring in the handheld industry as manufacturers incorporate other digital lifestyle necessities with their products, such as digital cameras, MP3 players and telephony.

According to *Hospitality Technology Magazine* (March, 2002), Starbucks plans to roll out wireless connectivity for up to 70 percent of Starbucks company-owned retail stores across North America. Campus Computing Survey (2001) reports that of the 600 public and private colleges and universities nationwide, 50.6 percent have wireless LANs, up from 29.6 percent in 2000.

Finally, the extremely rapid growth of Web-based and Web-enhanced learning further supports the notion of changing paradigms towards flexibility and mobility of the classroom. The Ohio Learning Network (OLN), a partnership of Ohio colleges and universities, has seen online enrollment growth from approximately 2500 students in 1999 to over 30,000 students in 2002 with the number of courses increasing from about 500 to about 3000 during the same period. Illinois Virtual Campus (IVC), a partnership of Illinois colleges and universities, had 34,549 course enrollments in 2,932 classes in the Spring of 2002. This represented a 75% increase from Spring 2001. Capella University has seen its online enrollments grow at an average annual rate of 85%. (Oakley, 2002)

These examples all point to a growing expectation for the increased use of technology within a fluid learning environment. M-Learning (Mobile Learning) is rapidly growing within the higher educational context and currently can be seen in two varieties. The first is known as “on-the-go” in which a student can interact

with learning materials or classes via a detached device such as a PDA or laptop. The student can then up- and download data, records and changes when back on campus, in the office, or at home via a physical connection. The second form of M-Learning involves “connected wireless” where students have continuous network access within specified geographic boundaries defined by the network either in a Local Area (LAN) or Wide Area (WAN) network context. For example, Carnegie-Mellon University has installed wireless access points campus wide so that more than 2000 students can wirelessly access the network simultaneously while on the campus grounds. (SVI, 2002)

Technology can obviously transform the learning process, however, that process must be supported by new models of teaching and learning. Technology in and of itself should never dictate curriculum, but instead be integrated into it. Technology should be used to enhance and facilitate the instructional delivery process according to the needs and demands of varying student groups. Classroom control also appears to be shifting. Students are expressing a greater need to be in charge of their own learning as well as to be involved in the decision making about how technology will be used in the learning process.

The divide between student expectations and classroom delivery models is growing, and this gap is further accentuated by the fact that schools themselves are not shaping and creating the expectations. It is the broader “virtual society” that models the value and potential. Schools are left to try to deliver with resources and expertise that is often behind the curve.

Our basic teaching paradigms are going to fundamentally change, and that change will be pushed bottom-up by the expectations of tomorrow’s increasingly diverse students. A greater emphasis on instructional design will be required at all levels combined with a need for enhanced resources for technology as part of the learning process. Training in this technology and in current learning theory will also be a must for both faculty and administrators.

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