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Boomers & Gen-Xers Millennials

UNDERSTANDING THE NEW STUDENTS

By Diana Oblinger

An essential component of facilitating learning is understanding learners. The learning styles, attitudes, and approaches of high school students differ from those of eighteen- to twenty-two-year-old college students. The styles, attitudes, and approaches of adult learners differ yet again. How well do college and university faculty, administrators, and staff understand these differences? How often do they take the differences into account when designing programs or courses?

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What do we know about today's "new students"? Perhaps most obviously, we know that these students have been heavily influenced by information technology. The "new" student may be a seventeen-year-old high school student (a "Millennial") who uses instant messaging to contact peers and teachers. The "new" student may be a twenty-six-year-old college student (a "Gen-X") whose expectations of customer service are radically different from those of previous generations. Or the "new" student may be a forty-year-old working mother (a "Baby Boomer") who is completing a degree via e-learning so that she can balance work and family responsibilities. One of the greatest challenges facing American higher education is how to deal with such a variety of "new" students.

Changes in the Student Population

Current higher education administrators, as well as many faculty and staff, represent a different generation from the majority of the student population. With an average faculty age of over fifty, many decision-makers in higher education graduated in the 1970s.[1] The experiences of a 1970s generation of students are likely to be quite different from those of the current student body. A comparison of student data from 1970 and 1999 illustrates some of these differences (see Table 1).[2]

It is no surprise that enrollment has increased in the last thirty years. The data illustrate that enrollment growth in two-year institutions has exceeded the pace of growth in four-year colleges and universities. There are other trends worth noting: more students attend college part-time than in previous years; a higher proportion of students are women; and more students are over age twenty-five.

The National Center for Education Statistics (NCES) has reported that three-quarters of all undergraduates are "nontraditional."[3] Nontraditional students are defined as having one or more of the following characteristics:

- *Delayed enrollment*, and did not enter postsecondary education in the same year that he or she graduated from high school
- *Attend part-time*, for all or part of the academic year
- *Work full-time*, thirty-five hours or more, while enrolled
- *Are financially independent*, as defined by financial aid
- *Have dependents*, other than a spouse, including children or others
- *Are single parents*, having one or more dependent children
- *Lack a high school diploma*

Many of these characteristics were not measured in earlier studies, presumably because they were relatively rare. The implication is that campus populations today are quite different from those in the days when college and university decision-makers were students.

Not only is the profile of today's student body different, but the life experiences that shaped today's students are quite different from those of previous eras. Each generation is defined by its life experiences, giving rise to different attitudes, beliefs, and sensitivities. The "Depression generation" experienced World War II and the Cold War. "Baby Boomers" grew up with the space race, the civil rights movement, Vietnam, and Watergate. "Generation X" saw the fall of the Berlin Wall and the emergence of AIDS and the Web. Consider some of the other defining experiences of Generation X students:

- The Chinese government killed protesters in Tiananmen Square.
- The U.S. stock market crashed.
- The Chernobyl nuclear accident occurred.
- The *Exxon Valdez* caused an oil spill.
- The *Challenger* space shuttle exploded.
- The first computer disk was sold.[4]

But Gen-Xers do not necessarily represent current college and university students. A new group is entering higher education—a group called the "Millennial generation." The Millennials were born in or after the year 1982. Millennials exhibit different characteristics from those of siblings just a few years older. Millennials

- gravitate toward group activity;
- identify with their parents' values and feel close to their parents;
- spend more time doing homework and housework and less time watching TV;
- believe "it's cool to be smart";
- are fascinated by new technologies;
- are racially and ethnically diverse; and
- often (one in five) have at least one immigrant parent.

When asked about problems facing their generation, many Millennials respond that the biggest one is the poor example that adults set for kids.[5]

Along with differences in attitudes, Millennials exhibit distinct learning styles. For example, their learning preferences tend toward teamwork, experiential activities, structure, and the use of technology. Their strengths include multitasking, goal orientation, positive attitudes, and a collaborative style.[6]

View of Technology

Some general trends are emerging about how learners view technology. Not surprisingly, technology is assumed to be a natural part of the environment. The younger the age group, the higher is the percentage who use the Internet for school, work, and leisure. This comfort with technology often leads to a perception that the use of technology in schools is inadequate.

Table 1. Student Data in 1970 and 1999

	1970	1999
Enrollment	7.4 million	12.7 million
Two-year enrollment	31%	44%
Attend part-time	28%	39%
Women	42%	56%
Older than age twenty-five	28%	39%
Nontraditional	N/A	73%
Have dependents	N/A	27%
Employed	N/A	80%

Source: National Center for Education Statistics, "The Condition of Education 2002"

In a study of how those age twelve to seventeen use the Web, researchers found that 94 percent use the Internet for school research and that 78 percent believe the Internet helps them with schoolwork. Among teens, instant messaging and e-mail seem to be natural communication and socialization mechanisms: 70 percent use instant messaging to keep in touch; 41 percent use e-mail and instant messaging to contact teachers or schoolmates about classwork. An even higher percentage (81 percent) use e-mail to stay in touch with friends and relatives. In fact, a slight majority (56 percent) prefer the Internet to the telephone.[7]

Perhaps because of the contrast between their comfort with technology and the technology comfort level of teachers, many students find the use of technology in schools to be disappointing. Students consider themselves more Internet-savvy than their teachers. They indicate that their teachers' use of technology is uninspiring. Students report seeing better ways to use technology than do their teachers. They also state that administra-

tive restrictions, older equipment, and/or filtering software inhibit their in-school use of technology. Their greatest use of technology is outside of school.[8]

A few years their senior, today's college and university students were born in the years immediately following the introduction of the PC. Among this group, 20 percent began using computers between the ages of five and eight. Virtually all students were using computers by the time they were sixteen to eighteen years of age.[9] Another measure of the ubiquity of technology to current college and university students is the percentage who own computers. In a recent survey, 84 percent reported owning their own computer, with 25 percent owning more than one computer. Twenty-eight percent own a notebook computer. And in 2003, more students plan to buy a notebook (47 percent) than a desktop (43 percent). Students spend an average of eleven hours per week online. Other indicators of their comfort with technology include the percentage who make online purchases (54 percent, with $1.6 billion in

sales) and the percentage who bank online (43 percent).[10]

When asked about the impact of the Internet on their college experience, 79 percent said the Internet has had a positive influence: 60 percent believe the Internet has improved their relationships with classmates; 56 percent believe it has improved their relationships with professors. Contrary to fears expressed by some in academia, students are not using e-mail as their sole mode of communication. Only 19 percent communicate with professors more by e-mail than face-to-face. However, 55 percent use e-mail to arrange face-to-face meetings. They also tend to use e-mail to clarify information: 75 percent use e-mail for explanation of assignments. Even more (89 percent) have received class announcements via e-mail. In addition, students report that the Internet allows them to express ideas that they would not have voiced in class. Finally, 73 percent of students say they are more likely to conduct research by using the Internet than by going to the library.[11] When students were asked, two-thirds

indicated that they know how to find valid information from the Web. However, they added that they realize the Web does not meet all their information needs.[12]

One way to describe these trends is the emergence of an "information-age mindset." The attitudes—and aptitudes—of students who have grown up with technology (or who have spent significant amounts of time with it) appear to differ from those of students who rarely use technology. Jason Frand has described ten attributes of an information-age mindset:

- *Computers aren't technology.* Students have never known life without computers and the Internet. To them the computer is not a technology—it is an assumed part of life.
- *The Internet is better than TV.* In recent years, the number of hours spent watching TV has declined, being supplanted by time online. Reasons for the change include interactivity and the increased use of the Internet for socializing.

- *Reality is no longer real.* Those things that appear real over the Internet may not be. Digital images may have been altered. E-mail sent from someone's address may not have come from that person. And the content may or may not be accurate.
- *Doing is more important than knowing.* Knowledge is no longer perceived to be the ultimate goal, particularly in light of the fact that the half-life of information is so short. Results and actions are considered more important than the accumulation of facts.
- *Learning more closely resembles Nintendo than logic.* Nintendo symbolizes a trial-and-error approach to solving problems; losing is the fastest way to mastering a game because losing represents learning. This contrasts with previous generations' more logical, rule-based approach to solving problems.
- *Multitasking is a way of life.* Students appear to be quite comfortable when engaged in multiple activities simultaneously, such as listening to music, sending instant messages, doing home-

work, and chatting on the phone. Multitasking may also be a response to information overload.
- *Typing is preferred to handwriting.* Students prefer typing to handwriting. Many admit their handwriting is atrocious. Penmanship has been superseded by keyboarding skills.
- *Staying connected is essential.* Students stay in touch, via multiple devices, as they move throughout the day. Cell phones, PDAs, and computers ensure they remain connected anyplace and anytime. As the network becomes more ubiquitous, increasing numbers of students participate in real-time dialogues from anywhere using a variety of devices.
- *There is zero tolerance for delays.* Having grown up in a customer-service culture, today's students have a strong demand for immediacy and little tolerance for delays. They expect that services will be available 24x7 in a variety of modes (Web, phone, in person) and that responses will be quick.
- *Consumer and creator are blurring.* In a file-sharing, cut-and-paste world, the

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distinctions between creator, owner, and consumer of information are fading. The operative assumption is often that if something is digital, it is everyone's property.[13]

Implications

What do the differing learning preferences and views of technology of the "new students" mean for colleges and universities? There might be few implications if students were passive consumers and did not use their "purchasing power." However, there are many indications that students actively compare programs, evaluate institutions based on the characteristics they consider to be important, and make choices. Beyond the tuition provided by students, many institutions actively seek out the "right" individuals to be part of their student body in the belief that the caliber of the student body in part determines the quality of the institution. As a result, colleges and universities may find that understanding—and meeting the expectations of—the "new students" is important to their competitiveness.

A number of current programs exemplify a good match between expectations and services. A few examples will illustrate some of the options available to those institutions that seek to modify their programs to address the needs of the "new students."

Elimination of Delays

In a 24x7, customer-service culture, delays cause dissatisfaction and disengagement. Institutions are finding ways to eliminate delays in processes that range from admission to academic support.

The University of North Carolina at Greensboro utilizes online personal assistants, automated e-mail responses, dynamically created Web portals, and customized Web-mail to provide instant responses to students. Through their Virtual Information Station (http://infostation.uncg.edu/), students can get answers to a range of questions that often begin with "How do I…?" "Where do I…?" or "When do I…?" The Web site covers topics from admission to graduation. For example, an online chat tool allows staff to respond to Web-based queries in real time. Prompt responses make a difference in the decision-making process of prospective students.[14]

At many institutions, financial aid is a chronic source of dissatisfaction for students. Confusion over the process, complicated paperwork, and data-entry errors cause delays and even rejections. Compliance with federal guidelines further complicates the situation. To provide better service, the University of Phoenix, with 152,000 students and more than 120 campuses, created the Financial Aid Paperless Project (FAPP). Prospective students can complete an online application, then link to the Free Application for Federal Student Aid Web site to obtain a federal financial aid application, including a master promissory note. A student may then file the application online with the lender of his or her choice. If the lender participates in the university's FAPP project, the lender's system communicates with the FAPP computers at the university and pulls data from the student's application for enrollment. The lender uses the information to complete the student's master promissory note, eliminating the need to rekey data and ensuring that data is consistent across the two applications. The university then retrieves the completed master promissory note, enabling the university to validate the information and process the application. The student is informed almost immediately that his or her application is complete and has been received for processing. The time to fill in and process an application has also been cut by several days, so students get faster responses to their applications.[15]

Customer Service

For today's learners, customer service is an expectation, not an exception. Yet it is rare that students and institutions have the same expectations for service.

At Athabasca University, service expectations are clearly spelled out on a Web site (http://www.athabascau.ca/misc/expect/) as well as in print material provided to entering students. Whether provided by the registrar, counseling service, academic support, or library, each service is accompanied by a standard as well as a contact person's e-mail address and phone number. This practice helps set expectations for students as well as for staff. How well units meet service expectations is measured, as is also the level of student satisfaction.[16]

Adult learners bring customer-service expectations to the institutions they attend. In many cases, customer service is more than a preference—it is a prerequisite to retention and effective learning. One reason often cited by adult learners for abandoning their studies is the lack of timely support. As an institution focused on serving adult learners, Rio Salado College has adapted its approach to ensure that learners have the services they need. A "beep-a-tutor" program, available seven days a week, guarantees students that tutors will respond to their question within one hour. With beepers, the tutors receive questions no matter where they are.

Two other Rio Salado programs focus on being sure the right person responds to queries. Online students often seek help from instructors when they encounter problems, whether these are related to technical issues or to the subject matter. To ensure that instructors are not deluged with technical questions—and to ensure that students get the best responses—Rio Salado created a technical help desk. Staffed by noninstructional personnel, the help desk is specifically tasked to help students resolve technical issues.

Also, because instructors cannot be online at all times, Rio Salado has an instructional help desk staffed by generalist faculty who answer questions about the logistics of a course at times when the class instructor is not available. The instructional help desk personnel, available seven days a week, also provide e-learning orientations to students and serve as a liaison between the instructor and the student. By reducing the number of non-learning-related inquiries, this service assists students who need immediate answers and also maximizes the amount of time an instructor can spend on activities directly related to learning.[17]

Experiential, Interactive, and Authentic Learning

The aging infrastructure and the lecture tradition of colleges and universities may not meet the expectations of students raised on the Internet and interactive games. Several programs address this problem.

Laboratories represent a traditional approach to providing learners with experiential, interactive, and authentic learning. However, many institutions feel that they do not offer enough laboratory experiences due to expense pressures, safety concerns, and lack of space. While not diminishing the importance of hands-on labs, online laboratories enable learners to have rich learning experiences without some of the limitations of traditional labs. At MIT, a microelectronics laboratory, called WebLab, enables the characterization of microelectronic devices at any time of day or night, allowing students substantial flexibility. A remote instrument (in this case, the Agilent 4155B Semiconductor Parameter Analyzer) is accessed by students via an application that uses the circuit language of electrical engineering to specify the measurements to be performed. Students can program the instrument and collect data through the Web, download it to their computers, and then complete the analysis and laboratory reports. Students can remotely select the device to be characterized and specify the variables to be measured. Because of the design, the lab is available 24x7. In an estimate of its capacity, WebLab can handle more than 2,000 users per week and more than 15,000 experiments per week. In fact, excess lab capacity is being made available to students in Sweden and Singapore.[18]

Likewise, rather than telling students the conclusions of history, a University of Virginia interactive Web site, "The Valley of the Shadow" (http://jefferson.village. virginia.edu/vshadow2/), allows students to draw their own conclusions about the Civil War through original records taken from two similar counties in Virginia and Pennsylvania—similar except for the fact that one allowed slavery and the other was free. Utilizing census data, agricultural records, newspaper articles, church records, and letters from soldiers and their families, the site allows individuals to explore authentic information via multiple paths. Students report the experience to be highly engaging and more effective for learning than being told about history. In fact, according to Google, the site is the most heavily trafficked Civil War site on the Web, attracting students from other institutions as well as millions of informal learners.[19]

Simulations can be used to help learners visualize complex systems as well as to turn text or numbers into more readily comprehended forms. A simulation can magnify an environment (e.g., the inside of a cell), making it easier for learners to understand the environment. In other cases, events can be slowed down (e.g., a chemical reaction taking place), sped up (e.g., the moving of tectonic plates), or re-created to help learners visualize a process. The Columbia Center for New Media Teaching and Learning and the School of Public Health have developed a simulation in which students can become epidemiologists in the town of Epiville. The students gather facts from newscasts, interviews, and Web sites to deal with outbreaks of disease (http://lester.rice.edu/browse/lstprojectbrowse.aspx?ord=378).

Game systems, such as Nintendo, were a common part of growing up for the majority of today's college and university students. A number of attributes of games make them good educational environments. Games often involve problem-solving and decision-making. They provide rapid feedback and can adjust the level of difficulty to the expertise of the player. Speed and a sense of urgency can contribute to learner motivation. For example, games such as *Gettysburg* let users re-create military engagements using different assumptions. Would the battle have gone differently if General Lee had been there? Users can ask questions, explore situations, and create unique scenarios to explore history.[20]

Staying Connected

Many students carry multiple electronic devices and use various communication protocols to be sure they are always connected to friends, events, and information. If they are at home or in the dorm, instant messaging dominates. On campus or around town, they use their cell phones.

Drexel University has developed the capability to allow users to stay connected no matter which device(s) they choose to connect with—Blackberries, Web phones, PDAs, laptops, or other devices. The program, DrexelOne Mobile, enables students to retrieve personalized information from virtually any Web-enabled handheld device. Users who have registered their mobile devices may choose to have relevant personal announcements pushed out to them automatically, without having to browse to find the information. For example, students can get grades as soon as they are posted, learn about last-minute classroom changes, get updates to their schedules, and find out about holds placed on their records (e.g., for late tuition payments). The advantage is that information reaches users when and where they need it, rather than requiring users to wait until they are at their desks. And the university can send news to the entire campus community quickly and easily. The headline news service is updated every ten minutes with the latest sports, entertainment, and general news. In addition, users have access to a searchable university phone directory that operates phonetically so that users don't need to know correct spellings of names.[21]

Conclusion

A growing body of evidence reveals that today's college and university students have developed new attitudes and aptitudes as a result of their environment. Although these characteristics may provide great advantages in areas such as their ability to use information technology and to work collaboratively, they may also create an imbalance between students' expectations of the learning environment and what they find in colleges and universities today. As a result, institutions may find it valuable to ask how well they know and understand their "new students."

How are learners' views represented in institutional decisions about courses, curricula, programs, and services? Does the institution have a mechanism that balances students' preferences with the opinions of faculty and administrators? Where can IT be used most effectively?

Beyond balancing the interests of students and institutions, colleges and universities should also consider other implications of the "new students" and their learning styles:

- Is instant messaging a fad, or should it be incorporated into how institutions work with current and prospective students?
- Do the educational resources provided (e.g., textbooks, reference materials) fit the needs and preferences of today's learners? Will linear content give way to simulations, games, and collaboration?
- Does the current definition of "anytime, anywhere" equate to students' expectations that any device (laptop, PDA, cell phone) will be able to access the Web at any time and from any place?
- Do students' desires for group learning and activities imply rethinking the configuration and use of space in classrooms, libraries, student unions, and residence halls?

Colleges and universities are finding a variety of ways to meet students' expectations for service, immediacy, interactivity, and group activities. There is no single formula, particularly since students often span broad ranges of ages, learning styles, and communication preferences. Though each institution will find its own answers, a common set of principles may emerge that will help guide decisions and directions. The first step will almost undoubtedly be to better understand the "new" learners—Boomers, Gen-Xers, Millennials, and those still to come. *e*

Notes

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available. The source for Table 1 is National Center for Education Statistics (NCES), "The Condition of Education 2002," June 2002, ⟨http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2002025⟩ (accessed April 22, 2003).

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10. For statistics on computer ownership and time spent online, see the Student Monitor Web site: ⟨http://www.studentmonitor.com⟩.

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15. Robert A. Carroll, Chief Information Officer, University of Phoenix, e-mail, May 1, 2003.

16. Dominique Abrioux, President, Athabasca University, e-mail, April 4, 2003.

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