Adapting Your Teaching to Accommodate the Net Generation of Learners

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Abstract

Educators are faced with the challenge of adapting their teaching styles to accommodate a new generation of learners. The Net Generation or Millennials, who are now entering colleges and universities, have learning expectations, styles, and needs different from past students. This article assists educators in teaching the Net Generation by highlighting the characteristics of the Net Generation and providing examples of how to adapt teaching strategies to accommodate the Net Generation, in light of their preferences for digital literacy, experiential learning, interactivity, and immediacy.


Key words: learning strategies, Net Generation, teaching strategies

Higher education is at a crossroads, faced with many new demands and challenged with decreasing funding from both state and federal sources. There are increasing demands for accountability from a variety of constituencies both inside and outside of the academy. There are demands for curriculum revisions which will graduate learners with the necessary skills to meet changing workforce needs. There are mandates to meet requirements for an appropriate information technology infrastructure, including network security and disaster recovery. The challenges of aging faculty point to the potential for faculty shortages. Compounding current issues and challenges are the demands of a new and unique population of learners converging upon higher educational institutions.

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A common way to classify the population into age groups is based on the time period in which one was born. Oblinger and Oblinger (2005) developed a classification system that describes various generations as Matures (1900-1946), Boomers (1946-1964), Generation X (1965-1982), and Net Generation/Millennials (1982-1991). This classification demonstrates the often noted overlap in years among classifications. Howe and Strauss (2000) classified the generations as: Boomers (1943-1960), Gen-X (1961-1981) and Millennials (1982-present). In most instances, faculty are primarily Matures or Boomers. However, the student population crosses all generations with the newest, the Net Generation, being distinctly different in their characteristics and learning expectations.

The impact of the Net Generation is particularly intense as we consider the complicating impact of information technologies in higher education. Information technologies have become so pervasive on campus, it is hard for faculty not to embrace them in the instructional process. In addition, colleges and universities must cope with the growing demand to provide infrastructure support for learner’s personal technologies, such as wireless laptops, PDAs, and iPads. As so aptly stated by Oblinger and Oblinger (2005), "Whether the Net Generation is purely a generational phenomenon or whether it is associated with technology use, there are a number of implications for colleges and universities. Most stem from the dichotomy between a NetGen mindset and that of most faculty, staff and administrators" (p.2.10). With this caveat in mind, what are the characteristics of the Net Generation?

Prensky (2001) used the distinction of the digital natives and the digital immigrants to
differentiate students in the past from the traditional-age college students of today. Digital natives
grew up with technology, they live in a digital world. Digital immigrants view technology as an
innovation and grew up in an analogue world. For digital natives, "...when asked what technologies
they use, you may get a blank stare as they do not think in terms of technology they think in
terms of the activity technology enables" (Oblinger & Oblinger, 2005, p 2.10). A perfect example
to distinguish between the two is to see how people find information about a restaurant, where to
buy a particular item, or to see if a bookstore carries a particular book. The digital immigrant
reaches for the "yellow pages" book and the digital native "googles" the information on the
Internet. As digital immigrants, most faculty and administrators are still working to adapt to this
new language and new ways of thinking, communicating, teaching, learning, and socializing.

The purpose of this article is to describe the characteristics of the students of the Net Generation
and their impact on higher education as it relates to shifting the teaching-learning paradigm. The
remainder of the article will focus on members of the Net Generation and their preferences for
digital literacy, experiential learning, interactivity, and immediacy. For each of their preferences,
there are examples of how faculty can adapt their current teaching strategies to accommodate the
learning needs of the Net Generation.

The Net Generation Learners

The Net Generation or Millennials, born in the 1980s, have
unique characteristics that differentiate these students from
other generations. These unique characteristics are challenging
the traditional classroom teaching structure, and faculty are
realizing that traditional classroom teaching is no longer
effective with these students. As Prensky (2001) stated, "Our
students have changed radically. Today's students are no longer
the people our educational system was designed to teach" (p.1).

Several authors (Brown, 2000; Frand, 2000; Howe & Strauss,
2000; Merritt, 2002; Oblinger, 2003; Tapscott, 1998) have written on the characteristics of the Net
Generation. Tapscott (1998) described the Net Generation member as an assertive, self-reliant,
curious person who is enmeshed in an interactive culture that centers around 10 board themes.
These themes include:

- **Fierce independence:** Their sense of autonomy derives from their experiences of being an
  active information seeker and creator of information and knowledge.

- **Emotional and intellectual openness:** The N-Geners value the openness of the online
  environment, like anonymity, and communicate through numerous tools.

- **Inclusion:** They view the world in a global context and move toward greater inclusion of
  diversity.

- **Free expression and strong views:** With access to knowledge resources at their
  fingertips, the N-Geners are assertive and confident.

- **Innovation:** This group is constantly trying to push the technology to its next level and
  figure out how to create a better world.

- **Preoccupation with maturity:** Armed with knowledge, they strive to be more mature than
  their predecessors.

- **Investigations:** Curiosity, discovery, and exploration are key for this generation.

- **Immediacy:** This generation views the world as 24 –7 and demands real time and fast
  processing.

- **Sensitivity to corporate interest:** Consumer savvy, these customers like customization
  and want to have options and to try before they buy.

- **Authentication and trust:** Net savvy individuals, they know the need to verify and check
  resources and authenticate people.

Howe and Strauss (2000) described additional characteristics such as their fascination with new
 technologies, their need for group activity, their emphasis on extracurricular activities, and their
focus on grades. Millennials think being smart is cool. They are close to their parents and are one
of the most ethnically and racially diverse group of students in academia.

Given these characteristics, it is obvious that this generation
demands a new learning paradigm. The traditional teaching
paradigm, prevalent in higher education for many years, focused
on the role of instructor as the "sage on the stage" who
disseminated knowledge through lectures and PowerPoint slides.
The traditional teaching paradigm...focused on the role of the instructor as the "sage on the stage" who disseminated knowledge...Brown (2000) refers to it as the authoritarian, lecture-based model of education. This traditional teaching emphasized the acquisition of facts or, as Oblinger (2005) noted, content-focused learning. Faculty from previous generations were text-based; focused on logical sequencing of knowledge; emphasized memorization, repetition, and recall; believed "one size fits all"; and saw the teacher as master and commander (Brown, 2005). As you will see in the next section, the Net Generation requires a learner-centered model of education with a shift from the traditional teaching paradigm to a constructivist learning paradigm (Brown, 2005). Net Generation learners focus on understanding, constructing knowledge using discovery methods, and active engagement; want tailored and option rich learning; and view the teacher as expert and mentor (Brown, 2005).

Net Generation Characteristics and Teaching Adaptation Examples

Net Generation characteristics include digital literacy, experiential and engaging learning, interactivity and collaboration, and immediacy and connectivity. To illustrate the implications of the paradigm shift described above to these new ways of knowing, the following section will highlight major characteristics of the Net Generation related to these characteristics and describe how faculty might adapt their teaching to accommodate the learning needs of the Net Generation.

Digital Literacy

The Net Generation grew up and is comfortable in a digital world. Action and what the technology enables them to do is more important than the particular technology (Oblinger & Oblinger, 2005). As a part of this digital literacy, Net geners are both information and multimedia literate (Brown, 2000). They have the ability to read visual images and have visual spatial skills (Howe and Strauss, 2000). As Oblinger and Oblinger stated, "They are more comfortable in image-rich environments than with text." This is best illustrated in the situation described by Oblinger (2005) in which a student in a lecture realizes that he does not understand the teacher's lecture, and even the PowerPoint (text) slides provide no new insights. This student, using his wireless laptop, canvases other students in the class via text messaging and IM (instant messaging) and discovers they too do not understand the lecture. To solve this problem, the student googles the concept, finds a URL with simulations that better explain the concept, and immediately transmits this URL to others in the class. It is important to remember that the Net Generation seeks immediate information and knowledge not by finding it in a textbook, but by connecting to the Internet.

Digital Literacy Examples

In order to teach Net geners effectively, wired classrooms are a must. Since they don't respond to lecture format, it is important to take advantage of their multi-tasking ability by posting course notes with relevant web links so that students can explore relevant resources and become engaged with the content. It is especially important to direct students to discipline-specific databases such as CINAHL, MEDLINE, or Web of Science rather than relying solely on Internet search engines.

One may also want to consider having a blended course with some face-to-face time and some web-based interactions...

In nursing education, it is particularly important for students to learn how to use handheld devices, such as PDAs, to facilitate evidence retrieval at the point of care. Incorporating technologies that facilitate the nurse's role as a knowledge worker will not only engage Net geners, but may help transform the nursing profession as well.

To meet the needs of students, think about developing a web page for each course. The web component can contain class materials, notes, slides, a weblography, and other pertinent multimedia. This is not only important to the net geners but also to nontraditional learners who appreciate the flexibility of finding class materials while perhaps living off campus. One may also want to consider having a blended course with some face-to-face time and some web-based interactions; this is particularly relevant for the nontraditional student. What is important is that the web-based component needs to be interactive and engaging not just a static web page dispensing content.

The Net Generation lives in a mobile world which facilitates their multitasking nature. Think about podcasting some important lectures so that students can listen to these lectures on their iPods or other MP3 devices. For more information about podcasting, see articles by Skiba (2006) and Maag (2006).
Experiential and Engaging

Net learners want to construct their knowledge. They have a bias towards action (Brown, 2000) or as Oblinger and Oblinger (2005) described it, they are first person learners. They want to immediately engage in the process. Discovery learning (Brown, 2000) builds upon their characteristics of fierce independence and investigative nature (Tappcott, 1998). Net Generation learners like to express their views and incorporate their experiences into their learning (Tappcott, 1998). Learning is not done in isolation and they learn by doing. According to Frand (2000), this is the Nintendo Generation and "the key to winning Nintendo is the persistent trial and error to discover the hidden doors" (p.17). Brown referred to the Net Generation as digital bricoleurs. He noted that this generation collects bits of information, objects, or tools to create something new. Visualizations, simulations, case analyses, and other methods of participatory learning such as fieldwork are all part of the learning repertoire.

Experiential and Engaging Examples

The use of simulation technologies will help engage learners in a process that provides the interaction they desire with the feedback they need in real-time situations. Through the design of pertinent scenarios, faculty can direct learning in a way that facilitates student understanding of subtle changes that occur in patient care. This may help prepare Net Generation students for the transition to the work force as new nurses by nature "tend not to focus on individual client needs" and "may be unaware of relevant cues in changing client situations" (Ferguson & Day, 2004, p. 490).

Blogging is another method that allows students to interact and become engaged in the course. In short, a blog is a web-log which allows students to contribute to and comment on the blog entries. Learners can research their information and provide their reflections on their learning through the blog (Skiba, 2005).

Another example is that of an interactive, engaging web environment that allows learners to interact with the instructor, other learners, or with the content. One example of having learners interacting with content is the use of a dynamic web page, such as the National League for Nursing chapters in a 'Living Book.' As learners work their way through the chapters of this electronic book, they are directed to web sites to find information and respond to questions. In one of our classes, we assign learners a chapter in this book to learn about the Net Generation. To view these interactive chapters, go to www.electronicvision.com/nln.

Interactivity and Collaboration

Learning is a social activity (Tappcott, 1998), and as such should be engaging and interactive. Interactivity can occur with students, faculty, other professionals such as experts in the field, and with the content itself. Millennials gravitate toward group work (Howe & Strauss, 2000). Net learners do best when they construct their knowledge (Brown, 2000; Oblinger & Oblinger, 2005; Tappcott, 1998). "The TTT (talk, text, test) approach" (Oblinger & Oblinger, p. 2.13) is not valued by the Net Generation. TTT represents the traditional teaching paradigm of lecturing, asking students to read text, and giving a test to insure they have recall and acquisition of facts. Rather the Net Generation prefers to work in teams and participate in peer interactions. According to Crittenden (2002), the wired generation is more social and inclined to participate in learning activities that promote social interactions. Social interactions reinforce their use of IM, blogging, gaming, and their large global network. As Oblinger and Oblinger point out, interaction is a key element of learning. If classroom or online teaching does not provide opportunities for interactions, the Net Generation will not come to class.

Interactivity and Collaboration Examples

The interactivity and collaboration desires of the Net geners allow for the implementation of creative teaching strategies in the area of collaborative learning. While previous generations have consistently rallied against the concept of "group work," Net geners embrace collaborative learning in both face-to-face and virtual venues. Think about the incorporation of chat rooms and web-based collaborative learning centers that allow students to share a common workspace with group members by using white boards and document sharing. For example, at the University of Colorado at Denver and Health Sciences Center, informatics specialty students interact with each other in a web environment (I-Collaboratory) that allows collaborative workspace. Learners can co-edit documents and interact using chat rooms, audio, or video conferencing (Skiba, Barton, Howard, Fields, & McCullar, 2004). In the I-Collaboratory, students can designate space to work with each other. They can store documents and schedule synchronous meetings over the Internet. The collaborative
concept facilitates collaboration and sharing while requiring learners to be active participants in the learning process.

In the classroom, the use of Clickers or interactive response devices is another example of fostering interaction within a lecture hall environment. The faculty member can create higher interactive learning experiences by asking learners to use these devices to select responses to questions, thus interacting with the content. Responses are then automatically displayed for all in the class to see.

For Net genera, the notion of collaboratively constructing knowledge within a social community is very appealing. Once responses are displayed, faculty can ask learners to talk with each other as to why they choose their particular response. Then the class can select responses again and the new results can be displayed. Use of these devices engages the students in the content, promotes interactivity with colleagues, and takes advantage of teachable moments in the classroom.

Another example of interactive and collaborative learning is the increasing use of wikis by the Net Generation learners. According to Wikipedia (March 15, 2005), "A wiki is a website that allows users to add content, as on an Internet forum, but also allows anyone to edit the content. It also refers to the collaborative software used to create such a website." According to Skiba (March/April 2005), "The defining characteristics of a wiki are: social software that allows the ability to edit and add to a wiki document with relative ease; a simplified hypertext markup language for creating documents; and open editing philosophy in which the community can edit and add to the document" (p. 120). For Net genera, the notion of collaboratively constructing knowledge within a social community is very appealing.

**Immediacy, Connectivity & Communications**

As Frand puts it, the Net Generation has little tolerance of delays. They live in a 24 x 7 x 365 world. They expect instant access and instant responses. Email is "so yesterday" when you can IM (instant message) or text message someone immediately. Net genera are multitaskers (Brown, 2000) and used to being bombarded by multiple processes at twitch speed (Prensky, 2001). They are mobile nomads who are always connected (Rheingold, 2003). Their connectivity via cell phones, wireless PDAs, or laptops fosters fast and quick communication. They use short hand communications that seem like hieroglyphics to the digital immigrant population. As a part of their networked society, they have an emotional and intellectual openness as well as a respect for diversity and free expression (Tapscott, 1998).

**Immediacy, Connectivity and Communication Examples**

The immediacy expectations of the Net generators are a challenge to digital immigrant faculty. While email is used regularly for communication, responses don't fit within "instant messaging (IM)" time frames. It is important for faculty members to communicate with students up front so they know when they can expect to receive feedback. Basically there are three different forms of communication that a faculty member and learners can use:

- One-on-one (email, IM)
- One-to-many (news groups, message boards)
- Many-to-many (chat rooms, wikis, and webcasts)

Try using IM during your office hours. Make sure to tell learners when you are available and that IM does not work 24/7. In our program, we also set up video conferences over the Internet.

The need for connectivity and communication can be exploited to remove mundane tasks from the classroom. For example, at our institution, clinical placement scheduling has been centralized for all clinical courses. It is conducted via a web-interface two months prior to the clinical rotation. Students indicate their preferences by rank ordering the clinical site and shift schedule. A random number generator is used to sort students and fill site rosters based on student preference. Students know their clinical schedule more than a month in advance and are able to adjust work and childcare responsibilities as needed.

**Summary**

There is no question that this new generation of students is challenging the traditional teaching paradigm in higher education. In order to accommodate the Net Generation in nursing education, it is important to devise learning activities that align with their learning styles and expectations. It is also important to remember that one should start with the content to be mastered and then
figure out what technologies might enable the activity. To begin this process, ask yourself, your colleagues, and your administrators the following questions drawn from Carlson, 2005; Oblinger and Hawkins, 2005; Skiba, 2005; and Sweeney, 2005:

1. Do you know your students and their preferences?
2. Once you know their preferences, how will you adapt or accommodate?
3. What balance between the physical (classroom) and virtual worlds of learning is appropriate for your student population?
4. Are there renovations to your physical space that need to be targeted for your learners?
5. What is the balance between faculty and student perspectives?
6. How do you engage your learners and what are the best methods for incorporating IT into your teaching?

There is no doubt that the Net Generation has arrived in our higher education institutions. Faculty must understand these learners, their expectations, and their learning needs. It is important for faculty to adapt their teaching and consider numerous strategies to accommodate these learners. The take home message is to know thy learners and be open to adapting thy teaching methods to thy learners. As Oblinger (2005) states, "Learning is advanced when the use of IT is predicated on an understanding of the diverse needs, expectations and values of all of these students, rather than on the IT capabilities" (p. 69).

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