

Net Gen Students and ETDs

In`m J - Khoohmbnss
Associate Executive Director, Coalition for Networked Information,
Washington, DC, USA

Keywords: Students, Multi-media, Services, Facilities

ABSTRACT

Our current generation of university students grew up with computers in their homes, video games, and cell phones. As a group, they are referred to as the Net Gen, and share many characteristics such as a propensity to multi-task, a preference for experiential learning, a visual orientation, and an interest in working in groups. However, dissertations and theses have developed within a higher education system that tends to be linear and focused, is text-based, and emphasizes independent, and even isolated, solo learning. We can make the university more hospitable to the work of Net Gen students by providing new types of environments, training in information policy issues, multimedia, and other areas, and new tools to facilitate their work. This paper describes characteristics of Net Gen students, suggests how their styles can influence the development of ETDs, proposes services to support ETD programs, and provides specific suggestions for administrators, faculty, and information professionals.

1. INTRODUCTION

ETDs offer a means of initiating students into the rigors of academic research and the mechanisms of scholarly communication in the electronic age. At present, most ETDs represent incremental changes in standard, print-based theses and dissertations rather than transformational products of scholarly communication. ETDs are generally text-based, classically formatted, and conservative in genre. The creative kinds of products that can be generated in the digital era, such as simulations, multi-media, 3-D visualizations, etc., are largely absent from ETDs. The current crop of ETDs represent efforts of students to conform to the traditional scholarship demanded by their advisors, committees, and graduate schools. Students must often stifle their impulses towards creative use of technology because these innovations will not be accepted by the academy, or, in some cases, they do not know how to translate the way they use technology in their social lives into their academic disciplines.

An increasing number of students producing ETDs are from the Net Gen, those students who grew up with computers from the earliest ages, played video games from the time they were small children, have owned a cell phone since adolescence, and who personally own at least one computer. These students have been characterized by a number of writers as being:

- Experiential
- Multi-tasking
- Visually oriented
- Fast
- Social

- Mobile (Oblinger, 2004; Oblinger and Oblinger, 2005; Prensky, 2001, 2003; Jukes and Dosaj, 2004)

Their style is generally at odds with the characteristics of academe: their experiential learning style results in their figuring things out on the fly rather than learning from experts, which is the hallmark of the academic style. They work on many things at once through multi-tasking rather than making careful, linear progression through research stages or chapters. They pay more attention to images or visual cues than to text, which is contrary to standard academic practice. They like quick responses and expect everything to be immediately available through the Internet, unlike traditional scholars who anticipate spending years on their research. Their social impulses drive them to work in groups, while much academic work, other than “big” science, focuses on, and in fact celebrates, individual work. They are mobile and bring their electronic devices along so they are always connected and able to do their work anywhere, anytime, unlike many academics who have partitioned their work lives into particular physical spots such as labs, offices, and libraries. Another characteristic of Net Gen students is that they have an expectation that their work will be available to people around the world, unlike traditional scholars who hope that through a lifetime of hard work, their publications may become known through the prestige journals in their field and thereby establish their reputation internationally.

Why should we pay attention to the style of Net Gen students and consider modifying our policies and practices in higher education to address their characteristics? Our students need and want better grounding in using technology in academic work and need the tools and skills to facilitate that use. In a University of Michigan survey, factor analysis demonstrated a close association among these items of how students would like to use the web:

- Facilitate collaborations both within the university and around the world
- Present work to others in the university and around the world
- Conduct simulations and visualizations
- Conduct research (Berger, 2005)

In this survey, most students were not currently doing these things but they desired to do them; the author concluded that the university needs to offer better tools so that students can accomplish these activities. He believes students have a strong desire to use the Internet in academic work more than they currently do but need better infrastructure from the university.

One argument for incorporating the Net Gen style into scholarship focuses on the impact of technology on scholarship; it particularly addresses the future needs of the graduate students whose careers will be in academe. Students who graduate now will be expected to work with new genres of digital information as they progress in their careers. New scholarly journals with multimedia formats, such as *Vectors* <<http://vectors.iml.annenberg>> are emerging. Edward Ayers, the highly regarded Civil War scholar from University of Virginia and his colleague William Thomas III, published the first “electronic article” in the *American Historical Review* in 2003. < <http://www.historycooperative.org/journals/ahr/108.5/thomas.html>> Expectations will change as to what constitutes acceptable digital content during the graduate students’ worklife as a scholar. Moxley writes, “Our concepts of research, the authority of knowledge, and the shape of content are being radically challenged. To produce students endowed with Knowledge Age literacy, universities must provide the resources and training that faculty and graduate students need to write and annotate documents online, to incorporate visuals with a degree of sensitivity of their rhetorical value, and to publish and metatag documents on the Web (for efficient retrieval).” (Moxley, 2001)

Another argument addresses the fact that many students who produce ETDs will have careers outside academe, in industry, government, or other institutions. It is more likely that Net Gen characteristics will be valued in industry before they are in academe. In industry, students who have high level technology skills that are directly connected to the discipline, e.g. in engineering, business, communications, will be in demand. Those in academe in traditional disciplines, such as humanities, will likely receive much less recognition within their disciplines, but many of these graduates do not go into academic careers and their technology skills will be valued by other employers. A National Academies report stresses the importance of the knowledge worker in today's economy and emphasizes that working with information in technology-rich environments will be a major factor in many jobs of the future. (National Academies, 2002) Creating ETDs can be a mechanism for preparing students for such jobs.

We in the academy need to achieve a balance of instilling the values of scholarship in academe into Net Gen students while incorporating their creativity and vitality. Ultimately, the benefits of paying attention to the qualities of Net Gen students are to discover ways to enrich the academic enterprise and the outputs of scholarship and to help students develop into productive, creative workers in the knowledge economy. It is not to cater to students whom some perceive as lazy, sloppy, and undisciplined.

2. PREPARING NET GEN AUTHORS

The mission of the Networked Digital Library of Theses and Dissertations (NDLTD) organization has always placed a strong emphasis on the role of the ETD in preparing students to become authors in the digital arena. One of the goals of the NDLTD is "for graduate students to learn about electronic publishing and digital libraries, applying that knowledge as they engage in their research and build and submit their own ETD." <www.ndltd.org>

Assuming that some faculty or departments acknowledge the benefits of the production of ETDs that include such features as multimedia, simulations, or visualizations, is it sufficient that permission is given and that students are free to be creative? While students have facility with many aspects of technology in their social lives, they are much less skilled with technology applications in academic life and generally are not well informed about information policy issues that directly impact their creation and use of digital objects. Experts in the library arena and technology arena have addressed this issue through important reports and standards. Specifically, the American Library Association's division, Association of College and Research Libraries, has developed standards for information literacy, and a National Academies committee published *Fluency for Information Technology*, which describes a range of technology and information competencies for students, tied to their major disciplines. (National Research Council, 1999; Association of College and Research Libraries, 2000) While these standards and guidelines exist, few universities implement them in the curriculum in systematic ways. Many faculty assume that their graduate students have library and technology skills and do not test those assumptions. Others address them by inviting librarians to meet with students during one class session in the early stages of a graduate program, or provide an entire day of orientation for graduate students, as described in a program at Northwestern. (Lightman and Reingold, 2005) While these are useful activities, they do not address the needs of students to understand information issues in detail at the time they write their ETDs.

Typically, training programs for students in technology and information skills emphasize such things as using advanced features of standard software packages and locating information through licensed databases. For producers of ETDs, a much broader range of issues need to be addressed, and the creation of an ETD should be seen as an opportunity to produce authors

who are well-versed in the issues of the Information Age. Many information policy issues are relevant to creators of ETDs: understanding intellectual policy issues is key. Students need to understand what criteria they need to examine in order to understand when they may incorporate the work of others (film clips, images, music, etc.) into their own work without permission as well as how to seek permission when needed. Students should be exposed to licensing issues, including the availability of standard forms such as the Creative Commons license, which they may want to use for their own works. They need to understand the ramifications of disseminating the data they collect on the web; for example, do they have permission from their interviewees to not only quote them in the text of their dissertation but to also display the videotape of the interview on a website? What privacy issues are connected to the data they have collected and may wish to make available globally through the Internet? In the sciences, there is increasing emphasis on making the underlying data that supports the research available on an adjunct website or through a discipline-based or project-based, publicly accessible database. However, few graduate students have been trained to understand the standards that exist in their field for data collection, which affect the interoperability and usability of that data by others. Students producing innovative ETDs also need to understand the implications of their use of technology for the capability of their work to be preserved for the long-term.

Who is responsible for teaching students about these issues? Information literacy and fluency in information technology should be incorporated into the curriculum and particularly emphasized in research seminars. Faculty need to demonstrate ownership of these issues, in partnership with librarians, information technologists, and others.

3. SERVICES FOR THE NET GEN

In addition to more focus on information and technology literacy, what other types of services could address the needs of Net Gen students as they prepare ETDs? While thesis and dissertation production continues to emphasize work by individuals, not groups, this belies trends in many fields such as the sciences, where more research is done in teams and not as a solo enterprise (National Academies, 2002). Even though the final ETD product will likely continue for the near future to emphasize individual production, services and facilities can promote a sense of community,, something valued by Net Gen students. These services can be in the physical world or in the virtual world. For example, libraries or other facilities can offer group study rooms which could be specially configured for dissertation support groups. The rooms could include comfortable furniture to facilitate relaxed discussion, a projector and screen for viewing each other's work, annotation software, university guidelines for preparation of ETDs, the Ohio State/Adobe ETD tutorial, etc.

Facilities where students can use hardware and high-end software to create multimedia and can also get expert assistance are vitally important to support student creation of innovative products that meet academic standards. Examples include those available at the University of Tennessee (Dewey, 2002) and the University of Texas Pan American Library (Mitchell, 2005). This also applies to students creating large data sets that underlie their research. They need facilities where software is available to support their needs along with experts who can help them address standards and storage issues.

In the virtual world, departments, libraries, or computer centers can host services such as blogs or wikis for students writing ETDs. Net Gen students like to learn from their peers in these informal environments and the anytime, anywhere aspect of these services make them ideal for graduate students who have other commitments such as jobs and families.

Librarians and other experts can offer to join discussions taking place within course management systems as part of dissertation writing seminars rather than relying on the library's online reference services to attract students. It is important to go where the students are rather than to wait for them to find services outside of their academic departments.

Library or IT units can investigate innovative software products such as the Scholar's Box, which is a "tool that will enable faculty, teachers, students, and the public to create, manipulate, annotate, and share personal collections of digital materials gathered from multiple sources and repositories." < <http://iu.berkeley.edu/IU/Projects>> They can make such products available to ETD writers and assist in their use.

4. CALL TO ACTION

Much of the dialog about technology's impact on higher education revolves around teaching and the classroom. Another set of discussions focus on scholarly communication and library issues, particularly addressing faculty publications. A neglected area of discussion is graduate student research, which is unfortunate since this is the spawning ground for the new generation of scholars. There is much that we can do now to begin to prepare for the convergence of Net Gen practices with traditional scholarship. While the academy may not yet be ready to accept the kind of innovations that Net Gen students could produce, it is likely that this will ultimately change and we need to be ready. A National Academies report acknowledges the slow pace of change in universities but also emphasizes the need for preparation for a new era:

"For at least the near term, meaning a decade or less, the research university will continue to exist in much its present form. But it must devote itself during this interval to anticipating the needed changes, developing appropriate strategies, and making adequate investments if it is to prosper thereafter." (National Academies, 2002)

Some specific things that various groups within higher education can do to develop the environment for Net Gen scholarship include:

Administrators

- Work to create policies that address needs of twenty-first century authorship, including multimedia, data storage, and group creation

Faculty

- Take responsibility for incorporating instruction on information literacy and technology fluency, especially focusing on academic uses of technology and information policy issues into the curriculum; work in partnership with the library, IT, and other appropriate units

Information Professionals

- Promote awareness of issues to faculty and administrators
- Create services to support needs of Net Gen students, both in-person and virtual
- Develop facilities that support creation of multi-media projects
- Provide knowledgeable staff who can provide advice on technical standards, information policy issues, etc.
- Reconfigure facilities to offer comfortable spaces for groups and encourage supportive communities

- Provide recognition of and promote awareness of innovative ETDs through awards and displays of products
- Support student interest in creativity by advocacy of new policies

Providing the right environment and support to release the creativity of Net Gen students and coupling that with academic rigor will yield great benefits to higher education and the global community.

REFERENCES

Association of College and Research Libraries. (2000) *Information Literacy Competency Standards for Higher Education*. Chicago: ACRL. <http://www.ala.org/acrl/ilcomstan.html>

Berger, Carl. (2005) "The Next Generation of Students: Slackers...Not, NetGeneration...YES." <http://www-personal.umich.edu/~cberger/FindingtheNetGeneration.pdf>

Dewey, Barbara. (June, 2002) "University of Tennessee's Collaborative Digital Media Spaces." *ARL: A Bimonthly Report on Research Library Issues and Actions from ARL, CNI, and SPARC*. No. 222, 4-5. < <http://www.arl.org/newsltr/222/collabtenn.html>>

Jukes, Ian and Anita Dosaj. (June, 2004) "Understanding Digital Kids (DKs): Teaching and Learning in the New Digital Landscape" The InfoSavvy Group. <<http://www.thecommittedsardine.net/infosavvy/education/handouts/it.pdf>>

Lightman, Harriet and Ruth N. Reingold. (January, 2005) "A Collaborative Model for Teaching E-Resources: Northwestern University's Graduate Training Day." portal, vol.5, no. 1. <http://muse.jhu.edu/journals/portal_libraries_and_the_academy/toc/pla5.1.html>

Lippincott, Joan K. (2005) "Net Generations Students and Libraries." In *Educating the Net Generation*, ed. By Diana G. Oblinger and James L. Oblinger. Boulder, CO: EDUCAUSE. <www.educause.edu/educatingthenetgen/>

Mitchell, Gregory A. (March, 2005) "Distinctive Expertise: Multimedia, the Library, and the Term Paper of the Future." *Information Technology and Libraries* vol. 24, no. 1, 32-36.

Moxley, Joseph M. (2001) "Universities Should Require Electronic Theses and Dissertations." *EDUCAUSE Quarterly* vol. 24, no. 3, 61-63. <http://www.educause.edu/ir/library/pdf/eqm0139.pdf>

National Research Council of the National Academies. (1999) *Being Fluent with Information Technology*. Washington, DC: The National Academies Press. <<http://www.nap.edu/catalog/6482.html>>

National Research Council of the National Academies. (2002) *Preparing for the Revolution: Information Technology and the Future of the Research University*. Washington, DC: The National Academies Press.

Oblinger, Diana G. (2004) "The Next Generation of Educational Engagement." *Journal of Interactive Media in Education*, vol. 8. <www-jime.open.ac.uk/2004/8>

Oblinger, Diana G. and James L. Oblinger, eds. (2005) *Educating the Net Generation*. Boulder, CO: EDUCAUSE. <www.educause.edu/educatingthenetgen/>

Prensky, Marc. (March, 2001) "Digital Natives, Digital Immigrants." *On the Horizon* vol. 9, no. 5.

Prensky, Marc. (December, 2001) "Digital Natives, Digital Immigrants, Part II: Do They Really Think Differently?" *On the Horizon* vol. 9, no. 6.

Prensky, Marc. (May/June, 2003) "Overcoming Educators' Digital Immigrant Accents: A Rebuttal." *The Technology Source*.