Questioning Assumptions About Students' Expectations for Technology in College Classrooms

by Sarah Lohnes and Charles Kinzer

As observers in both the popular media and academia have pointed out, institutions of higher education have increasingly begun to rethink the way in which teaching and learning occurs on their campuses in response to the matriculation of digital-age students, often referred to as the Net Gen or Millennials (Howe and Strauss 2000; Oblinger and Oblinger 2005). Computer and networked communication have become socially and culturally embedded throughout our students' lives. Students not only consume the elements of a digital lifestyle, but also play a role in the production of "social practices that are evolving beyond the school within digitally saturated milieux" (Lankshear and Knobel 2003, 175).

In this article we describe the results of an ethnographic study that sought to understand the ways in which liberal arts college students use technology to make meaning of their college experience in both academic and non-academic spaces on campus. While the students' technology practices in spaces like their dorm reflected a portrait of today's Net Gen student made familiar by the media and others, the students' reluctance to use technology in their classrooms challenged stereotypical assumptions about the Net Gen's expectations for technology on campus. Our results suggest that attention to context is of great importance if we are to move away from generalized assumptions toward a more nuanced understanding of the role that technology plays in college students' lives. Below, we briefly outline the current picture of the Net Gen before moving on to a description of the study and results.

Conceptualizing the Net Gen

Oblinger and Oblinger's (2005) description of Net Gen students—as digitally literate, connected, multitasking individuals who are likely to be visually oriented learners—tidily illustrates a common portrait of the Net Gen student. A recent report on college students' technology use provides another typical picture; students were observed using

multiple programs at once, logging in to an instant messaging program while working on papers, browsing Web pages while working on an assignment. . . . students were often observed congregating in the computer labs in groups ranging from two to seven people. . . . Socializing fits into college students' work environment, both online and offline. (Jones 2002, 18)

Some recent research has expanded this picture with empirical data; in particular, a good deal of data has been collected on patterns of student technology use. For example, recent research on Facebook has shed light on the role that social networking tools play in creating and maintaining relationships across online and offline contexts (Ellison, Steinfeld, and Lampe 2006; Golder, Wilkerson, and Huberman 2006). A variety of research provides specific details regarding patterns of students' computer use and attitudes toward computer use, both across campuses and on individual campuses (e.g., Kvavik, Caruso, and Morgan 2004; McEuen 2001; Mitra, LaFrance, and McCullough 2001).

Given such descriptions, educators have attempted to imagine how the Net Gen student functions as a learner and to consider what implications these new skills and practices might have for the classroom. Descriptions of students as multitasking and always connected have struck a chord with many educators, as has the suggestion that students may force teachers to adapt by refusing to accept "old" ways of teaching (Prensky 2001). Indeed, this idea still informs some thinking about the pedagogical impact that Net Gen

students will have on the classroom: "The traditional classroom paradigm is being challenged today, not so much by professors, . . . but by our students" (Duderstadt 2004, 14). This statement points to the notion that students themselves will actively push for changes in teaching, learning, and the classroom environment, although recent research that points out the more traditional uses to which technologies are put may pose a challenge to such assumptions (Rainie, Kalehoff, and Hess 2002; Jones 2002). To underscore this point, Caruso and Kvavik (2005) found that "Students want a 'moderate' amount of technology in their courses" (6).

While this is valuable information, the data reported in the studies were collected primarily through surveys and questionnaires, which represent decontextualized snapshots of technology use that provide little in the way of understanding why students use technology in the ways that they do. Indeed, comparatively little research looks at the social contexts that provide the sites for meaning-making in which student technology practices are embedded or the intersection of these practices with student learning. Yet physical, social, and ideological contexts proved crucial to our understanding of the technology practices of a small group of liberal arts college students—practices that complicated our assumptions about students and technology.

A Study of Liberal Arts College Students' Technology Practices

Our study took place during the summer of 2005, when nine students from eight liberal arts colleges in the Northeast, Southeast, and Southwest gathered on the campus of a Northeastern liberal arts college to participate in a new media institute for advanced student technologists. The participants included three women and six men—three rising sophomores, one rising junior, and five rising seniors. They were chosen from a pool of applicants on the basis of an application process that included a resume, two recommendations, and a personal statement regarding the applicant's interest in and experience with digital media production and theory. The majority of the students who were chosen to participate were already skilled users of image and/or video production and editing software, as well as Web publishing software. At the beginning of the institute, the students were asked to provide techno-biographies that described their relationship to technology; these documents provided helpful profiles of the students at the outset of the program (Exhibit 1).

The primary settings for the study included the new media institute and the dorm in which the students and researcher lived. Over the course of a month, the students participated in lecture- and discussion-based sessions on new media theory as well as hands-on work in digital media production. In addition, the students were given wireless laptops and were immersed in teaching and social environments that allowed and encouraged ubiquitous technology use. Other settings included the campus student center and a coffee house in town frequented by several of the students. While the study contains relatively few students, it has a significant breadth of data collected across multiple settings.

The research methods included participant observation across the settings described above. Field notes, one-on-one interviews with the students, focus group interviews, techno-biographies, and other artifacts such as the students' blogs and final projects provided the data for our study. These data were entered into the qualitative analysis software *nVivo* and coded recursively using a constant-comparative analytic approach (Glaser and Strauss 1967), which is used to look for themes and patterns arising from the data (Exhibit 2).

In analyzing the data, we found that themes relating to the physical environment and the students' attitudes towards teaching and learning in a liberal arts classroom were influential in shaping their behaviors and expectations for technology use. Although the students' technology practices as observed in the dorm fit expectations for Net Gen behavior, we were surprised to find that these Net Gen students exhibited a strong resistance to using certain technologies in the space of the liberal arts classroom.

Dorm

In the dorm, technology use was ubiquitous among the entire group of participants. The students had access to their laptops and to wireless Internet in the dorm, as well as to digital video and still camera equipment.

Based on their habits, one might easily gain the impression that laptop use was mandatory for participating in the social space of the living room. Indeed, a casual observer would see one person per laptop and total silence, perhaps inferring that the living room was a rather asocial space. Yet the students were connecting to each other by less obvious means. During much of their time in the living room, a subset of the students would circulate funny or interesting Web sites to each other via e-mail. Instant Messaging (IM) was also a popular tool, used by the students to maintain a running commentary on their actions and at times to discuss the actions of their peers. At times, technology provided the topic of conversation as students worked together to solve problems related to their projects or otherwise shared humorous Web sites and videos. Students used their laptops to complete homework assignments, play games, provide background music, and surf the Web, among other things. In these ways, the students represented and confirmed our received wisdom about the Net Gen.

Within the dorm, different practices shaped the different dorm spaces in sometimes unexpected ways. The kitchen provided what one might think of as a typical social space in which people congregated and talked; here, students cooked together and hung out in the attached dining area, where one was likely to hear conversation or music playing. Laptops and other technologies were mostly absent, although instances of laptop use for looking up a recipe or playing music did occur. Two or three of the students who usually ate their dinner alone proved to be an exception; these students would often have their computers with them during meals to surf the Web or play games.

Classroom

The technology practices of the students in their dorm provide a stark contrast to their observed and reported practices in the classroom. A theme of resistance to technology in the classroom crystallized in our discussions of laptop use; for a variety of reasons, the students almost universally reviled the idea of using a laptop in the classroom. One student provided an exception, discussed in more detail later.

On one level, the physical technology itself was a problem. For example, several students cited the distraction created by the sound of typing on the keyboard. In addition to being an auditory distraction, the "flipped-up" laptop screen was also seen as a physical barrier to classroom participation; one student said that it would be like having a vase of flowers between two people at a dinner table.

More than a physical barrier, the laptop was seen as a barrier to creating and maintaining the classroom community. This notion of a classroom community, fostered by small class sizes, a particular model of teaching based on real-time human contact, and frequent interaction with faculty members outside the classroom, was essential to how these students defined liberal education. In our conversations around this topic, several students told a similar story about a classmate—"the laptop kid"—that they described as the one "pretentious" student who brought a laptop with him to class. For these students, bringing a laptop into the liberal arts classroom was seen as an act of setting oneself apart from the rest of the class. To be a good liberal arts student is to be a contributing member of the physical community bounded by the classroom space, a space that excludes certain technology.

The students' definitions of a good student were formed in part by their attitudes towards teaching and learning at a *liberal arts college*. For many of the students with whom we spoke, this involved fairly traditional models of teaching and learning. We were told, for example, "you go to a classroom to learn, to pay attention, that's why they are separated physical spaces"—an implication that learning primarily happens in the classroom. And how does learning occur? "We're there to get the professor's expertise, we're saying to the professor lead us through this material." Additionally, a student told us "if [a laptop is] appropriate for what you're studying, then I think it's great, but if you're sitting around discussing Thoreau, I would think you wouldn't want a laptop . . ." In general, the contextualized nature of appropriate laptop use was strongly implied.

"The Laptop Kid"

One student in the study provided an interesting contrast to the others. Roberto, a rising junior at a liberal arts college in the Southwest, was "the laptop kid," and he openly described multitasking in many of his classes. This use of technology fits with his personal philosophy of teaching and learning: Take from the class what you need. Roberto was very active in many groups on campus, and he regarded this participation as integral to his college life; he saw it as a learning experience, and he appreciated the flexibility of being in charge of his own learning experience. So, he said, if a professor is talking about something that he already knows, he feels comfortable maximizing his time and experience by taking care of other business via e-mail or the Web (Exhibit 3). Although this practice elicited negative responses from his peers in the new media institute (Exhibit 4), he was unapologetic, saying "You can choose if you want to be distracted by the tablet [PC] . . . or pay attention to the professor."

Roberto's use of technology in the classroom and his views on teaching and learning are more in line with what many people view as Net Gen behavior, but these views and behaviors are not yet nearly predominant among the liberal arts college students with whom we spoke. Although these students embrace technology in many contexts, the ideology of liberal education, put in practice through certain ways of teaching and reinforced by students who identify themselves with that ideal, is still powerful in shaping expectations and behavior in the classroom. This ideal appears, at the moment, not to include technology in traditional liberal arts settings.

Conclusion: Questioning Assumptions

The results of our study were surprising and led us to question several of our previously-held assumptions. First, our experience led us to question the notion that being part of the Net Gen means that college students seek to integrate technology into all aspects of their college experience. Indeed, the results of our study indicate that—with the exception of Roberto—we may not be at the point of changing the classroom practices of either professors or students, contrary to common assumptions. This finding echoes Roberts (2005), who stated that "the Net Generation's general expectations regarding leading-edge technology have not fully impacted its expectations about the use of technology to support learning" (3.6). Caruso and Kvavik (2005) go further in positing that "these young people can make technology work but cannot place these technologies in the service of academic work" (7). But is it fair to say that they cannot do so? Or is it that students do not want to integrate technology into the classroom (at least, do not want to in the liberal arts college context)? As a research community, we do not yet have enough data to answer these questions; much nuanced and complex work still needs to be done.

Our findings also lead us to question a second common assumption: All college students are alike. One implication of our results is that these students' attitudes and beliefs toward technology are integrated with their experiences as (specifically) liberal arts college students. Undergraduate students at highly technical institutions may (and likely do) hold different beliefs about teaching and learning, as well as the role of technology in that experience, which may in turn shape what they consider to be a good student in their institutional context. This underscores the point that, given the multiple ways that technology is culturally embedded in Net Gen students' lives, we should not make blanket assumptions about its use.

Finally, challenging assumptions may also have implications for research methodologies. As described above, current research has relied heavily on surveys and questionnaires, but these provide only limited insights into "insider" practices. There is a need for more ethnographic and mixed-method studies to begin to fill in the gaps around the "why" and the "how" of college students' technology practices. Future work that pays closer attention to context as an influence on technology practices will give us a better idea of the situated nature of college students' experiences and their needs related to technology.

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