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3 *On-line learning in second language classrooms*

An ethnographic study

Mark Warschauer

The great enthusiasm about the potential of computer networks for language learning has not yet been matched by research on what actually occurs in on-line classrooms. Much of the published literature on the topic consists of anecdotal teacher reports. The small number of systematic studies that have been published have reported on narrow slices of data, such as the outcome of particular class sessions (e.g., Kern, 1995) or students' use of particular discourse features (e.g., Chun, 1992). Yet, language learning is a complex social and cultural phenomenon, even more so when it involves new technologies that connect the classroom to the world. Short-term quantitative studies may fail to account for the complex interaction of social, cultural, and individual factors that shape the language learning experience. Researchers in education and applied linguistics are increasingly turning to interpretative qualitative approaches, such as ethnography (see, for example, the fall 1995 special issue of *TESOL Quarterly*), but thus far few ethnographic studies have been conducted on uses of technology in the language classroom.

This chapter reports on a 2-year ethnographic study of on-line learning in four college language and writing classrooms in Hawaii. I undertook the study in order to attempt to achieve a holistic, contextualized understanding of the actual implementation of on-line learning. By immersing myself over a prolonged period in the culture of the classrooms and institutions, I sought to determine "the *immediate and local meanings of actions*, as defined from the actors' point of view" (Erickson, 1986, p. 119; emphasis in original). In other words, I attempted to understand how the students and teachers themselves perceived the experiences, rather than trying to fit their behaviors or comments into predesigned research categories.

In the study, I chose classrooms that reflect the cultural and linguistic diversity of Hawaii, focusing in particular on students who could be described as struggling to achieve equal access to language and technology. The classes included (1) an undergraduate English as a second language (ESL) writing class of Pacific Island, Asian, and South American students in a small Christian college; (2) a graduate ESL writing class of Asian students in a public university; (3) a writing-intensive undergraduate

Hawaiian language class of Native Hawaiian students in a public university; and (4) an undergraduate English writing class of immigrant, international, and ethnically diverse American students at a community college. The research methods I used were similar across classes, and included longitudinal open-ended interviews with students and teachers; audio- and video-taping of class sessions; analysis of students' e-mail messages and other electronic texts; and participant observation in the classes. The nature of my participation varied; I assisted in all classes in helping the students during computer-based activities, and in the Hawaiian class I also participated as a language learner.

The entire study has been reported at monograph length elsewhere (Warschauer, 1999). In this chapter, I will summarize the main findings. These relate to (1) the effect of sociocultural context on use of technologies, (2) the importance of electronic literacies, and (3) the purpose of literacy activities.

Sociocultural context

One of the most striking findings of the study was how implementation of new technologies varied from classroom to classroom, influenced by the general institutional context and the particular beliefs of each individual teacher. This is best illustrated by briefly discussing each college and class.

*ESL at Miller College*¹

Miller College is a small Christian institution tied to what might be described as a conservative, evangelical Christian church. The purpose of the college, as stated in the college catalog, is to help prepare students for a life of service to Christ and to the church. Most of the students become missionaries during or after their studies, at least for a period of time. The college has a number of strict rules of behavior controlling students' dress and moral conduct.

The teacher of the ESL class I observed, Mary Sanderson, had herself studied in another institution of the same church and was a devoted follower. She was a strict believer in order and discipline, both on campus and in class. Her general attitude toward order and discipline extended to her approach toward writing as well. For Mary, a good essay was one that included, according to one of her handouts, "an introduction of three sentences with a thesis statement at the end; 2–3 development paragraphs

¹ All names of teachers, students, and institutions are pseudonyms unless otherwise noted.

(with 5+ sentences per paragraph) with keyword and 'most important' transitions in each paragraph; comparison transition in the body of each paragraph; and a conclusion of at least three sentences."

Mary used technology in order to help enforce an atmosphere of discipline and order in the classroom and in writing. Students had on-line quizzes that they had to complete the first 5 minutes of class to help ensure that they were not late. They used the World Wide Web, at least in the first half of the semester, not to search for information, but rather to take further grammar quizzes. They used computer-mediated communication in the classroom to share their paragraphs with their classmates so they could be checked for correct inclusion of topic sentences. They also wrote "letters" to long-distance key pals (i.e., e-mail pen pals), but these were in fact brief essays that were first corrected for a grade by the teacher, and then reedited and sent.

*ESL at the University of Hawaii*²

The University of Hawaii is a large public university with a liberal faculty and an ethnically diverse student body. The university's English Language Institute is administered by a radical Freirian educator. Most of the teachers in the institute are graduate students who are similarly interested in devolving power to students.

Luz Santos taught a graduate ESL writing course in the institute. Luz, herself a foreign student, believed that learning to write involved gaining access to new discourse communities. In her class she emphasized practices that would allow international students to critically explore ways of thinking, researching, and writing in American scholarly institutions.

Luz used electronic communication in a way that she hoped would further these goals. Students used computer-assisted discussion to share their ideas about discourse conventions in the United States, comparing, for example, notions of plagiarism in the United States and in their own countries. They wrote e-mail journals to the teacher to further explore the same topics. They joined academic listservs so as to participate in new discourse communities. They were asked to publish Web pages with their biodata and copies of a paper in order to further the process of connecting themselves to the broader academic community.

Hawaiian language at the University of Hawaii

In the third class I researched, students were learning Hawaiian, not English. Thirteen of the fourteen students in the class were of Native Hawaiian ancestry, though none grew up with anything more than a smattering

² I have used the real name of the University of Hawaii throughout.

of Hawaiian. They were taking Hawaiian to fulfill the university language requirement and also to learn more about their own culture and language.

The faculty of the university's Hawaiian department consisted of politically aware Hawaiian educators and activists who were committed to revitalizing the language and securing more social, cultural, political, and economic rights for the Hawaiian people. Kapili Manaole, who taught the class I observed, was no exception. She had been involved in Hawaiian-language education for more than a decade, and her work as a language teacher was inseparable from her broader activism on behalf of Native Hawaiian rights. Kapili's political agenda extended to her use of new technologies as well. She hoped that students, by reading, writing, and communicating in Hawaiian on-line, would develop a sense that Hawaiian was a language of the future and not just of the past.

Students in the class carried out computer-assisted classroom discussion on a range of topics, some related to their personal lives and some related to cultural and political issues of importance to the Hawaiian community. They attempted an e-mail exchange with a Hawaiian class at another school in order to deepen the sense of Hawaiian community and solidarity on-line. Their final project was to carry out research reports on an aspect of Hawaiian culture and life, which they then developed into multimedia hypertexts and posted on the World Wide Web.

English at Bay College

As a large urban community college of ethnically diverse students (including a large number of immigrants), Bay College has a dual mission. On the one hand, it must prepare students of diverse academic backgrounds for transfer to the University of Hawaii; on the other hand, it must prepare large numbers of its students to enter directly into the workforce.

Joan Conners, an experienced English teacher at Bay College, used technology to try to achieve both these ends. Joan's English class included twelve immigrant or international students and six Americans (three ethnically Filipino students born in Hawaii and three white students from the U.S. mainland or Alaska). Joan believed that students' academic writing would improve through an immersion experience. In the first half of the semester, she used computer-assisted discussion almost exclusively – with very little face-to-face discussion, in order to give her students as much writing practice as possible. Students used these computer-assisted discussion sessions to tackle issues related to two academic essays that they wrote.

In the second half of the semester, the class took an even more practical turn, with students working in groups to create informational Web pages requested by community or campus organizations. Writing during

this half of the semester focused to a large extent on the kind of short informational blurbs found on an organization's Web page; the purpose was not to write extended academic texts, but rather to gather information and express it in a communicative, brief style, surrounded by appropriate images and backgrounds, to effectively get across a multimedia message.

These four classes provided a powerful illustration to me that the Internet itself does not constitute a method, any more than books, or blackboards, or libraries constitute a method. Rather, each teacher shaped her teaching according to both her own beliefs *and* the more general socio-cultural context. In this case, there was much overlap between the beliefs of individual teachers and the perspectives that seemed to be common in their departments and institutions. Mary Sanderson's structural approach was highly congruent with the outlook of her department, college, and church. Luz Santos's dialogical approach, which sought to involve students in critical reflection of new discourse communities, again reflected the values of the department in which she taught. Kapili Manaole's "language learning as sociopolitical act" view reflected the perspectives of her community and her department. And Joan Conners's practical approach – in which students learned to design the kinds of multimedia documents increasingly demanded in today's business world – was congruent with the vocational emphasis of the community college in which she taught.

One question that is sometimes raised is whether technology contributes to an empowering role for students or whether it serves to heighten aspects of social control (see the discussion in Warschauer & Lepeintre, 1997). This study suggests that technology can be bent to serve the particular purposes and beliefs of individual teachers and the contexts of their institutions. Critical, then, to thinking about how to use new technologies is not the particular techniques themselves, but rather the broader purposes to which they are put. A teacher who favors structuralism will use technology in a structural way. Teachers who favor constructivist or critical approaches will similarly find ways to use technology to further their ends.

Electronic literacy

In spite of the differences between the classes, there was also an important common thread: The students in these classes did not experience new technologies principally as an aid to second language learning; rather, they saw themselves as developing new literacy skills in a new medium of critical importance for their lives. The fact that they were learning these skills in a second language was to them either an expected outcome (for the ESL students, who tended to see English and computers as a natural

combination) or a fortuitous turn of events (for students of Hawaiian, who had not previously learned to think of computers and Hawaiian as being linked but developed a new understanding of the relationship through the course).

In other words, students saw themselves as developing important new life skills that integrated technology and language. It was not as if “language” existed independently of the computer and the computer served as a vehicle to help them learn this autonomous language. Rather, learning to read, write, and communicate in the electronic medium was seen as valuable in its own right. I will illustrate this by looking at the three main groups of language learners in this study: international students, immigrant students, and Native Hawaiian students.

International students

Mary Sanderson’s class at Miller College and Luz Santos’s class at the University of Hawaii were made up of international students who were pursuing degrees in the United States but who were planning on returning to their countries. From my interviews with these students, I learned that they saw themselves as developing the skills to successfully compete in a world that they viewed as dominated by English and new technologies. These students saw technology as integral to their ability to compete in a U.S.-dominated high-tech global economy. As a female Korean student at Miller College told me, “I hated computers before, but it’s either conquer or be conquered. So I wanna conquer computers rather than be conquered by them.”

Prasit, a master’s student from Cambodia, discussed how new technologies and English are intertwined in his country:

It’s very important, because in Cambodia, if you to ask for a job at an NGO [nongovernmental organization] or somewhere else, the first thing they ask is computer skills and English speaking. They’re very important for my career. . . . I like this class very much, because it use computer and make me very interested. Some time I sit in the class for one hour, and it feels like five minutes.

Prasit told me that he enjoyed the computer-based discussions in class, not so much because they improved his general language or writing skills, but rather because they helped him become more fluent in writing and communicating via computer. He said, for example, that he preferred computer-assisted discussion to oral discussion because it gave him more chances to practice and improve his typing.

Bagus, a middle-aged doctoral student from Indonesia, was similarly highly motivated to learn more about using computers. For a number of years, Bagus had worked as a professor of forestry in a small university

in a provincial area of his country. He was sent to the United States by the Indonesian Ministry of Education with funding provided by the Asian Development Bank in order to assist in the development of young universities. Bagus explained to me why he felt that learning about computers was important to his task here.

We are a small university, far from Jakarta, we get very little funding from the department to attend outside seminars. Sometimes we can attend seminars in Jakarta, but only once could I attend outside the country, in the Philippines. We have a library but it needs to be improved. The computer right now is very important, you can get information from outside and I can also submit my findings or what I have done, because maybe I cannot attend seminars, because I cannot buy tickets, but by computer I can distribute the results of my research, so everybody else can know what I’ve done or find out.

Bagus devoted a great deal of time and energy to trying to learn about computers. He diligently copied down all computer-related instructions given in class, including those thrown out casually, and often asked that instructions be repeated. He sometimes came to my office for extra assistance or questions regarding using computers, related both to uses of the Internet and to formatting problems with his papers. He also used on-line discussion sessions to ask other students for computer-related tips, such as how to improve his typing. In spite of limited funding, he bought his own laptop computer during the semester, and by the end of the semester he was in regular e-mail contact with his colleagues in Jakarta.

Bagus and Prasit had very little previous experience with computers. Yet, even international students with more experience tended to similarly value new technology-based skills they were learning. Ping, a Chinese student majoring in political science, found and subscribed to an Internet service that sent out a weekly e-mail newsletter about events in China, which provided much more current political news than he could find in the library. Miyako, a Japanese student, subscribed to an e-mail list about Southeast Asian affairs and said that she benefited from newspaper articles from Southeast Asian countries that were regularly translated and posted there. Xiao Hui, a female graduate student in linguistics, became a real listserv enthusiast, subscribing to five lists related to her major. All these students told me in interviews of the value of learning these types of Internet-based research skills in class.

Zhong, a graduate student from China, had a lot of previous experience with both computers and the Internet, but had little knowledge of the genres of e-mail communication. During the semester, he had a major conflict when some colleagues in Sweden sent him an e-mail suggesting that they, not he, should be first author of a paper that they were writing. Zhong’s first response to them was far too general and indirect for e-mail. Luz worked closely with him (via e-mail) to help him learn to write in an effective way in this medium. Zhong summarized what he learned from

this intensive on-line exchange in an e-mail message to other students in the class:

1) When we communicate with somebody in English, as well as other languages, we have to understand the culture of whom you are communicating, and think according to this culture. Further, to familiar the culture other than you native culture may be more difficult than language learning itself.

2) Nowadays, INTERNET provide a great environment to communicate more frequent, wide and fast than before. During the disputation, I communicated with 14 persons, over 50 emails. Supposed without email, we would spend at least 2 months to discuss. During this two month period, both of us can complete one paper each.

Not all the international students felt unambiguously positive about the use of computers in their classes. Many of the students in Mary's class, and a couple of students in Luz's class, felt that too much time and effort was being put into technology at the expense of learning about English and writing. As a Korean student in Luz's class commented:

I think combining writing with computer is a very good idea because most papers are supposed to be written in computers, but the problem is how much emphasis is laid on the computer skills. We can learn computer skills at any time and from anyone who knows how to operate it skillfully. But not the writing skills. That's why I said to you that this class should concentrate more on the writing skills.

Just what factors seemed to contribute to positive and negative electronic literacy experiences will be discussed later on in this chapter in the section on the purpose of literacy activities.

Immigrant students

The other major group of nonnative English speakers were immigrant students, who had achieved permanent residency in the United States or were aspiring to it. These students, who in this study were all undergraduate community college students in Joan Connors's English class, were struggling with how to best work toward academic and vocational success in their adopted country. Students in this group also tended to value electronic literacies, though for somewhat different reasons.

A number of these students saw the opportunity to use and practice electronic literacy skills as a chance to overcome communication disadvantages that they might have in an English class. For example, a Chinese student named Weibing explained to me that she benefited from Joan's emphasis on computer-assisted discussion:

Last semester I took another English class with American students, and we did a lot of talk, but I didn't participate that much, because sometimes I want to say but I don't know how to say. When I talk I'm afraid that I'll

make mistakes, so I don't like to talk in front of my class. I don't like that kind of pressure.

In [computer-assisted discussion], I do participate, I'm not shy about that. Sometime I just double-check before I send it. At least I have time, I can think before I write or when I write I can think, not like the way of talk, you just don't have time to think. In this class we do a lot of [computer-assisted discussion], and to help you to understand what we read, sometimes we have assignments, so it helps. Because you can get from other students, views or opinions from other students. Like when we read those textbooks, that essay is hard to read, I mean it's hard to understand so when we talk, I mean when we write, it helps to understand and get more. I like to sit there and write the opinion, not just talk, because I think that is easier for me to participate. I'm not afraid that I will make mistakes when I talk, that's the reason so I like this class.

I know American students like to participate, they like to ask questions, answer questions, but not for Chinese students, because we were trained differently, we were trained to listen, just listen.

Similarly, Japanese students working on a group project told me that they very much enjoyed being able to conduct interviews by e-mail as this helped make up for difficulties they have in listening comprehension.

Other students valued the opportunity to develop skills in nonverbal media to complement their developing skills in English. Two of the immigrant students in particular had a very strong interest in computer-assisted design and graphics, and thus relished the opportunity to be in an English class where they could learn to integrate writing and graphic work through the development of multimedia Web pages.

Native Hawaiian students

Most of the Native Hawaiian students in Kapili Manaole's class were from low socioeconomic backgrounds and similarly had little previous access to computers. A typical example is Kapua, a young woman from one of the poorer areas of the state. She had been admitted to the university through the College Opportunity Program for students from low-income areas. She had never previously used the Internet and did not have a computer at home. When I asked her if she had used a computer in high school, she took the opportunity to give me a broader view of what her high school experience was like:

In high school I don't remember even going on a computer. In elementary school, yes, but never in high school. High school was so easy, but it was like I wasn't learning anything, 'cause the teachers was like OK, do questions 1 through 10, and then turn it in at the end of the class, and that's the whole class period, you just answer questions from the book, and once a week we would do labs, but we didn't learn anything in the labs. Even English, we would just read paragraphs, like, the teacher would call like, OK Kerrie read

the first paragraph, Makala read the second paragraph. And that's all we did. And we never had conversation, like OK, what'd you guys think about this? We just read. And then after we read that book, like Macbeth, we would watch the video. That's it.

She became quite excited about using new technologies in class, though, including computer-assisted discussion, e-mail, and, especially, making pages for the World Wide Web. She explained the impact that the class had on her knowledge and attitude toward using computers:

This class is very challenging, very interesting. It's really good. I think this is one of the best classes that I took, that really made me learn so much in a semester. Especially in computers. This is the first class where I used a lot of computers in the class, and I'm thinking of buying me one. I think it will be a good investment. A lot of things that it can do, like making a Web page, that was exciting, I didn't know you could take pictures with a digital camera, and e-mail, that was good too. I think it was really interesting. It just made me like the language more, using the computer you can see what other students have learned in the Hawaiian language, especially with the Web page.

I was either gonna use the rest of my money from my scholarship to fix my car or to buy a computer. And I think I would rather buy a computer, 'cause my sister and brother are in elementary and intermediate. And I think if I teach them things in the computer, 'cause right now they're just relaxing, they don't really care about school. They're not really studious in their classes, like my sister, she really doesn't care about school. I think computers can motivate them. So I think that that would be a good investment.

Next fall I'm gonna try to enter college of education. I'll try to use computers, I think it will be more exciting for kids, too, yeah, instead of those same old boring lectures and writing on the chalkboard kind of stuff. I'll teach science, I think it's interesting. Especially you find all kind of stuff to get the kids' attention, like projects and maps. Computers'll help too 'cause they'll see what other schools have done in that same project that we did.

Students had not been expecting to combine computers and Hawaiian, but all of them had been pleasantly surprised by the combination. As a male student named Kamahale told me:

It's like a double advantage for us, we're learning how to use new tools, like new technology and new tools, at the same time we're doing it in Hawaiian language, and so we get to learn two things at once. We learn new technology, and implementing it with Hawaiian language, which I think is really, really good. It looks almost as if it's a thing of the future for Hawaiian, because if you think about it, maybe there's [only] a few Hawaiian-language papers. But instead of maybe having a Hawaiian-language newspaper, you have something that might be just a little bit better, like the World Wide Web, it's like building things for all the kids who are now in immersion and even for us, someplace to go and get information, and so that's kind of neat, what we're doing, we're doing research and then finding out all that we can about a topic and then actually putting it on the World Wide Web, and then having that be useful to somebody else in the future.

The purpose of literacy activities

From the preceding discussion, we can see that students experienced the use of technologies in these classes, not as an aid for learning language or writing, but rather as an important new medium of literacy in its own right. In most cases, they saw a focus on new electronic literacies as complementing and contributing to their more general learning purposes. In other cases, they saw work on computers as taking away from the main purpose of the classes. What, then, seemed to help or hinder a positive integration of electronic literacies with the more general content material of the classes? Although there were many different contributing factors, I view them as all connected to a single overriding principle: the purpose of electronic literacy activities. In short, if students understood the purpose of the activities, found them culturally and socially relevant, and were able to use the new media in appropriate ways to strive to achieve the purpose, the activities were most successful. In situations where students did not understand the purpose, found the purpose culturally or socially irrelevant, or were instructed to use the new media in ways that were not appropriate for the purpose, the activities were less successful. A comparison of the features and results that describe the strong- and weak-purpose activities noted in this study is given in Table 1.

I will illustrate examples of these by revisiting each of the four classes. In Mary Sanderson's ESL writing class at Miller College, computer-based assignments included on-line grammar exercises, numerous typing drills (even for students who already knew how to type), small-group electronic exchange of paragraphs for correction, and submission of short e-mail letters to be corrected by the teacher before being sent to a number of different key pals. Students perceived most of this to be computer busywork with little or no relationship to their goal of becoming better writers, and they resented it. They felt overwhelmed with tedious tasks, especially during the first half of the semester. As Julie, a female student from Samoa, told me:

I think this class is called writing. Essay writing is what we should be doing, something that would help us learn how to write. Computer grammar exercises are a waste of time. The style of writing to key pals, just redoing the essays and sending them to the key pals, it's a waste of time. She doesn't see what's going on. On my essay, I always get 19 out of 20. But I fell behind because I couldn't do all those other assignments.

Students complained to me during interviews, and they resisted passively and actively in class. Facing a sullen group of students, Mary eventually put to a vote the question as to whether students even wanted to continue meeting in the computer lab. A narrow majority of students voted no. Mary moved many of the class sessions out of the computer lab

TABLE I. STRONG-PURPOSE VERSUS WEAK-PURPOSE ELECTRONIC LITERACY ACTIVITIES

<i>Strong-purpose activities</i>	<i>Weak-purpose activities</i>
<u>Conditions</u>	
Students understand well the purpose of the activity.	Students have limited understanding of the activity's purpose.
Students find the purpose socially and culturally relevant.	Students find the purpose to have little social or cultural relevance.
Students find the electronic medium appropriate for fulfilling the purpose.	Students find the electronic medium inappropriate for fulfilling the purpose.
Students are encouraged and enabled to use the range of medium-appropriate rhetorical features to fulfill the purpose.	Students are not encouraged or enabled to use medium-appropriate rhetorical features to fulfill the purpose.
<u>Results</u>	
Students experience high motivation and engagement.	Students become bored or demotivated.
Students strive for excellence.	Students make minimal effort.
Students learn to communicate more effectively in a new medium.	Students learn little about the new medium.

and reorganized the class curriculum and assignments. In the second half of the semester, students were given more free rein to write to their key pals to gather information for their research papers (without being first corrected), and they were similarly taught and encouraged to use the Web for independent research. They were also allowed to develop a student-produced videotape to share with their partner class. Students' morale improved and, within certain limits, they seemed to gain more valuable research and writing skills. For example, in their last paper they integrated material from the interviews with their key pals and from the World Wide Web to compare aspects of their own and their key pal's culture. Although their papers were still somewhat stilted, the students at least had to engage in the process of gathering authentic information from different sources and attempting to put it together in a coherent framework.

In Luz's graduate ESL writing class at the University of Hawaii, students used computer-mediated communication for a number of authentic purposes. These included seeking information from listserv discussion groups and communicating by e-mail with the teacher regarding their questions and concerns about writing. Several of the students communicated quite regularly with Luz, and she was able to provide detailed feed-

back on their particular writings as well as on their questions about the writing process.

These computer-based activities worked well because they matched the purposes and goals of the students in the class, which were concentrated on improving their academic research and writing abilities so they could succeed in their graduate majors. However, when Luz gave computer-based assignments that did not match these goals, students similarly resisted. For example, Luz had students make their own homepages to put up on the World Wide Web. Her idea was that these could be linked to their curriculum vitae and perhaps to one or two of their writing samples, thus helping students achieve an academic presence on-line. The students were for the most part just beginning their master's studies, and they felt they had little academic profile to project. For most of the students, the assignment seemed like a detour from their academic goals, and they devoted little effort or attention to it. Here, for example, is the text of a not untypical page created by one of Luz's students:

Ping Chu Homepage

under construction

This forthcoming homepage is under construction. Come again. Well, I am still confused on what I can put on this homepage, and I am busy to make some changes as well, may you have any suggestions, please let me know. Any help from you would be much appreciated. E-mail address: ping@hawaii.edu

Kapili Manaole also had mixed results from her computer-mediated communication. She attempted to arrange an e-mail exchange with another class. However, the topics for the exchange, which were assigned on a weekly basis, lacked any strong focus and were not integrated with other class activities. In addition, the students at the other site seldom answered as they had little access to computer labs. As a result, for most of Kapili's students, the activity became an exercise in sending meaningless messages without much chance of response. Needless to say, they soon grew tired of it.

In contrast, Kapili developed a World Wide Web project that was thoroughly integrated into the course content and that matched well the students' overall goals for taking the class. The students, all but one of whom were Native Hawaiians, told me in their interviews that they wanted to take the class to learn about and promote their Hawaiian culture. When they started to explore the World Wide Web, they found little content about Hawaii, other than tourist sites, and virtually none of it in the Hawaiian language. They thus felt highly motivated to contribute to the development of Hawaiian-language cultural information on the Web.

In addition, Kapili encouraged students to take advantage of the full multimedia capacity of the Web in order to develop their sites. Some teachers might worry that this would detract from students' attention to

texts, as they worry instead about background images and graphics. However, Kapili frequently checked the students' texts and encouraged them strongly to write to the best of their ability. Students thus devoted great amounts of attention to their texts and to the overall presentation. They spent long hours in the computer laboratory outside of class learning and practicing new skills such as photo editing and on-line layout. The students ended up producing sophisticated multimedia Web sites dealing with aspects of Hawaiian culture.

The Web assignment had an electrifying effect on the students. Almost all the students tried to take Kapili's class the following semester; several spoke of deciding to purchase computers or enroll in other computer courses. Others spoke of developing a better understanding of how Hawaiian could be connected to the present and the future, not just the past.

A 20-year-old student named Onaona provides a good example of how students responded to the assignment. Onaona had long had an interest in Hawaiian language and culture because of her family background but was having a hard time meshing her interest in Hawaiian with other interests, such as mass media. In the class, she produced an in-depth multimedia Web page about one of the last Hawaiian princesses. Through working on the project, she began to see new possibilities for combining her interests in Hawaiian and media. She decided to change her major to education so that she could become a teacher in the state's Hawaiian immersion program working with children on multimedia projects.

Finally, Joan Connors used service learning projects in order to promote an authentic purpose for students' computer-based writing. She had teams of students work with campus and community agencies to develop authentic brochures or Web pages requested by the organizations. As with the other classes, the success seemed to stem from the extent to which the students understood and internalized the purpose. For example, two students worked to develop a brochure for Bay College's Career Placement Center. However, they put very little effort into it and produced a mediocre piece of writing. When I asked one of the students about the assignment, she explained to me:

I didn't think this [brochure] is a real thing, because when I talked to [the Center director] and she said some students did a brochure before and we just leave it here and not use it, so that I realized, oh, it's not that important . . . I think because she knew that I'm a foreign student she probably didn't want to pressure me. It's like, just do your best, and no matter what kind of things will come out, we'll accept it. We will accept it, but it doesn't mean we'll use it. I don't know if they will use our brochure or not.

A contrasting situation was seen in a group of three students who developed a Web site for the Hawaii Writing Project. From the very beginning, they knew that the Web site they developed would be posted on-line,

and they took their responsibility quite seriously. The group worked extremely hard to build an elaborate site with twelve separate pages. Some of the pages included material supplied by the Hawaii Writing Project director (such as the group's newsletter), and other pages were written by the students based on interviews they conducted and information they gathered. The students made a maximum effort to address the concerns and needs of the Writing Project's staff and participants as well as the interests of the readers of the Web site. For example, part of the Web site included profiles of the project's staff and board members. These profiles had been obtained through e-mail interviews. I observed the students while they were editing the profiles for the Web page. The issues they dealt with included:

- *Formality.* What level of formality was both appropriate for the Hawaii Writing Project and of interest to the readers?
- *Consistency.* How could they achieve a level of consistency among the individual profiles without straying too far from what individuals had stated in their interviews?
- *Organizational Integrity.* How could they organize and present the information so that it projected a coherent image of the organization overall and the proper relationship between its various constituents?
- *Readability.* How could they edit and present the information so that it was most accessible to the readers?

They worked closely with the director of the Hawaii Writing Project throughout this effort, showing him various drafts of the pages and making changes based on his suggestions. The end project was an attractive multipage Web site that included background information on the organization and its leaders, reports on upcoming conferences and events, an on-line copy of the group's newsletter, and links to affiliated organizations. One of the students, Anne, shared her comments with me about this service learning project:

I feel that's a great way to go, though I mean you're still learning how to write, but you're learning how to write like in the real world. You know when you go out in the business world or something, it's the same kind of thing, what we've been working on, for me anyway, making the pages and everything. Your audience is broad. You know what I mean. You have a broad audience, just like if you're working a job. You feel more responsibility than if it was just like a paper about John F. Kennedy or something [laughs]. Where's the responsibility in that? But for me I feel a responsibility to the Hawaii Writing Project, you know, 'cause that's a public service and if what I do doesn't look good then the Hawaii Writing Project doesn't look good. So it's a lot more responsibility than the regular English writing assignment. I think the responsibility of it makes you do even better work. Plus the fact that you're gonna have an audience. If you don't write well and clearly, you're gonna look like a fool, and you don't wanna look like a fool, so you're gonna do the best job you can, right?

Summary

The fact that having an authentic purpose is beneficial for learning is not a dramatic new insight. It certainly also applies to language and writing classes that are taught without computers. However, several additional twists on this point emerge from the observations above. First of all, research in both the classroom (Sandholtz, Ringstaff, & Dwyer, 1997) and the workplace (Zuboff, 1988) indicates that using computers seems to raise people's expectation that they can fully participate in and determine the shape of meaningful activity, so they are even more frustrated than usual when they are not given the opportunity. This might explain, for example, the resistance shown by students in Mary's class, who could sense the potential of computers for authentic communication but were at first denied opportunities to use them that way.

Second, it should be noted that authentic purpose generally coincides with rhetorical appropriateness. For example, many teachers enthusiastically view the Web as a chance to publish students' work but fail to give students the opportunity to develop their writings in ways appropriate for the Web medium. If this study is any indication, though, students view the Web not merely as a publishing vehicle but also as a rhetorical medium in its own right. They appropriated the task of writing for the Web best when they were encouraged and enabled to use a full range of medium-appropriate rhetorical styles incorporating texts and graphics. Similarly, e-mail has its own particular rhetorical features, and second language students can benefit from learning and practicing those features as well.

Third, although authentic communication is a necessary condition for purposeful electronic language use, it is not a sufficient condition. In this study, after some initial enthusiasm, students later tired of communicative on-line tasks that they perceived as meaningless; these tasks certainly did not bring forth the kind of effort and attention usually required for heightened learning. On the other hand, tasks that students perceived as being tied to larger, more important goals – developing academic research and writing skills, maintaining and promoting their language and culture, providing service to real organizations – did engender high motivation and serious engagement. Students paid closer attention to their language use during such tasks, and the extra effort resulted in more polished work and, one assumes, greater learning.

Fourth, the Internet appears to be a particularly important medium for fostering the exploration and expression of cultural and social identity. This has been pointed out earlier by Turkle (1995), based on her years of research on teenagers' on-line activity. Yet, although Turkle emphasized teenagers' use of anonymous chat lines to explore fantasy selves, students in these classes seemed to be developing their notion of their "real" selves

(cf. Tobin & Tobin, 1997), in some cases making important life decisions based on their evolving identities. This was true in Kapili's class, where students used the World Wide Web to explore their sense of what it means to be Hawaiian, as well as in Luz's class, where several students used e-mail to explore their sense of what it means to be a graduate student.

In summary, then, for electronic learning activities to be most purposeful and effective, it would seem that they should (*a*) be learner-centered, with students having a fair amount of control over their planning and implementation, (*b*) be based on authentic communication in ways rhetorically appropriate for the medium, (*c*) be tied to making some real difference in the world or in the students' place in it, and (*d*) provide students an opportunity to explore and express their evolving identity.

Conclusion

Ethnographic research does not claim the generalizability that is often asserted of quantitative studies. Readers themselves must think about what other situation might be similar enough for some of the results of this study to be applicable. In particular, I should point out several constraints pertaining to this study. First, all the classes were of second language students, rather than foreign language students. Second, all the classes included an important focus on writing. Third, almost all the students were nonwhite language-minority students who faced some degree of marginalization from an on-line world that was launched and is still largely populated by middle-class white, native English speakers. A class, for example, of middle-class Americans studying German 1 in the U.S. Midwest, with an emphasis on oral communication skills, might face very different imperatives for on-line learning.

On the other hand, issues raised in this study – in particular the need for electronic literacy and the factors that help shape its development – will likely resonate with other classes of students confronting the power of global English, such as students in EFL, ESL, indigenous, or bilingual educational programs. By developing electronic literacy, students in these kinds of programs can learn to better participate in the English-language-dominated on-line world and also to carve out on-line space for their own language and culture. The Internet does not constitute or prescribe a particular teaching method; rather, it is an important new medium bringing together tens of millions of people throughout the world. The existence of the Internet provides the potential for purposeful, powerful use of on-line communication in language and writing classes. It is up to us to give life to that purpose and thus achieve the full potential of computer networks in second language teaching.

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4 Negotiation in cyberspace

The role of chatting in the development of grammatical competence

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Introduction

Recent technological advancements in network-based communication (NBC) hold special promise for second and foreign language teachers and learners, as they provide for connectivity between a wider range of speakers than previously believed possible. Particularly promising among the various forms of NBC are those that allow for synchronous, real-time communication, the obvious advantage being that messages are typed, sent, and received instantaneously, bringing the electronic communicative exchanges from the static to the more dynamic, and thus more closely resembling oral interaction. Communication through synchronous NBC has even been dubbed “chatting,” further underscoring its resemblance to oral interaction. Because oral interaction is considered by many to be important for second language development, and because synchronous NBC, such as chatting, bears a striking resemblance to oral interaction, it seems logical to assume that language practice through NBC will reap some of the same benefits for second language development as practice through oral interaction. While interesting, this assumption is nevertheless one that has yet to be fully explored. Specifically, there is no published research that demonstrates that NBC chatting holds the same potential for the development of grammatical competence as does oral interaction. Grammatical competence is defined by Canale and Swain (1980) as the knowledge of the features and rules of the language, including the

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