COMPUTER-AIDED COLLABORATION IN A GRADUATE-LEVEL MUSIC ANALYSIS COURSE: AN EXPLORATION OF LEGITIMATE PERIPHERAL PARTICIPATION

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ABSTRACT

This thesis investigates the potential of Legitimate Peripheral Participation (LPP) combined with Computer-Mediated Communication (CMC) to promote learning at the university graduate level. Students in a Schenkerian analysis class used computer conferencing to form a supportive local community, and the World Wide Web to post their work in an Internet journal. Initial interest in the efficacy of CMC, collaboration, and impact of the social community was extended to include emergent issues identified as important by the students.

Qualitative case study methodology was used to investigate lessons about teaching and learning learned by and from the students, acknowledging the importance of student voice and seeking to account for the disparity of teacher-student power. The researcher carried out participant observation for the entire semester, with bi-weekly survey questionnaires and final private interviews with each student and the professor. Data were scrutinized to identify such emergent issues as the importance of career aspirations in learning goals and significantly different perceptions about their experience from their professor.

Implementing an LPP model, a local community was established outside of class hours using computer conferencing to discuss class issues and prepare for the next class. During the first half of the semester, students had the option to collaborate on five analysis assignments, and were encouraged to collaborate, post, and discuss each other's work on-line. In the second half the students wrote individual articles that were peer-critiqued before inclusion in an Internet journal, which was created and edited by the students.

Although the results of this exploratory study are only suggestive, findings do indicate that participation in a local community has benefits for learning for graduate students, and that CMC can play a valuable part in the formation of such a community. Work on a student-led journal can focus learning for an entire semester and lead to high-quality work as well as an entry point into the community of professional practice. The study also suggests that students can make valuable contributions to each other's learning and that further research on allowing them more latitude in controlling their education is warranted.

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Finally, and most importantly, I thank my wife Laurie who has supported my academic endeavors through decades of our married life. Laurie, thank you for your support and your help. It's your turn now, Sweetie.

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CHAPTER ONE - INTRODUCTION

Background and Rationale

The transition from school to real-world practice can be difficult for learners. Some theorists suggest that this is because traditional classroom learning is often relevant only to the culture of the school, while knowledge is situated in the environment and activities within which it is acquired (Brown, Collins, & Duguid, 1989; Brown & Campione, 1994; Collins, Brown, & Newman, 1989; Honebein, Duffy, & Fishman, 1993; Lave & Wenger, 1991; Scardamalia & Bereiter, 1999). Cognitive apprenticeship (Collins, Brown, and Newman, 1989; Brown, Collins, & Duguid, 1989) has been advanced as a rapprochement of learning with the culture of practice, by enculturating students into the environment in which their knowledge is to be used, and providing authentic activities in that context. Collins, Brown, and Newman (1989) envision the teacher's role becoming one of modeling professional behavior, coaching the students in their attempts to emulate this behavior, and fading this support as the students become self-sufficient. Students are then able to articulate their own tacit knowledge, reflect upon their learning, and explore the domain in ways meaningful to themselves. Such self-directed learning is especially important for post-secondary education (Knowles, 1975).

Lave and Wenger (1991) take an even more involved view of apprenticeship, suggesting that legitimate peripheral participation is a valuable strategy for initiating participants into a community of practice. Students participate in the target community of practice in a real way, although in limited form. Although it may not be appropriate to younger students (Roth & McGinn, 1996), such an approach seems well suited to graduate-level university students.

Learning has a strong social component (Lave & Wenger, 1991). Classmates provide a strong social base for interaction with peers, as well as with the master-teacher. Knowledge construction can occur from a variety of cooperative or collaborative interactions within the group (Brown & Campione, 1994; Lave & Wenger, 1991; Savery & Duffy, 1995; Scardamalia & Bereiter, 1999). The class can begin to resemble a research community, with the professor as an expert in the field, rather than the repository of all knowledge (Knowles, 1975). Sharing the results of this research with a wider community of practitioners in the same discipline provides the wider social underpinning of LPP, when the learner begins to work in the field.

The shift from presenting pre-formatted content to providing opportunities to participate in the community of practice can be enhanced by computer-mediated

communication (CMC). By linking students outside of the classroom, with each other and the world at large, CMC can provide a communications infrastructure supporting the interplay of ideas between participants, who may be the generators of content (Scardamalia & Bereiter, 1994), in a virtual community of practice. The use of CMC to facilitate social interactions is a more flexible use for computing in post-secondary education than very specific computer-aided instruction applications or multimedia presentations. As Moore (1989) notes, teleconferencing is excellent for learner-learner interaction and peer discussion and analysis, especially among adult graduate students. Computer-mediated communication at the graduate level can help learning by facilitating discussion with classmates, as well as with the teacher; by allowing the formation of a local community for support and discussion, including select outsiders but "owned" by the students; and by facilitating contact with the professional community and displaying research results.

The teaching of music analysis in particular benefits from on-line discourse in an environment of legitimate peripheral participation, which can help in overcoming pedagogical difficulties while introducing the students into the community of practice. Graduate-level music analysis students face the conundrum of an increasing workload per course plus an overloaded curriculum. The dominant form of analysis in North America, Schenkerian analysis (Phelps, Ferrara, & Goolsby, 1993; Rothstein, 1986, 1990), is rarely allotted enough space in the curriculum for an adequate coverage of the basic topics (Beach, 1983; Rothstein, 1990). Also, differences in undergraduate training require the sacrifice of scarce class time for review of basic concepts (Gagné, 1994). In a typical music analysis class, each student analyzes several pieces, and exits the class with some knowledge about their own pieces but little about their classmates' pieces. An increase in communication between students could have two benefits: more techniques learned and more pieces known by each student. An increase in social interaction within the class could then be reflected by an increased interaction within the wider community for the class members as well as they share the results of their research. In this study, the results of the research were "published" on the Internet in a World Wide Web-based journal of student articles.

With CMC, students had the opportunity to share expertise and ideas with one another as their schedules permitted, much as in a real research environment. The conferencing system enabled informal discussion and sharing of ideas, as well as more formal presentation and

critique of class assignments. An on-line system also hosted a peer-reviewed Internet journal, for which the students wrote analytical papers, which were then reviewed by their class peers.

Study Goals and Research Questions

The main goal of this study was to explore teaching and learning within communities supported by computer-mediated communication (CMC), specifically the efficacy of learning to write and critique music analysis at the graduate level in an environment of legitimate peripheral participation (LPP). By emphasizing the social aspects of learning and the importance of situating learning within the actual community in which the student will eventually work, LPP formed the epistemology as well as the conceptual framework of this study. Of particular interest was the students' reception of the opportunities to participate in the community of music analytic practice, both locally and in the larger world, as novice professionals rather than merely as students. As an exploration, it was impossible to know in advance all of the issues that would emerge, although areas of interest were suggested both by the literature and by a pilot study. The primary focus for this study was to understand as much as possible about the students' learning experience.

Major Research Question

> In a graduate course in music analysis implementing legitimate peripheral participation supported by computer-mediated communication, what lessons about teaching and learning can be discovered from the participants' experience?

Three areas of specific focus are addressed by the sub-questions: the usefulness of LPP, collaboration, and CMC.

Sub-questions

- Does legitimate peripheral participation help to bridge the gap from university to the real world, and do students take advantage of opportunities provided by it?
- Is collaboration useful in the students' experience and if so under what conditions?
- Do the benefits of CMC outweigh the costs of learning and inevitable system glitches?

Use of Qualitative Methods

I chose to use qualitative methods of data gathering, analysis, and presentation for this study because there are several advantages for learning in doing so. I did so with full awareness of the limitations, particularly that I would neither have generalizable truths as conclusions, nor would I have a "provably correct" study. As Guba (1981) points out these are not features of a qualitative study. As Guba (1981) states, the naturalistic (or qualitative) ontology includes a multiplicity of "realities" or "truths" and this accords with my personal ontology. I did not expect a single, monolithic experience from the participants, but an interesting blend of different, rich experiences, all of which would contribute to a better understanding.

The benefits of qualitative methods more than compensate for the features they may lack. Qualitative methods allow the researcher to study ordinary events in natural settings, to get "a strong handle on what 'real life' is like" (Miles & Huberman, 1994, p. 10). This allows us to obtain actual data from a real classroom rather than hypothetical data from a more controlled setting. The data are grounded in the local experience under study. This allows for a holistic richness of data that is gathered along with the context in which it occurred. Such data can then be reported as "thick description" (Guba & Lincoln, 1981; Miles & Huberman, 1994). The richness of data combined with the collection of data over a sustained period and the relative flexibility of qualitative methods adds to the credibility of the data and the confidence of the researcher (Miles & Huberman, 1994). It is this detailed accounting of context that makes qualitative case studies so appropriate for learning how and why a phenomenon occurred (Yin, 1994). I argue that it is knowing 'how' and 'why' things happen, as opposed to merely 'what' happened, that allows us to learn from experience. The findings chapter of this study contains many direct quotes from the participants, along with my own description of the context in which they occurred, to present my most complete and accurate depiction of what actually happened. Because the quotes are so important to the study, all emphasis is that of the speaker; none has been added by me.

Qualitative methods suit this study because of its exploratory nature, the small number of participants, and the uniqueness of the particular class (Stake, 1994; Yin, 1994). In particular, case study is well suited to such a concrete, practical situation (Merriam, 1998; Stake, 1981). While this is just one case, a single case can be very enlightening (Stake, 1981). Indeed, the case study is the "traditional" type of qualitative analysis (Huberman & Miles, 1994). In such a study the main instrument is the researcher, who must bring his own knowledge and empathy to the

fore to attain a *verstehen* – an "interpretive" (Smith, 1983) or "empathetic" (Miles & Huberman, 1994) understanding. There is a strong interrelationship between the observer and the observed, with each influencing the other (Guba, 1981). For this reason, the researcher can not be completely objective, although some distance must be obtained. Such intimate contact with participants does not appeal to every researcher, but it did to me. I felt comfortable examining myself for my own biases and trying to make my own tacit knowledge explicit, since it was through these that I would be viewing my data.

By collecting field notes in class and on-line and comparing them to replies to bi-weekly surveys and final interviews, I could examine participants' thoughts, feelings, and attitudes from different vantage points for the length of the semester. Despite normal observational restrictions a great deal of data was obtained, allowing for a nuanced understanding of the situation. With a prolonged time to study the class, issues emerged over the semester that might have been missed by a shorter time of engagement.

Although a qualitative study can never be "proven correct" I was obliged to do all that I could to increase the trustworthiness of the study (Guba, 1981). Whenever possible, I collected redundant data (Stake, 1994) and triangulated (Yin, 1994; Guba & Lincoln, 1989) responses from different participants, or from the same person at different times, to get a better understanding of both static and dynamic processes. I also wrote the findings with as thick description as practical in order to allow the readers to decide for themselves how much of this study is transferable to their situations. Ultimately however, I can only provide my strongest case for the trustworthiness of this study.

Definitions

To understand a key concept of this dissertation – legitimate peripheral participation – the reader must have some familiarity with several terms. These are outlined briefly here.

Constructivism

Constructivism is a theory of learning which "proposes that knowledge or meaning is not fixed for an object, but rather is constructed by individuals through their experience of that object in a particular context" (Honebein, Duffy, & Fishman, 1993, p. 88). Learning is not an abstract activity, but is rooted in the context in which it occurs.

Situated Learning

Given the understanding of constructivism, current educational ideas "challenge this separating of what is learned from how it is learned and used" and assert that "activity and situations are integral to cognition and learning" (Brown, Collins, & Duguid, 1989, p. 32). Situated learning activities make deliberate use of social and physical contexts in learning environments because "the model of situated cognition is based upon the notion that knowledge is contextually situated and is fundamentally influenced by the activity, context, and culture in which it is used" (McLellan, 1996, p. 5). Brown, Collins, and Duguid, as well as McLellan use the terms situated cognition and situated learning interchangeably; situated learning is the preferred form for this study.

Cognitive apprenticeship

Much constructivist research has centered on apprenticeship as a learning method (Honebein, Duffy, & Fishman, 1993, p. 88). Cognitive apprenticeship is an adaptation of traditional apprenticeship to formal schooling, wherein "apprenticeship embeds the learning of skills and knowledge in their social and functional context" (Collins, Brown, & Newman, 1989, p. 454). The orientation of the learner in cognitive apprenticeship is more toward learning cognitive skills and strategies than merely performing tasks well, so that the primary concern of the apprenticeship is how to learn.

Legitimate peripheral participation (LPP)

Lave and Wenger (1991) arrived at the term legitimate peripheral participation (LPP) by reconsidering notions of apprenticeship as situated learning. Realizing that all learning must be situated, they came to the holistic conclusion that "agent, activity, and the world mutually constitute one another" (p. 33). They further refined this idea by superceding "a view according to which cognitive processes (and thus learning) are primary [with] a view according to which social practice is the primary, generative phenomenon, and learning is one of its characteristics" (p. 34). The primacy of social practice is the hallmark of LPP. Lave and Wenger stress that their term is to be taken as a whole, rather than a sum of parts that would imply such possibilities as "illegitimate peripheral participation" or "legitimate central participation" but this does not imply that the term is not specifically meaningful. In LPP, a learner takes part in the actual community that performs the skills or behaviors being learned (what Lave & Wenger term a

"community of practice"). The learner's participation is "legitimate" in that it is authentic and meaningful to both the learner and the community. However, as a novice, this participation is attenuated to be "peripheral" in the sense of not being at the center of the field, or perhaps more tellingly, not at the leading edge. The central defining feature of LPP is this real, social involvement in one's field as a learner.

Communities of practice

Communities of practice are important for legitimate peripheral participation. The *local community* for this study consists of the students participating in this class, as well as their teacher and myself, the researcher. The students are the primary participants and therefore the prime members of the community. The *community of practice* consists of those engaged in the same practices as the primary participants, to whom their work is addressed and with whom they work in their field. For this study I assumed that they were graduate students in music, as well as the general academic music community.

Collaboration

Collaboration is an important issue in social learning, but it means different things to different authors, and is often used interchangeably with its synonym "cooperation." In this study, *collaboration* is used to denote two or more people working together to produce a common product. Collaboration is differentiated from *cooperation*, in which two or more people work together in a less tangible way, for example in creating a community or pursuing their common good. Cooperation can be further differentiated as individuals working in harmony toward separate goals, versus a *collective* action in which individuals work in accord toward a common benefit.

Design experiment

Collins (1992) suggests that in order to "begin to develop a science of education" we must "determine how different designs of learning environments contribute to learning, cooperation, motivation, etc." (p. 15). He suggests the careful study and reporting of the different variables as well as the involvement of teachers who provide the courses. Brown (1992) concurs, adding that a holistic view of learning means that "simple controls can never be entirely satisfactory" due to the many interwoven aspects in any learning situation that lead to "highly interdependent outcomes of a complex social and cognitive intervention" (pp. 166-7).

Reflecting these concerns, this study is a holistic case study of a design experiment which introduces LPP and CMC into a university graduate music analysis course.

Schenkerian analysis

Schenkerian analysis is a system of musical analysis which uses modified musical notation to present an analyst's view of the dynamic musical movement of a piece of music in graphical form. Developed by the Austrian music theorist and teacher Heinrich Schenker (1868-1935), it was the analytical method used in the course under study.

Computer-mediated communication (CMC)

For this study, computer-mediated communication (CMC) refers to the conferencing system used, augmented by an external email system and a server for hosting web pages. The computer-mediated communication system for this class was *LearnLink*, a customized version of the *FirstClass* software. The particular implementation that hosted this class was referred to as the *Little Red Schoolhouse*, but the participants almost always referred to the system as LearnLink. The email system was the university's Pine software, and the web server was one of the university's unix servers.

Description of Course Design and the Class

The class studied was a university master's-level class in music analysis, a required course part of a Masters of Music Criticism degree. This was a one-semester course (September-December 1999) that met twelve times on Mondays, missing one class for the Thanksgiving holiday. It was a seminar class that met once per week for three hours. There were eight students registered in the course, and its goal was to prepare students to write publication-quality papers on music analysis, as well as to critique such papers. Students learned Schenkerian analysis as the main analytical paradigm for the course.

Use of the CMC system was mandatory, and students were required to enter a minimum of two substantive notes per week, in addition to the assignments, articles, and critiques. The assignments were submitted, critiqued, and discussed on LearnLink. The journal articles were posted to the World Wide Web, but were critiqued on LearnLink.

In addition to the opportunities for cooperative mutual critique, the students also had the option of working in collaborative groups for the five assignments. Groups of two or three students were allowed to request permission to work collaboratively, and were required to

justify their collaboration to the teacher by outlining the different expertise that each brought to the collaboration. A more general cooperative environment was encouraged in the mutual critique of the students, and their discussion of these critiques and general strategies for writing and analysis.

Role of the researcher

In keeping with the concept of a design experiment, I designed the basic research elements of this study with the cooperation of the professor who taught the course. I was aided in designing the educational aspects of LPP by my doctoral courses in education, of which this dissertation is the culmination. For the CMC and computing portion, I relied on my doctoral coursework in Computer Applications at OISE/UT, as well as the work which led to my master's degree from the Department of Computer Science and Systems at McMaster University, and my 20 years of experience using telecommunications systems in computing. I also have a background in Schenkerian analysis, including several undergraduate courses as well as courses at the master's and doctoral level. I hold an Honours Bachelor of Music from the University of Toronto, as well as a Masters of Arts in Music Criticism from McMaster University. The professor who taught this course and I also created a multimedia software program using Schenkerian analysis (Renwick & Walker, 1991) and published a paper on it (Renwick & Walker, 1992).

The design of this course followed upon a pilot study with this same professor, in which CMC was used to facilitate discussion between classes for a class of senior undergraduates. That study suggested several improvements that were incorporated into this study. For this course, my suggestions to include elements of LPP with special focus on a web-based journal met with the interest and approval of the professor. I suggested that the students be allowed to work collaboratively on their assignments, if they wished, and that they post their assignments before class for each other to view. This was of special interest to the professor, who felt that it would allow for more interesting discussion during class time. The concept of the journal changed the professor's initial idea of having a term paper as the final assignment into having each student write an article for the journal. I suggested that each student critique an article and post that to the conferencing system as well, and the professor modified this to require each student to critique two articles.

In addition to course design, I provided technical assistance on computer use for the students and the professor. I also acted as the technical liaison with the computer staff responsible for the conferencing system and the university network. I took a small part in the musical discussion as a participant observer both on-line and in class. Also, the instructor chose an on-line article written by me as the first to be critiqued by the students.

Involvement of the professor

The professor who taught this course specifically requested that his name be used so that he and I could publish joint papers on this study. His informed consent form included this provision, and I refer to him herein as either "Dr. R" or "Bill."

Bill had been interested in improving his teaching skills as well as utilizing educational technology for years before this study, and he was very interested in working with me on the pilot study. After the pilot he felt that the use of CMC had to be required in order for it to be effective, and that its use had to be more integrated with the coursework. He still felt that it could help students work together, and create a community of like-minded individuals.

Bill was interested in modifying his teaching style by adopting several ideas from cognitive apprenticeship and legitimate peripheral participation following our planning discussions for this course. He provided models of professional writing throughout the term, and the students' own writing gradually became the focus of discussion. His pedagogical emphasis changed from the previous year, away from presenting analytical techniques through short lectures, readings, and assignments, toward students learning by doing their own analyses, critiquing one another's work, discussing the critiques, and re-writing. Assignments consisted of a series of increasingly complex analytical papers, which were discussed on-line and in class. The course was designed to give students the opportunity to cooperate in a community of music analysis, and to collaborate on assignments if they choose. They were also required to take part in both on-line and in-class discussions on topics such as analytical heuristics and writing strategies. He also developed his own version of a learning contract that he posted on his course web site.

Seeking a more "real world" experience for these students, Bill wanted them to interact as a group and to produce something more than just assignments and a term paper. He was very receptive to the concept of legitimate peripheral participation, and the notion of a student-created journal around which he could focus the entire semester's work. He also wanted these

students to use a CMC system to stay in touch between classes to discuss their work, and was very interested in using computer conferencing to organize assignment presentations. Pedagogically, he felt that upon leaving the course the students should be able to write a publication-quality journal article, and all of the assignments and readings were aimed at this goal. Since they were students, he suggested that the potential readers of their journal would be music students in other graduate schools. While the subject of the course was Schenkerian analysis, he stressed the need to integrate and synthesize different approaches with Schenkerian analysis, as well as to communicate ideas clearly and concisely.

Organization of this thesis

The next chapter, the Literature Review shows the relevance of LPP and CMC to teaching and learning at the graduate level, and how these relate specifically to the challenges of teaching Schenkerian analysis. Chapter three discusses the methodology used in this study and illustrates its applicability to the research questions. Chapter four presents brief sketches of each of the student participants, outlining their relevant experience before this class as well as a summary of their experiences in this class. Specific individual issues are included here as well. Chapter five presents the specific findings of the study with the students' own comments. The findings are divided according to the two logical divisions of the class, the collaborative work on the assignments and the collective work on the journal. Each of these sections is further sub-divided to consider the three research sub-questions regarding CMC, collaboration, and LPP, as well as emergent issues. Chapter six presents a discussion of issues arising from this study in relation to trends in the literature, followed by recommendations for teaching and learning based on lessons learned by the participants. The thesis ends with suggestions for further research.

CHAPTER TWO - LITERATURE REVIEW

Situated Learning

The concept of situated learning is critical to cognitive apprenticeship. Brown, Collins, and Duguid (1989) argue that "knowledge is situated, being in part a product of the activity, context, and culture in which it is developed and used" (p. 32). Learning does not take place in a social vacuum (Lave & Wenger, 1991), and so attempts to teach decontextualized knowledge in a classroom culture of student isolation are often inadequate. It is important that learning activities be authentic in relating to the community of practice as well as the discipline itself, since success within the culture of school often has little bearing on performance in the actual world of practice (Brown, Collins, & Duguid, 1989).

Situated learning is particularly relevant to music teaching, where the actual practice of music is taught, rather than just the theory. Students learn music by playing music. They also learn the social aspects of "being a musician" even though this is often tacit knowledge or what Brown and Duguid (1996) call "stolen knowledge" which is picked up in situ by observing practicing professionals. When analyzing music, the techniques used and the presentation style are heavily dependent on the context in which the analysis is done and the audience to which it is presented.

Situated learning (Brown, Collins, & Duguid, 1989) and cognitive apprenticeship (Collins, Brown, & Newman, 1989) are based in constructivism, which proposes that individuals "construct" meaning through their encounter with learning objects in particular contexts (Honebein, Duffy, & Fishman, 1993, p. 88). Believing that "learners construct their own reality or at least interpret it based upon their perceptions of experiences" (Jonassen, 1994, p. 34), proponents of constructivism take into account an individual's prior experience, personal mental models, and beliefs, as filters of what can be known. Situated learning (Collins, Brown, & Newman, 1989) builds on constructivist principles, requiring that "students carry out tasks and solve problems in an environment that reflects the multiple uses to which their knowledge will be put in the future" (p. 487).

Cognitive Apprenticeship

Within constructivist circles, "the apprenticeship model has received by far the greatest attention" (Honebein, Duffy, & Fishman, 1993, p. 88). Unlike traditional apprenticeship, which focuses on attainment of physical skills, cognitive apprenticeship (Collins, Brown, & Newman, 1989) aims to teach thinking and problem-solving skills. "The method is aimed primarily at teaching the processes that experts use to handle complex tasks... Conceptual and factual knowledge are exemplified and situated in the contexts of their use" (p. 457). The focus is on cognitive and metacognitive processes, i.e. largely internal processes that must be externalized to be modeled and emulated. "Thus, cognitive apprenticeship involves the development and externalization of a producer-critic dialogue that students can gradually internalize" (p. 458). This externalization may be through discussion, the alternation of roles between teacher and learner, or group problem solving. The "producer-critic" dialogue is particularly relevant to this graduate music analysis class.

Tasks in cognitive apprenticeship are chosen with cognitive goals, i.e. to illustrate the power or usefulness of techniques, methods, or procedures, to show their use in diverse settings, or to gradually increase in complexity. These tasks are directly related to the work of the domain or field, at a level that both engages and stimulates the student. "Cognitive apprenticeship must find a way to create a culture of expert practice for students to participate in and aspire to, as well as devise meaningful benchmarks and incentives for progress" (Collins, Brown, & Newman, 1989, p. 459). For example, in a music analysis class, the students could learn to write journal articles and critique them by writing such articles and critiquing the work of their peers, rather than merely reading the work of others.

In an educational setting, it is the teacher who most often is the expert in the community of practice. As master to a group of apprentices, the teacher must model the practice of the culture at a level appropriate for the apprentices, then provide them with opportunities to take part in the practice themselves. At first, the work of the apprentices is closely monitored and corrected by the master. Over time, as expertise is acquired, the coaching is faded or gradually withdrawn to allow the apprentice to do more and more without overt guidance.

Classroom culture and discourse

The classroom culture of traditional didactic classroom teaching has been found wanting for decades (Knowles, 1975; Brown, Collins, & Duguid, 1989). For example, McLuhan (1964)

warns against "the frustration of the student need for participation in the learning process" (p. x). Discourse should be widened from teacher-initiated and controlled talk to a more collaborative approach, often referred to as "learner-centered" (Knowles, 1975; Percival & Ellington, 1988). This widening of the discourse is central to the task of improving teaching and learning (Scardamalia & Bereiter, 1999).

While adaptation to school culture is necessary to succeed in school, it may be at the expense of efficient learning, or even of understanding (Scardamalia & Bereiter, 1996). Some students will disguise their own effective problem-solving strategies to allow the teacher to believe that they are using an approved method (Lave, 1988 cited in Brown, Collins, & Duguid, 1989, p. 36). The attentive student may be aware of a significant difference between real-world and school experiences, and that success in school often does not lead to success outside (Brown, Collins, & Duguid, 1989). This can undermine the entire educational enterprise, and may simply lead the student to decide that one set of beliefs is "true" in school, while another is true in the actual world (Vosniadou & Brewer, 1987). Such a school culture is not authentic.

Context and authenticity

Students learn more than just course content in a learning situation. Postman (1985) quotes Dewey (1938):

> Perhaps the greatest of all pedagogical fallacies is the notion that a person learns only what he is studying at the time. Collateral learning in the way of formation of enduring attitudes ... may be and often is more important than the spelling lesson or lesson in geography or history (p. 144).

Because context is so important in teaching and learning, it must be authentic to both the student and the real world. Central to a situated learning approach is the notion that what is learned can not be separated from the context in which it is learned (Brown, Collins, & Duguid, 1989). Authenticity of context provides useful, active knowledge in a real-world community. "Authentic activities then, are most simply defined as the ordinary practices of the culture" (Brown, Collins, & Duguid, 1989, p. 34), in contrast to classroom activity situated in the culture of schools. "Within the educational framework, the authenticity of the learning activity refers to the activity of the learner in the learning environment relative to the environment in which the learning will be used" (Honebein, Duffy, & Fishman, 1993, p. 89). In contrast to rote learning is

"the constructivist focus on metacognitive processes and on a holistic view of the task" (p. 90) which enhances the ownership of learning by the learner.

This authentic environment should not be unnecessarily simplified, as Honebein, Duffy, and Fishman (1993) argue that "the understanding developed in a simplified stimulus environment is quite different from the understanding that develops in the full stimulus environment" (p. 8). Spiro, Vispoel, Schmitz, Samarapungavan, and Boerger, (1987, quoted in Honebein, Duffy, & Fishman, 1993, pp. 94-95) claim that simplification of the environment is merely for "convenience" of the educational system, and can give rise to serious errors among students. A more complex, or "full stimulus" environment may actually make learning easier by situating learning in a meaningful environment rather than in a more abstract and decontextualized one.

To assure meaningful, authentic learning activity (Brown, Collins, & Duguid, 1989; Honebein, Duffy, & Fishman, 1993; Savery & Duffy 1995) the student must learn in an environment, work at tasks, and face the same types of challenges that are typical of activities in which the learning will be used when mastered. To this end, learning activities are best anchored to a larger problem or goal, rather than just to a single course (Honebein, Duffy, & Fishman, 1993; Savery & Duffy 1995). Preferably, this would be "an interesting or at least coherent goal" (Collins, Brown, & Newman, 1989, p. 489). As with traditional apprenticeship, engagement with the field is a pre-requisite for success.

A significant challenge of cognitive apprenticeship is the need to "decontextualize knowledge" (Collins, Brown, & Newman, 1989, p. 459) so that it can be used in different contexts and settings, without stripping it of context completely. That it to say, this is neither the "facts without context" approach of the transmission model of education, nor the "single context of use" of traditional apprenticeship. Rather, knowledge must be applicable in the variety of contexts and settings liable to be found in the actual environment of use.

Social construction of knowledge

Apprenticeship methods attempt to enculturate students in authentic activities and social interactions, as "apprentices enter the culture of practice" (Brown, Collins, & Duguid, 1989, p. 39). Important interactions occur between apprentices, as well as between apprentice and master, and others in the field.

Knowledge must therefore be constructed socially. Theorists such as Dewey (1902) and Vygotsky (1978) have argued the importance of social interaction for learning. "Skill does not evolve in a social vacuum" (Riel, 1992, p. 16). As Resnick points out (1988, cited in Brown, Collins, and Duguid, 1989, p. 40), most people live and work collaboratively most of their lives, and it is the culture of schools that is the exception. Learning should involve collective problem solving, confrontation of misconceptions, and collaborative work skills (Brown, Collins, & Duguid, 1989). But who is to collaborate? The stereotypical view of apprenticeship implies the master-apprentice dyad, but this is refuted by Lave and Wenger (1991). Their more inclusive view shares the opportunity to collaborate among all participants, students and teacher, apprentices and master, plus any other members of the community involved. Thus in some sense their apprenticeship is with the entire community, although a master is still liable to have an important role. "In contrast with learning as internalization, learning as increasing participation in communities of practice concerns the whole person acting in the world" (Lave & Wenger, 1991, p. 49). The community becomes increasingly important in those domains (such as music analysis) which no one person can know fully (Silverman, 1995). CMC can extend the community, or ease access to it.

Multiple Viewpoints

Apprenticeship within a community of practice implies a multiplicity of views, and may contain elements of several approaches, such as self-directed learning (Knowles, 1975), problem-based learning (Savery & Duffy, 1995), reciprocal teaching (Brown & Palincsar, 1989), and legitimate peripheral participation in the professional field (Lave & Wenger, 1991). Social partners are important agents of developmental change (Thelen, 1989), and it seems reasonable to expect that more social partners means greater scope of possible change. Aside from the social benefits of learning this way, the base of available knowledge may grow as each student contributes from their own understanding. Progressive discourse is important in research (Bereiter, 1994), and while it requires a community, it need not be the entire professional community. As the discourse widens, the classroom ceases to be the sole locus of collaboration, or learning.

Lave & Wenger (1991) stress "the multiple viewpoints that are characteristic of participation in a community of practice" (p. 113), and suggest the students' own classmates as appropriate peers. In addition to learning to appreciate multiple viewpoints, including that of

the instructor, the student would gain invaluable experience in evaluating perspectives. This social aspect of learning may contain the greatest opportunity for alternative views and fresh input into the educational process.

Self-Directed Learning

To enter a community of practice, it is essential that discourse engage the learner with the community rather than teaching the student to "do school" (Lave & Wenger, 1991, p. 108). Changes to classroom culture have social ramifications. Critical to learning is the assumption of responsibility for learning by the student, as a self-directed (Knowles, 1975) or intentional (Scardamalia & Bereiter, 1994) learner. Such a learner may be viewed as apprenticing with the community, rather than with a single master, even in a class setting where there is a single teacher, since they are entering into the community as a fledgling member.

Bereiter and Scardamalia (1989) take as a working hypothesis that "the skills a student will acquire in an instructional interaction are those required by the student's role in the joint cognitive process" (p. 383). The joint cognitive process is a single coherent process whose parts are distributed over different people, such as the student-teacher, or apprentice-master, or even student-peer (Bereiter and Scardamalia, 1989; Belmont, 1989). At some point, students must develop the metacognitive skills to direct and monitor – take ownership of – their own learning (Honebein, Duffy, & Fishman 1993; Savery & Duffy 1995; Scardamalia & Bereiter, 1991; Silverman, 1995).

The dyad model of apprenticeship may come in part from the work of Vygotsky (1978), which stressed learning as a social activity, in which all uniquely human learning occurs as a transfer of responsibility for skills from adult (or more experienced child) to child, within the child's zone of proximal development. Belmont (1989) goes so far as to define a child's zone of proximal development as a strictly social construct that only exists as shared with an instructor. However, such a construct necessarily makes great demands on the instructor's time and diagnostic capability, and may not be feasible at a higher level of education.

At the university level students are assumed to actively try to achieve their goals. Attainment of intentional goals may happen in concert with, or even in opposition to, the school-imposed requirements for the course. Lave & Wenger (1991) state that "learning understood as legitimate peripheral participation is not necessarily or directly dependent on pedagogical goals or official agenda, even in situations in which these goals appear to be a

central factor (e.g., classroom instruction, tutoring)" (p. 113). For them, the learner's striving after goals is motivated by the value placed on participation as well as a desire for full participation in practice.

Intentional learning would appear to play a great role in university learning, where many earlier supports have been removed from the student (Hewitt, 1996). A typical university professor probably does not have time to diagnose each student's learning needs. Knowles (1975) argues that students must take on more of this role to succeed. While such self-directed learners might still require some traditional teaching, the monitoring and direction of their learning goals is the student's own responsibility. This seems particularly true in music. Motivation among music students can be high, since "these students would not be in our classrooms if they had not already devoted years of their lives to the pursuit of professional music careers" (Marvin, 1994, p. 48).

As accomplishments are shared in a group of self-directed learners, the standards for all are raised, as in a research field (Scardamalia and Bereiter, 1994). At the graduate level, self-directed students can act as a research team, for even though their discoveries may not be new to the musical world, they are new to the members of the class. Scardamalia and Bereiter claim that "it is generally recognized that students construct their knowledge. This is as true as if they were learning from books and lectures as it is if they were acquiring knowledge through inquiry. A further implication is that creating new knowledge and learning existing knowledge are not very different as far as psychological processes are concerned" (p. 270). The distinction is almost non-existent when analyzing music unknown to oneself.

Gaining some mastery of the subject with authentic tasks may lead the learner to an appraisal of, and reflection upon, their own learning. This reflection is one technique for the development of self-monitoring of learning, as well as self-correction. "When students do not have the opportunity to externalize their informal representations and compare them to those used by experts in a domain, they fail to understand the qualitative representations that underlie formalisms" (Glaser, Ferguson, & Vosniadou, 1996). "Thus, cognitive apprenticeship involves the development and externalization of a producer-critic dialogue that students can gradually internalize" (Collins, Brown, & Newman, 1989, p. 458).

Teaching

As students take more responsibility for their learning, the teacher's role changes from providing facts and transmitting skills to modeling expert practice, coaching students to emulate these models, and fading support as expertise is gained (Collins, Brown, & Newman, 1989; Collins, 1996). Collins, Brown, and Newman (1989) recommend "that teaching methods should be designed to give students the opportunity to observe, engage in, and invent or discover expert strategies in context" (p. 481). Observation during modeling is facilitated by the teacher externalizing thinking processes that are normally internal. This can consist of making tacit knowledge explicit or modeling problem-solving strategies (Brown, Collins, & Duguid, 1989). As students begin to engage in the practice, the teacher acts as coach, giving tips, hints, feedback, and other forms of "scaffolding" supports for learning (cognitive or physical). As the students gain competence, these scaffolds are gradually withdrawn, allowing more independent work. Part of the scaffolding may be providing opportunities for reflection on the content, as well as learning processes (Savery & Duffy, 1995).

Learner-centered teaching requires that the teacher give up some control of the learning process to the student (Knowles, 1975; Norman & Spohrer, 1996; Percival & Ellington, 1988; Scardamalia & Bereiter, 1991; Spiro & al, 1988). Silverman (1995) outlines the goals of such "student-centered" learning: that the teacher take a more facilitative role; that students learn metacognitive skills as preparation for life-long learning; and that students learn via constructivist collaboration, motivated by tasks situated in real-world activities. If the students are to take more responsibility for learning, the teacher must surrender it, taking more the role of a master towards apprentices.

Self-directed learning is most appropriate with older students since "adults have a natural tendency toward self-directedness" (Brookfield, 1988, p. 332) and their breadth of experience makes learning from peers more valuable (ibid., p. 328). At this level, educators exhort students to take more responsibility for their own learning (Knowles, 1975) while urging teachers to facilitate the process (Brookfield, 1988; Benjamin, 1994). This change to the teacher's role is not just to another form of knowledge transmitter.

> To take a decentered view of master-apprentice relations leads to an understanding that mastery resides not in the master but in the organization of the community of practice of which the master is part: The master as the locus of authority (in several senses) is, after all, as much a product of the conventional, centered theory of learning

> as is the individual learner. Similarly, a decentered view of the master as pedagogue moves the focus of analysis away from teaching and onto the intricate structuring of a community's learning resources (Lave & Wenger 1991, p. 94).

This takes place in a more socially dynamic environment than that of the master-apprentice dyad.

Knowles (1975) suggests that collaboration among students is also an appropriate mode of learning, provided that it is truly self-directed. This again requires the teacher to surrender some control, although as Knowles (1986) admits, there is a long tradition of the transmission model of knowledge at the heart of American higher education, and academia requires certain tokens and guarantees of accomplishment. Knowles suggests a compromise, with the instructor maintaining control in key areas such as prescription of objectives and assessment, but with provision for "some degree of initiative by the learners" (p. 149).

As the self-directed, intentional students take more control of their learning, the teacher's role may become less certain, but not arbitrary. Different students may have very different learning needs. Lave & Wenger (1991) have shown that a "master" in apprenticeship displays a wide range of possible behaviors. Within this range there is still room for the administrative control, especially of core content and assessment, required by most institutions of higher learning. In fact, by commenting only at key points the teacher models the behavior of real-world experts in ongoing discussion within their fields.

Collaboration and Cooperation

Cooperation between students can aid their learning (Brookfield, 1988; Collins, Brown, & Newman, 1989). "Learning through cooperative problem solving is both a powerful motivator and a powerful mechanism for extending learning resources" (Collins, Brown, & Newman, 1989, p. 489). Brown, Collins, and Duguid (1989) argue that "learning is a process of enculturating that is supported in part through social interaction and the circulation of narrative [and so] groups of practitioners are particularly important" (p. 40). Groups can work in several ways. The individual members may undertake one or more of the multiple roles involved in any cognitive task, so that they and the group can reflect on the perspective from that role, and its aptness. The group is also a good forum for drawing out the misconceptions of its members, or ineffective strategies. Holding that knowledge is socially negotiated, Savery and Duffy (1995) encourage the testing of ideas against the alternate views of colleagues, as well as against

alternative contexts. Finally, the members of the group can take part in collaborative activity, from collaboratively creating a cooperative environment, to full collaboration on a collaborative product. At the very least, class members can form a community of practice in which members can participate legitimately.

Such an environment seems well suited to the intentional, self-directed learner, who can be provided the opportunity for legitimate peripheral participation in a real-world community of practice. Graduate-level classes are perhaps the most suitable entry point into such a community, as Lave and Wenger (1991) point out. They posit that the problems of schooling may not be pedagogical at their most fundamental level, but social. For example, progressive discourse can either be competitive or collaborative, but competition may be a poor motivator at the graduate level, and may be unrewarding for many students who will refuse to compete (Abeles, Hoffer, & Klotman, 1984; Collins, Brown, & Newman, 1989). Recent thinking in business finds advantage in collaboration, even between competitors. "Collaborative advantage is defined as the benefit gained by a group of participants as the result of their cooperation rather than their competition" (Ferratt, Lederer, Hall, & Krella, 1995). Silverman (1995) contends that "for more mature students, competition may be unnecessary and sharing is the motivation to learn" (p. 83). Still, some students may not be as motivated as the rest and Serva and Fuller (1997) warn that "social loafing" can be a problem for any collaborative work, although it is most prevalent in larger groups of anonymous participants.

Legitimate Peripheral Participation

Lave and Wenger (1991) extend the concept of cognitive apprenticeship to include providing opportunities for legitimate peripheral participation as an introduction into a community of practice. Rather than teaching the elements of practice in a decontextualized classroom setting, participants undertake authentic, legitimate tasks at the periphery of the field, with the goal of eventually performing more central work. This concept incorporates both situated learning and cognitive apprenticeship, but purposely moves learning into the professional field. Learning is directly related to the activities of the community of practice, and its discourse becomes the discourse of the field.

Lave and Wenger (1991) suggest that the concept of apprenticeship is more than a master-apprentice relationship, and actually involves legitimate participation in the community of practice, albeit at an attenuated (peripheral) level while learning. Rather than transmitting

knowledge, the instructor in this case provides opportunities and resources for the learner to take part in the community of practice, beginning peripherally but aiming towards eventual full participation. "In summary, rather than learning by replicating the performances of others or by acquiring knowledge transmitted in instruction, we suggest that learning occurs through centripetal participation in the learning curriculum of the ambient community" (p. 100). Key to this participation is access to the community as a functioning, if novice, member. "Newcomers' legitimate peripherality provides them with more than an "observational" lookout post: It crucially involves participation as a way of learning – of both absorbing and being absorbed in – the 'culture of practice' " (p. 95).

Roth & McGinn (1996) argue that legitimate peripheral participation is not appropriate for teaching school children, but their criticism certainly does not apply to graduate-level students, who are about to enter the actual field of practice. Legitimate peripheral participation at this level also incorporates elements of expert practice as described by Bereiter and Scardamalia (1993), such as continual improvement of ideas, working at the edge of one's understanding, progressive problem-solving, and a continually-rising group standard. Henschel (1996) sums up much of this with his principles that "learning is fundamentally social," "knowledge is integrated in the life of communities," "learning is an act of membership," and "knowing depends on engagement in practice."

Winn (1996) criticizes legitimate peripheral participation for requiring a life-long commitment to the subject, rather than allowing the learner to gain enough knowledge to just "get by." This may be too simple a dichotomy as the situated view sees learners incorporating knowledge into their own framework. Similarly, Tripp (1996) states that legitimate peripheral participation requires too great a particular focus for knowledge to be transferable. This narrow view of situated knowledge denies the learner's active participation in gathering knowledge in the most useful form for one's own purposes.

Computer Use and Computer-Mediated Communication

The widespread adoption of the Internet has facilitated communication and collaboration in many fields including education. Communities of practice are forming on, and migrating to, the Internet. This has ramifications for education.

> The university today must be redefined with new concepts. The Internet allows virtual classrooms. Digital libraries provide knowledge repositories. The Web offers

> up-to-date material for seminar discussions. Computer simulation substitutes for laboratories. Technology is not simply an add-on service as computers or audiovisual were before – it touches the very substance of the university, that is, knowledge development and transfer (Tsichritzis, 1999, p. 93).

CMC as a medium for learning

The Internet is primarily a communications technology. It seems an ideal medium for collaborative discourse without the time or space constraints of face-to-face discourse. Perhaps more important for education are opportunities to create virtual communities on-line, or to contact existing communities via the Internet. Many professional communities already have Internet forums or journals that can be accessed easily. These are especially valuable to graduate students who may have heavy time commitments. More local versions of these can help keep students in a class in touch despite different schedules.

However, as McLuhan (1964) warns, any medium tends to create a new environment, and "environments are not passive wrappings, but active processes" (p. viii). Postman (1985) views a medium as a metaphor which "makes possible a unique mode of discourse" (p. 10). Each medium changes the structure of discourse and favors particular uses of intellect. However, each new medium requires some tradeoff that is not immediately apparent. The intended use of a technology may not be its strongest effect, or even a relevant one. While the Internet may not be intended primarily for education or for collaboration, it may have great benefit for both by supporting social interaction. Silverman (1995) suggests that students need an environment that "permits students to express what they learn from the point of view, and in the medium, that emphasizes their own strengths" (p. 81).

CMC is an appropriate technology for facilitating this type of communication so long as the students are allowed to express their own viewpoints. Harasim (1989) notes that CMC conferencing is student-centered, allowing for a dynamic sharing of ideas between the participants. Davie and Wells (1991) concur that the medium empowers learners by allowing them a more active role in social construction of meaning as well as an equal opportunity to contribute to the discussion. Andrusyszyn (1996) adds that CMC gives the learner time for reflection, which can lead to the expression of deeper thinking.

A computer conferencing system need not be the exclusive method of communication for a class. Computer conferencing is an effective way to keep students in contact between

classes, as long as they have easy access. Frank (1999) adds that "blended courses ... allow both teachers and students to gain electronic communications skills gradually." This is an important consideration as technology is introduced into the curriculum.

Computing as a Communication Tool

The social aspect of apprenticeship suggests benefit from a community of apprentices learning from one another, but students need contact outside of the classroom to create a community that resembles the real community of analytic practice. CMC allows them to take part in the community but at the time and location of their choosing, thus participating legitimately but peripherally. This participation can encompass a number of communities, from the local class to the entire field of practice (if they are all on-line).

Social issues of CMC also affect the teacher. Gunawardena & Zittle (1996) note that instructors must establish a telepresence or "social presence" on-line, which may be an additional, unexpected challenge during the change to a more facilitative role. They note that this is an additional stress for teachers who have themselves learned in traditional classrooms. However, aside from actually learning the technology, many of the issues of teaching in a conferencing environment reflect the goals of legitimate peripheral participation.

Types of Interaction with CMC

Moore (1989) differentiates between three types of interaction in computer-mediated communication environments. These are between the learner and 1) the content, 2) the instructor, and 3) other learners. While the first of these is a sine qua non of education, it is essentially a one-way communication from the content provider (i.e. the content is fixed). Interaction with an instructor provides valuable feedback to the educator, as well as a communications channel that many students and teachers find vital. However, "it is the third form of interaction [i.e. learner-learner], a new dimension of distance education, that will be a challenge to our thinking and practice in the 1990s" (p. 3). Moore shows that techniques of on-line distance education can help the instructor keep in touch with a large face-to-face class, as well as allowing the students to contact each other. CMC can alleviate some of the social barriers to learner-learner interaction, although we can anticipate that the technology itself will present barriers to some (Presno, 1998). Still, CMC speeds up and extends communication within a community of practice, even as it re-arranges social structures in that community (McGrath, 1990).

McGrath (1990) notes that changes in procedures due to new technologies can change the power structure in a group. In a community of practice that utilizes computer-mediated communication, there may well be opportunities for new members to take part in advanced discourse, in newsgroups or on-line forums for example. In the classroom, McGrath points out the hope that CMC can enable the "low status" members of a group to participate more fully, as the turn-taking which is often monopolized by high status members is eliminated. A new social contract may evolve, which re-distributes opportunities for participation more equitably among students.

While learning may take place outside of the classroom, it is still not a totally independent environment. Even while engaged in legitimate peripheral participation, students are still in school, and so the context can not be completely that of a full practitioner. This may be inevitable for schooling, for as Riel (1992) notes "educational change won't occur if the new educational activity cannot at least initially take place in the context of the classroom" (p. 28). However, such a change can bridge the transition between graduate school and participation in the field, by re-orienting the thinking of the learner to the problems and practices of the community. In her study of participants in computer-mediated communication, Burge (1994) found that "active and constructive thinking, more than absorption of transmitted knowledge, governed the cognitive activity described by interviewees" (p. 13).

In fine, the place of computer-mediated communication at the graduate level might be in providing opportunities for cooperative or collaborative work on the edge of a community of practice, under the watchful eye of a local expert.

On-Line Situated Teaching and Learning of Music Theory

Music Analysis

"Analysis is the activity that links mind training to ear training and therefore occupies the central position in theory teaching" (Rogers, 1984, p. 74). Rogers (1984) suggests that one only learns analysis by "*doing* analysis" (p. 80). While graduate-level music schools in Canada have only existed for a few decades (Green & Vogan, 1991), and while a number of different techniques are used, Schenkerian analysis is the dominant method taught, as it is in the United States (Epstein, 1981; Phelps, Ferrara, & Goolsby, 1993; Rothstein, 1986, 1990). Gagné (1994) states simply: "Since Schenker's death some sixty years ago, many principles and ways of thinking that he first introduced have become an integral part of musical discourse"(p. 21).

Schenkerian analysis is a method of uncovering musical structure beneath its actual sound, and representing this tonal structure graphically, using modified music notation. The result is an often complex representation of recursive musical formal elements.

Music theory and analysis classes may be good choices for exploring collaborative discourse and legitimate peripheral participation as a learning strategy. Music students tend to spend a lot of time talking about music outside of classes and lessons. While not all university music courses are classroom-based, music theory and analysis courses typically are. There is a strong tradition of apprenticeship in the learning of an instrument and public performance thereon, and collaboration is a highly necessary skill for ensemble playing.

In addition, the wide range of approaches to music theory practically ensures that any senior music analysis class will consist of proponents of a variety of methods. "Typically, a group of students who have done their undergraduate work at various institutions will differ significantly in the type and extent of theory training that they have had" (Gagné, 1994, p. 29). Interaction between students could help to foster understanding of a number of methods, and more importantly, different syntheses of several of these methods. At the graduate level, students work at the upper end of Bloom's taxonomy (Abeles, Hoffer, & Klotman, 1984), dealing with issues of analysis, synthesis, and critique, and collaborative analysis and critique which is very close to the actual practice of a publishing analyst.

CMC and Music

Rather than asking how technology can be used, educators should ask whether it could help them to teach more effectively. Percival & Ellington (1988) contrast the use of technology in music with a technology of improved pedagogy. For example, while the 1998 ATMI Directory lists 267 CAI programs (Murphy, 1998), few are aimed at the graduate level, and none provides an opportunity to enter the community of practice or to do collaborative work. Similar problems plague current research on intelligent tutoring systems and other expert systems for music (Schaffer, 1990; Schaffer & McGee, 1997), where it is the program designer who investigates and critiques musical discourse and defines the rules, not the student. While there are undoubtedly potential benefits in using CAI to provide personalized learning experiences for students (Collins, Brown, & Newman, 1989), this potential remains largely unrealized for music theory at the graduate level. While computer programs may be useful for modeling some processes or methods of analysis, they are no replacement for a human master in a cognitive

apprenticeship, where the amount of scaffolding and timing of fading are crucial but unique to each learner.

Computer-Assisted Instructional software (CAI) requires a great deal of development time and effort, and not much exists for advanced music analysis. In contrast, on-line resources and support for music analysts are spreading rapidly, and a more promising use of computing is CMC, in which the computer as a communications facilitator links learners with one another as well as with practitioners in the community. Learners are freed from some of the constraints of time and space of a physical classroom, but must still learn the technology (as must the teacher).

While CMC can aid in facilitating the exchange of ideas, there can be problems with their representation when taken out of the context of verbalized speech. Langer (1942) demonstrates the importance of music's own symbology for its meaning, while McGrath (1990) warns of the loss of connotative and syntactical information that plagues email and on-line conferencing. To host meaningful musical discourse, a conferencing system must allow for graphic (and possibly aural) representations of music in a format that is easy for the non-expert author and reader. In their study of engineering students, Gay & Lentini (1995) noted that the link between particular activities and the technology used was a critical part of how the students used a CMC system. Their work suggests that to support musical discourse fully, the system should provide capabilities for the representation of musical notation, and sound, since these are key technologies for the music community.

Cooperation and Collaboration in Music Analysis

The social aspect of legitimate peripheral participation suggests that students might cooperate or collaborate with others who have different analytical strengths. In one of the few studies done on collaborative learning of music theory, Hoffman (1991) reported the students' enthusiasm for teaching one another, their lively discussion, and their problem-solving approach. Although the participants were conservatory students of elementary harmony working on standalone computers, it does suggest that there are benefits to collaborative learning of music theory using computing. Practicing analysts find the Internet an opportunity for both cooperation and collaboration as well as dissemination of their ideas. "The increasing possibility of disseminating music-theoretic insights, without huge investment in overhead,

provides a number of opportunities for a broadened audience, and a broadened set of dialogues which can mold and inform our own practice" (Cohn, 1998).

Need for Study

Given the social learning advantages of combining CMC with legitimate peripheral participation for teaching graduate-level music analysis, it is surprising to find that little research has been done. Several issues must be considered. First, there is the novelty of collaborative or social work in the music curriculum, save for ensemble playing. The addition of CMC merely compounds the newness. Second, there is the difficulty of accepting the newer forms of discourse into a milieu in which the teacher is the sole authority, as has been the case in the traditional training of musicians. It is possible that a change to a more student-centered discourse this late in one's academic career could be interpreted as changing the rules in mid-game (Benjamin, 1994). Finally, the lack of basic computer skills by some students and professors, as well as lack of internet experience, may prove a daunting hurdle, although Ross (1996) found that while students worry most about their technical skill levels, there was a negligible difference in their overall contribution.

One final implication of legitimate peripheral participation is that the students might find this way of learning more natural and even enjoyable. "Psychologists now have scientific verification for a pedagogical principle that good teachers already know by experience and intuition: students learn better when motivated by their own intrinsic interest in a subject, rather than by external systems of rewards and punishments" (Marvin, 1994, p. 47). This point alone urges investigation into the matter.

This study is a first step toward understanding the role of legitimate peripheral participation combined with CMC in music analysis at the graduate level. As such, it is a design experiment (Brown, 1992; Collins, 1992). As Collins states, it is only by conducting such experiments that education can begin to become a design science.

Summary of Situated Learning in Music Analysis

By the graduate level, the student has invested at least 16 years in mostly standard classroom discourse which encourages individual knowledge display and discourages collaboration as plagiarism. Situated cognition suggests that learning is individually and socially constructed, collaborative, and context-sensitive. Individual contributions assist the group and raise the common standard, while enhancing the status of the individual. At the

graduate level, the analogy of a research team working on a peer-reviewed journal is not far from actual practice. Such practice might aid students into entering the field of music analysis, while directing their own learning to their particular goals. It could also create a repository of examples and resources for future students (Silverman, 1995), accruing the best from each class in the same way as a library full of professional journals. "Universities generate content every day through their courses and seminars. Then they throw it away. There is a certain charm with this approach, but it is not cost effective" (Tsichritzis, 1999, p. 95).

CHAPTER THREE - METHODOLOGY

Research Approach and Design

Introduction

This is a study of one graduate-level, university music analysis class using computer-mediated communication to submit, critique, and discuss assignments designed to help them participate in a community of legitimate peripheral practice. A qualitative approach (Merriam, 1998; Miles & Huberman, 1984, 1994) was used to conceptualize and conduct this case study (Stake, 1981, 1994; Yin, 1994), which was appropriate given its emergent and exploratory nature, as well as the small number of participants. The uniqueness of the situation also implied case study as a suitable choice. Data collected consisted of field notes from classroom seminars and on-line contributions of class members (students, professor, and researcher), responses to several surveys, and answers to interview questions at the end of term.

Qualitative Research and the Naturalistic Paradigm

Qualitative approaches are most often contrasted with quantitative ones, which are often associated with the positivistic, empirical paradigm. Guba (1981) prefers the terms naturalistic to qualitative, and rationalistic to positivistic; both pairs are used herein.

Qualitative methods of research complement constructivist teaching methods, as both are concerned with the context in which learning takes place (Guba, 1981; Yin, 1994), as well as the social elements of the situation. Guba (1981) contrasts the key assumptions of the rationalistic and the naturalistic paradigms: the nature of reality; the nature of the inquirer/object relationship; and, the nature of "truth statements."

In such a case study, each participant has one's own "truth." The naturalistic ontology includes this multiplicity. "The naturalistic paradigm rests on the assumption that there are multiple realities, that inquiry will diverge rather than converge as more and more is known, and that all parts of reality are interrelated so that the study of any one part necessarily influences all other parts" (Guba, 1981, p. 77). Context plays a key role in defining a naturalistic view of reality, in which there is no one absolute truth, or even the concept of a completely value-free investigation. "The issue here is *not* which assumptions are 'true' but which offer the

best fit to the phenomenon under study" (ibid.). Eisner (1981) put it this way: "Truth implies singularity and monopoly. Meaning implies relativism and diversity" (p. 9).

The multiple realities of the naturalistic purview suggest a close link between observer and observed. The tacit knowledge of the investigator plays a part in leading to *verstehen*, which Smith (1983) defines as "interpretive understanding" and Miles and Huberman refer to as "intersubjective resonance" (1984, p. 20) and "empathetic understanding" (1994, p. 6). "The naturalistic paradigm asserts that the inquirer and the respondent ... are interrelated, with each influencing the other" (Guba, 1981, p. 77), so that while effort should still be made to maintain an optimal distance during research, it is not possible to be totally objective. Rather than attempting to maintain an impossible objectivity, proponents of the naturalistic paradigm make explicit tacit knowledge and biases, and take them as part of the total context. In order to achieve some sort of *verstehen*, I had to establish rapport with the participants, and this process took time. Over the semester I shared my positions on research, education, music, Schenkerian analysis, and this study itself with the participants, as they shared theirs with me.

Context plays a key role in defining a naturalistic view of reality, and the multiplicity of valid contexts is reflected in multiple views of truth. For this study, the views of each student are assumed valid and important, and so the "class profile" is really a construct of as many different views as there were students, rather than one single "group" profile. Viewing the class as a collection of interacting individuals gives a richer understanding of their experience, and provides a more holistic design (Yin, 1994). The differences between participants were as important as their similarities. Enough background was collected for each student to place the experience in a personal context.

Case Study

Case study has proven to be a valuable technique of qualitative research (Merriam, 1998; Stake, 1994; Yin, 1994). Merriam (1998) states that the single most defining characteristic of case study research is found in the delimiting of the case. Case studies are *particularistic* (focussed on the particular situation) and are especially well suited to practical problems. They can maintain much of the context of the study, and so are more concrete than other types of study (Stake, 1981). Yin (1994) posits that "case studies are the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the

focus is on a contemporary phenomenon with some real-life context" (p. 1). This study fits all of these criteria, and its exploratory nature makes case study eminently suitable.

This study is of the kind that Stake (1981) defines as *intrinsic* case study, undertaken because of its intrinsic interest for the researcher. It is highly specific, but as Stake (1981) avers that there is much to learn from a single case. Interactions between eight students as well as their teacher can be complex. "Often it is better to learn a lot from an atypical case than a little from a magnificently typical case" (Stake, 1994, p. 243).

The very distinctness of this case makes it interesting for research. As McGrath (1995) points out, it is impossible to maximize generalizability, precision, and realism. This case study has been structured to reflect the particular realities of the students in this class. Yin (1994) states that "case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes" (p. 10), implying that it is fruitless to attempt to generalize findings to other classes from this single case. "Qualitative researchers usually work with *small* samples of people, nested in their context and studied in-depth " (ibid., p. 27). Huberman & Miles (1994) summarize that "the traditional mode of qualitative analysis has been the single-case study" (p. 435).

Yin (1994) does caution that "a potential vulnerability of the single-case design is that a case may later turn out not to be the case it was thought to be at the outset" (p. 41), a particular concern of any emergent design. This is a strength of qualitative methods though, since more important, emerging issues can be pursued rather than being abandoned to pre-conceived notions of what will arise.

In addition to the descriptive and exploratory nature of this study, there is an implied evaluative component of the efficacy of legitimate peripheral participation and computer-mediated communication for this group. Guba and Lincoln (1981) conclude that case study is the best reporting form for evaluations, since it contains thick description, is holistic, and lifelike, and can illuminate meaning for the reader by simplifying the data, as well as communicating tacit knowledge.

Ethnography

The naturalistic paradigm defined by Guba (1981) is related to ethnography, and this study is informed by ethnographic methods. Spradley (1980) defines ethnography as the study of culture, and specifically of cultural behaviour, knowledge, and artifacts. "Ethnographic field

work is the hallmark of cultural anthropology" (Spradley, 1980, p. 3). Although the ethnographer can record words and outward behaviour, he must infer meanings, usually from outside the culture. Participant observation (Spradley, 1980) allows the ethnographer to take part, to some degree, in the cultural practice under study. "Moderate participation" (Spradley, 1980, p. 60) maintains a balance between insider and outsider behaviour, where the observer is able to take part in some activities while still maintaining some distance.

Ethnographic methods are appropriate for this study because it was a study of the culture of this particular music analysis class as it encounters the community of practice. Fieldwork was required to observe classroom behaviour, in addition to on-line work. Participant observation was particularly important, as the researcher was also a music analyst, and taking part in the discussion made his presence less intrusive. This participation had to remain "moderate," however, as the researcher was conducting the study, and was not part of the class. Researcher participation also should have helped the students realize that the researcher was not adjudicating their performance in any way, although this was stated explicitly during the first class, in the letter of consent to the study, and as necessary thereafter.

Emergent Design

A qualitative study may be tightly or loosely designed during planning. Too little design can lead to collecting too much data (much of it irrelevant) while too tight a design can blind the researcher to emergent issues (Miles & Huberman, 1984). Rather than specifying all aspects of design beforehand, this study assumed that emergent issues would be important. It was further assumed that however compelling emergent issues might be, they would still fit within the umbrella of the exploration of learning within legitimate peripheral participation, and that the use of the computer-mediated communication system would have some effect. However, the participants were important stakeholders in this process, and their actions were not predictable in advance.

Huberman & Miles (1994) add that the life cycle of qualitative studies tends to spread the collection and analysis of data throughout a study, with different modes of inquiry at different moments. From the first class, field notes were taken and examined for emergent issues, which then became a focus of the next field session. Field observations led to changes in the survey questionnaires as well as the final interview questions.

Pilot Study

A pilot study of computer-mediated communication use by an undergraduate music analysis class was conducted from January to April, 1999 with the same instructor as in this study. Student use of the CMC system was optional, although sharing information was strongly encouraged. The style of teaching and student use of the system were studied over the single semester of the course.

Over these thirteen weeks it became apparent that the instructor was quite comfortable using the CMC system, and used it to facilitate his own attempts to encourage self-direction in his students. Rather than adapt his teaching style to the technology, the professor used CMC to implement his own version of cognitive apprenticeship (an emergent theme not part of the original design). As a result of our discussions during and after the pilot study, Bill and I found that we had common interests in using CMC to provide more fulfilling educational experiences.

Student use of CMC varied from strong interest at the start of term, to little use just after mid-term, back to stronger participation in the last three weeks, after the instructor gave a CMC assignment. The students displayed interest and enthusiasm for collaboration, and yet shared information of only limited value: bibliographic references, isolated facts, definitions, but very little analysis or personal insight. Despite the good will of the class, it became obvious that computer use would have to be mandatory and designed into the structure of the class for it to be more effective. If the instructor's hopes for student collaboration and synthesis of ideas were to occur, the assignments and class structure would have to support them as well.

Another concern from the pilot study was the students' lack of engagement with the subject, and their general perception that it was irrelevant to their future. Because these were senior undergraduates in their final year, both the instructor and the researcher felt that a design experiment (Brown, 1992; Collins, 1992) with legitimate peripheral participation might be more fruitful with a graduate class.

Detailed Design

The instructor's interest in providing students with real-world experience in their field matched my interest in legitimate peripheral participation. We designed the basic outline of the course together, with the goal of providing students the opportunity for legitimate peripheral participation in the community of music analysis. Assignments were designed as real analytical problems of increasing complexity, culminating in a final assignment that was to be a

publication-quality music analytic article. As part of learning the process of writing for publication, students critiqued articles by their peers, and each student acted as both writer and critic. In addition, there was to be on-going discussion of the process and issues of writing both analysis and critique. As a publishing music analyst, the instructor acted as a master to the student apprentices. Their final papers were published in an on-line journal that was prepared by the students themselves.

While writing articles and critiques directly reflects professional practice, on-going discussion of strategies was just as important for these novices. "If students want to learn to write better, they need to find people to read their writing who can give helpful critiques and explain the reasoning underlying the critiques (most people cannot)" (Collins, Brown, & Newman, 1989, p. 480). Since class time was constrained, and not all students were comfortable in face-to-face discussion, CMC was meant to provide more extended opportunities for discussion and creation of a supportive environment.

The iterative nature of the analytic assignments served to increase complexity gradually, and also allowed the students to learn the Schenkerian method of analysis by actually performing it on a variety of musical works. This method of learning was particularly applicable to Schenkerian analysis. "Because the approach is fundamentally heuristic rather than formal, students can acquire skill in its application only through analyses of numerous works on increasing levels of difficulty" (Gagné, 1994, p. 28). By the final assignment, all students had a sufficient understanding of the method to be able to provide valuable feedback to their classmates.

Both the instructor and I monitored discussions to encourage a supportive and constructive style of critique, and to dissuade those who might have been disposed to harsh or inappropriate criticism. It was hoped that a cooperative environment could be achieved collaboratively via discussion and mutual support. More direct collaboration was optional. For all but the final assignment, students were allowed to work in groups of two or three on a collaborative analytical paper. It was hoped that by making collaboration visible – by having students collaborate publicly in LearnLink – that the stigma of plagiarism would be removed from it, as well as the temptation for "social loafing" (Serva & Fuller, 1997).

The attempt to foster cooperation or collaboration in graduate music students was a point of serious concern in this study. Considering that the participants had spent a minimum of 15 years in a mostly competitive school environment, and that the collaborative class was

merely one of the courses which they are taking, there was some doubt that the students would truly wish to collaborate, or learn how to. Preliminary research indicated that collaboration might not happen, especially for the better students (C. Cuneo, personal communication, July 16, 1999). Because the students were not required to collaborate on their assignments, I paid particular attention to instances of truly collaborative work and attempted to understand the motivations of the participants in undertaking it.

Selection of Participants and Ethical Issues

This study was limited to a single class during a single-semester graduate course in Music Analysis. Participants consisted of student volunteers, and the professor. All students volunteered to take part. Such classes tend to be rather small, and the students had widely divergent academic backgrounds. Although the case was very interesting, it was unlikely to be representative of graduate music students in general, or even in music analysis students. The professor was interested in new methods of teaching, and in technology in particular. He was an early adopter of technology, and thus not representative of the majority of university teachers.

During the first class session, I explained the purpose of the study, and requested the students' participation, in person as well as in a letter of informed consent (Appendix E). All data gathered were kept confidential, and students remained anonymous. Pseudonyms are used for all student participants. Students had to sign the letter of consent before being allowed to take part in the study. The professor signed a separate letter of informed consent (Appendix F) that allowed his name to be used.

Instrumentation and Data Collection

I attended all of the class sessions, taking field notes and chatting informally with the participants. I also participated in the computer conferences, taking field notes and occasionally taking part in the discussions. I also did bi-weekly surveys, in the form of written questionnaires. As in many qualitative studies, "relatively little standardized instrumentation is used at the outset" (Miles & Huberman, 1994, p. 7). An initial survey (Appendix A) was given on-line the first week of classes, designed to uncover student backgrounds in music analysis and computing. This was followed by a series of hand-written surveys (Appendix B) given every two weeks after this in a more general form meant to uncover student attitudes toward the class in general, and emergent issues in particular. Emergent issues were addressed by

changes to the survey on October 18, November 1, and November 15. A final survey was given during the last class of the semester, on November 29, for information about learning over the semester, and the validity of the cooperative and collaborative efforts as well as contact with the community of practice.

In the two-week period after the last class, students were asked to take part in semi-structured interviews (Appendix C). The professor was also interviewed after the last class (Appendix D) so that his views could be compared to those of the students. All interviews were conducted in the same room, a conference room on the other side of campus from the students' music classroom.

Qualitative research differs most radically from quantitative in that its primary research instrument is often the researcher (Guba, 1981; Miles & Huberman, 1994). For this study, I gathered primary data from student work on-line as well as field notes from the discourse in the classroom. Additional, triangulating information came from survey and interview data.

Evidence, or data, for a case study may come from six sources: documents, archival records, interviews, direct observations, participant-observation, and physical artifacts (Yin, 1994). For this study, documents included the assigned readings in Schenkerian Analysis, assignments, critiques, sample analyses, as well as web pages referenced in the course. Archival records of the conference discussions were saved as text files. Interviews were conducted at the end of the semester. Direct observation formed the basis of the field notes. Participant-observation (Spradley, 1980) resulted in the researcher taking part in the discussions in the conferencing system, both musical and technical. The notes from the conferencing system may be considered virtual, if not physical, artifacts. Yin notes that no one type of data is self-sufficient, or inherently superior to others, and that several types of evidence can be highly complementary.

Bounding of the data was a challenge, in order to avoid data overload (Miles & Huberman, 1994). Field notes were taken during classes and typed up immediately afterward, so that the immediate context was as fresh as possible. I also reviewed them immediately to identify the most important themes. Also crucial was the LearnLink database, in which students, teacher, and researcher placed notes, and which was the repository of the assignments that were meant to foster participation and cooperation. On-line records provided an audit trail with which to review historical data as new issues emerged.

The final instruments for the study were survey forms and interviews. Yin (1994) suggests that case study interviews are "of an open-ended nature" (p. 84), and cautions that surveys alone are very limited in their ability to investigate context. They were used here in conjunction with other data gathering methods, for triangulation and summary. Emergent design required flexibility, and so while general survey questions were identified before the study began, it was expected that they would change as the situation required. The main research question of learning via legitimate peripheral participation in a CMC environment, however, remained intact. Change was anticipated because the class had not been offered in this form before, because the instructor was engaged in changing his teaching style, and because the students were individuals whose reactions would dictate the success or failure of the various components of the course, as well as the emphasis that they might receive. For example, discussion might have centered on analytical technique, writing style, appropriate critiquing form, or several other topics. Unforeseen interpersonal relationships arose, and technical difficulties occurred several times. Rigidly designed surveys and interviews may have precluded the opportunity to explore new, unexpected directions that the class took.

Final interviews with both students (Appendix C) and teacher (Appendix D) were used to gain final impressions and comments, which were triangulated with field notes and survey responses. The questions for these interviews were somewhat fluid, since they reflected the actual course of events over the entire semester, and attempted to uncover the issues and feelings from the students' perspectives. In addition to the common themes of legitimate peripheral participation and computing, the questions addressed each participant's major particular concerns, from a comparison of field notes with their survey answers.

"Both quantitative and qualitative methods should be used as the situation warrants. To seek an appropriate balance between rigor and relevance seems sensible" (Guba, 1981, p. 79). In this study, some basic quantitative measures were used: counts of on-line contributions to gauge participation; the number of collaborative assignments; the size of collaborative groups; etc. However, qualitative methods were used to assess the usefulness of the information described by such numbers, and to provide context.

Data Analysis

Data collected from the surveys were triangulated with field notes and on-line observations, as well as with a final interview at the end of term. Preliminary analysis began

immediately after the first class, as I studied the field notes for major themes. I used these themes to modify the initial set of codes in the database that held the coded data from the instruments. These were reviewed weekly, before each class. I also kept a personal log of thoughts, hunches, reactions, and speculations in addition to field notes.

For the ethnographer, Spradley (1980) notes that "analysis is a search for *patterns*" (p. 85). As with other qualitative methods, analysis took place over the entire course of the study, and observations became more focussed as patterns emerged. This emergent methodology was important to the study. Miles and Huberman (1994) add that "ethnographic methods tend toward the descriptive," with special interest in "regularities in everyday situations" (p. 8). By writing up and reviewing field notes immediately after each class, I was able to note and follow up on emergent patterns. Merriam (1998) notes that although educational ethnographies can use pre-existing classification schemes, it is more common to derive one from the actual data. This was aided by application of the constant comparative method (Glaser & Strauss, 1967) of checking participants' issues to discover underlying commonalities, as adapted to the naturalistic paradigm by Lincoln and Guba (1985). Rather than generating theory, this method was used to refine emergent hypotheses as well as data categories.

Of particular interest were the different musical backgrounds of the students (Gagné, 1994), as well as their different views. While they were all Music Criticism students, they had backgrounds in music theory, musicology, performance, and even computer science. The presence of the researcher in the classroom required tact on my part to present a non-threatening presence. I provided technical assistance with the software and computer issues, and also help with some musical problems as a participant observer with training in this musical discipline.

Huberman & Miles (1994) recommend substantiating a position as well as possible with data, declaring biases and assumptions as well as possible, and including as much raw data as possible so that the readers can judge conclusions for themselves. For this study, most of the data are the words and actions of the participants. Yin (1994) says that "data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence to address the initial propositions of a study" (p. 102). For this study, I wrote the field notes with the research questions in mind, as well as emerging themes. The participants spoke directly about these themes, which were related to their daily actions. Yin suggests that to ensure the highest quality of analysis, it should rely on all relevant evidence, include all major rival interpretations,

address the most significant aspect of the case study, and the researcher should bring his own prior, expert knowledge to the case study. As a current graduate student, as well as an alumnus of this same Masters of Music Criticism course, I was able to identify with the students and understand a good deal of the context.

Trustworthiness

A qualitative study can not be "proven correct." Naturalistic inquirers can only try to increase the "probability of the study's trustworthiness" (Guba, 1981, p. 88). Naturalists "adopt certain other procedures which, while not as theoretically unassailable, nevertheless preserve the holistic situation" (ibid., p. 84). Guba outlines four major concerns for trustworthiness in research findings: truth value, applicability, consistency, and neutrality. These translate to credibility, transferability, dependability, and confirmability of the naturalist paradigm.

The naturalistic approach to truth differs from the rationalistic in that the naturalist does not seek a single, all-embracing, general, objective truth, because this paradigm does not assume a single reality upon which inquiry will converge. "Naturalistic inquirers are most concerned with testing the credibility of their findings and interpretations with the various sources (audiences or groups) from which data were drawn" (p. 80). For this reason I compared the participants' statements in class and on-line with their responses on the surveys, and finally in the interviews. I began each section of the interview with a summary of my conclusions of each participant's experience and asked them to correct it for me as a method of member checking.

Credibility is enhanced by triangulation, using a variety of data sources and verifying information from at least two sources (Yin, 1994; Guba & Lincoln, 1989). For this study I compared field notes, informal chat, survey responses, and interview statements. Triangulation is defined as "multiple measures that ensure that the variance reflected is that of the trait or treatment and not that associated with the measures" (Huberman & Miles, 1994, p. 438). This procedure allowed me to track changes of attitude over the semester. Also, redundancy of data collection helped reduce the possibility of misinterpretation (Stake, 1994). I realize that "independent measures never converge fully," since sources can be inconsistent or even conflicting (Huberman & Miles, 1994, p. 438). So triangulation is "less a tactic than a mode of inquiry" which should be built into the on-going process of data collection (ibid.). In gathering data, I was fortunate to have prolonged contact, which enabled me to ask for clarification or

amplification as necessary. While Mathison (1988) suggests that triangulation is divergent most often, resulting in "inconsistent, and contradictory evidence that must be rendered sensible by the researcher" (p. 13), Yin (1994) concludes that triangulation fails to converge when multiple sources are actually addressing different facts (p. 93). These differing viewpoints seem to point out the multiplicity of experience in a group, and the importance of case study as well as triangulation. Different members of a group may have different ideas, and an individual's thoughts may change over time.

While generalization is not possible, a completely isolated case with no possibility of transfer may have little utility. To guard against this, thick description of the learning context and student reactions to it are included, to allow readers to decide how much is transferable to their situations. This study remains a particularistic case study of the general theory of legitimate peripheral participation.

Consistency is necessary for credibility in the naturalistic paradigm, although using humans as instruments implies variation at the heart of the study. The naturalist believes that at least some observed instability is "real"; "thus, for the naturalist, the concept of consistency implies not invariance (except by chance) but trackable variance" (Guba, 1981, p. 81). Participant attitudes did change over the semester. For the naturalist, dependability is a concern for the stability of data. This was addressed by prolonged engagement with the participants, triangulation, and member checks.

Denying that attempts to remain objective can effect a real separation of observer and observed, "naturalists shift the burden of neutrality from the investigator to the data" (Guba, 1981, p. 81). Rather than certify the correctness of the researcher and the method, the confirmability of the data produced is the issue. Confirmability of data replaces the notion of rationalistic objectivity of the researcher. Methods of data confirmability include triangulation and practicing reflexivity, i.e. intentionally revealing one's own underlying epistemological assumptions. My assumptions were divulged as much as possible to the participants, especially as they impinged on conclusions.

Ultimately, the study can only provide its strongest case for being trustworthy. "One cannot muster evidence that will compel another to accept the trustworthiness of the study but only evidence that will persuade the other of its relative trustworthiness" (Guba, 1981, p. 88).

Researcher's Methodological and Epistemological Stance

Tacit knowledge is important in naturalistic studies, and must be made explicit (Guba, 1981). Regarding this study, I hold a Masters degree in music, have completed doctoral courses in music analysis, and have known the course instructor for ten years. This may have led to an improved *verstehen* of the situation of graduate students in music as well as the constraints of the professor. In this study, I was specifically interested in the problem of teaching advanced musical analysis better. This stance includes assumptions that the teaching of musical analysis is valuable, that it can be taught better, and that improvements in teaching will leave visible artifacts as well as perceptions of improvements by the stakeholders. Legitimate peripheral participation was assumed to be possible and potentially valuable, although the students must ultimately take their own initiative. Computer-mediated communication was also assumed to be potentially helpful in both learning and collaboration, based on theory as well as personal experience as a student in such a class as well as the researcher in the pilot study.

Context and tacit knowledge required that statements and actions not be taken at face value (Altheide & Johnson, 1994). I needed to consider whether misinformation, evasion, lies, fronts, taken-for-granted meanings, self-deceptions, etc. were relevant problems in interpreting situations. It was not unreasonable to conclude that knowledge of the subject matter of the course under study would help in evaluating the statements from participants, as well as in judging the significance of classroom interactions. Still, "words and texts are not the primary stuff of the existential moments" (Altheide & Johnson, 1994, p. 492), and I inevitably judged some data more worthy of inclusion than others, and some participants to be more trustworthy than others. This underscored the need for a declaration of personal bias as well as a careful, reflective interpretation of data, taking into account and "voicing" tacit knowledge. As Smith (1983) warns, "our values and interests will shape how we study and discuss reality" (p. 10). In this case, it also determined whose realities receive the most attention.

Regarding methodology, qualitative design was appropriate for this study because it fits my belief structure and interests. I conceive reality as a mix of the objective situation, individual constructs, and social (group) constructs. I did not expect to discover one single reality since students are individuals and each class is unique. I was most concerned with their experience of the learning environment.

Limitations of this Study

The scope of this study is limited by the uniqueness of the participants, the small class size, and observational restrictions. A single-semester, graduate-level university class in music analysis is rather unique, and the element of mutual criticism made the class under study more individual still. In addition, the small number of students argued against the extrapolation of generalizable conclusions. Further, while I took field notes as a participant-observer during classes and in the on-line environment, the students had many more channels of communication that could not be observed, such as telephone, email, hallway chats, etc. In addition, all of the students shared a common office. Thus observation had to be limited to publicly observable behavior and statements plus private conversations in which I took part. All of the students in the class volunteered to take part in this study.

CHAPTER FOUR - THE PARTICIPANTS

The class consisted of all eight of the students in a Masters of Music Criticism degree course. All were also taking a course in critical musicology this same semester. The four first-year students were new to this university, while all four of the second-year students had taken courses together the previous year. All of the participants considered themselves musicologists, with varying degrees of interest in music analysis.

On entering the class, all students reported that they were comfortable using a word processor to do an essay. They had all used email, but none of them had used a CMC system for a course. All of them reported some experience doing collaborative assignments. Two students (Nishka and Mary) were very enthusiastic about collaboration; four (Hannah, Pasquale, Karen, and Norma) were ambivalent; and two (Jane and Donald were somewhat uninterested in it).

First-year Students

Hannah

Personal

Hannah was one of the oldest students (all were under 30), and had a mature, balanced outlook. She was rather serious and quiet in class, but got along well with the other students. She was quite supportive of everyone in the class. She exhibited an excellent writing style, and helped others improve theirs. In class she seemed a bit unsure of herself, but her classmates and Bill praised her insightful remarks. She lived off-campus, and rarely came to the school except for classes, teaching duties, and to access LearnLink.

Prior experience

Hannah had some concern about inserting graphics into a document. She had browsed the Internet for research. She spent as little time on campus as possible, but did all of her computing in the campus computer lab. She was not fond of technology per se, but acknowledged that some computer programs were helpful. She worried that she had so few computer skills. Hannah was concerned about the efficacy of computing for learning, admitting that she had little previous experience with the concepts.

Hannah had done some work in pairs for collaborative presentations in her undergraduate work. She enjoyed it, and stated "I find the discussions from such group work amazing" (Introductory survey, September 24, 1999).

Hannah was considering a teaching career but worried about the time it would require. She did not want her career to encroach on her "private time" in the evening and on weekends, and she resented it when schoolwork did. Even though her "professional goals [were] constantly changing," (Interview, December 3, 1999) Hannah worked diligently and produced an article that Bill found to be "one of the best." She was uncertain whether the course brought her closer to her professional goals, but she did enjoy learning "a very interesting way to look at music" (ibid.).

Hannah had some background in music theory, but found her one analysis course "conceptually challenging." She expressed concern over this lack during classes but seemed to enjoy analysis. She had not studied Schenkerian analysis, and after reading the introductory article Hannah felt that she needed extra study to catch up.

Summary of course experience

Hannah was very concerned about creating a personal web page that "anyone in the world could see" but by the time she had posted her article she was very excited to do so. While still ambivalent, Hannah expressed a strong appreciation for having learned the basics of computing.

Hannah formed the first collaborative team with Nishka and Norma, and also worked on the final assignment with Mary, although they did not post their work. On-line Hannah shared her insights on Schenkerian analysis, but mostly confined her analytical suggestions for others to similarities to her own piece. She did a good deal of editing for the journal, and helped other students with their writing style, but with analytical issues she often felt that she was not qualified to criticize. This was unfortunate because her critique of Donald's paper showed excellent insight into his difficulties. Also she felt that she should not say anything if she could not be positive, and this sometimes sounded as if she were apologizing for her insights.

Hannah did not feel that she had any contact with the "music analysis community" even up to the end of November, and it was only when the journal was announced that she realized how accessible her article was by being on the web. She felt part of a strong local community, and found this one of the most enjoyable parts of the course.

Bill remarked that her paper was a fine blend of traditional and Schenkerian analysis. Hannah's article was very well written, with a strong argument buttressed by both traditional and Schenkerian analysis. Her Schenkerian graphs were particularly good. Hannah probed the subtleties of her piece with deft insights to match her analysis. Hannah enjoyed writing the journal article, and felt that it gave the students a direction for their learning that lasted over the entire semester. She felt that this focussed her learning for the whole term. She felt that the technical aspects took up a good deal of time at the end of term, but added that this impacted the layout and technical teams more than herself.

Individual issues

Hannah's analytical style matured a great deal over the course. Based on her contributions in class and on-line, Bill labeled her "one of the class intellectuals." At the end of term, she felt that she had learned a great deal about analysis in the course. However, she felt that there should have been more lectures, especially at the start of term, because she was uncertain as to what, or how much, she actually knew about Schenkerian analysis.

She mentioned time pressure over the semester, but ended up being the first to finish her article. She explained "I like to work between 9:00 and 5:00 or 9:00 and 6:00 at the latest, and I want everything in a day to fit within that" (Interview, December 3, 1999). When she complained of time pressure, it meant working beyond 6:00 p.m. She explained that this was why she would not spend hours trying to solve computer problems, but would send an email to me after 30 minutes of trying, and then leave it until the next day. She mentioned that Mary and Donald would spend five or six hours on problems in the lab.

While Hannah was loath to criticize Bill, she did suggest that the professor should periodically have breaks, with no use of CMC for a week.

Norma

Personal

Norma was the youngest student in the class. She was very enthusiastic and supportive of her classmates, although somewhat shy and quiet in class. Norma lived on campus in residence, and was often in the computer lab or the Teaching Assistant (TA) office. She became friends with Pasquale and Karen, who were also on campus quite often.

Experience

Norma "overcame a fear of computers" during her undergraduate years, (Introductory survey, September 13, 1999). She had used the Internet "in a limited fashion" for research and interest, but was still somewhat nervous about computer use. Norma reported doing collaborative presentations in an English class. After failing to gain entry in a musical accompanist program at another university, she registered in this program and saw her future as a musicologist by default. She felt that analysis was important to the work of a musicologist, and was therefore of interest to her.

Norma was the only first-year student to have taken an Analytical Techniques course that included some Schenkerian analysis, but she was only interested in analysis as it bore on her work as a musicologist. Outside of class, several of the other students came to her for help with Schenkerian terminology.

Summary of course experience

Norma was very proud of her achievements in computing, and noted that at Bill's colloquium talk she knew more about CMC than the other faculty members present. She planned to use technology in her teaching, as well as her future term papers and eventual publications.

She was very supportive of others in the class, encouraging and helping all of the others, even Mary, who seemed to take an instant dislike to her. She appeared to get along with everyone except for Mary and Donald, who she felt had fraudulently represented himself as an expert on Schenker. Norma formed the first collaborative group with Hannah and Nishka, but did the rest of her assignments alone. She helped out with the journal beyond her assigned role.

She gained confidence in this course, feeling that she could write a professional article after it. She also remarked that she preferred to give others "discussion rather than criticism – the negative term" (Interview, December 7, 1999). She made good friends in this course with whom she expected to stay in touch.

Norma's article was a very good analysis, with some good Schenkerian analysis added to a more mainstream type of description. Norma felt that the journal was a great help to her learning, especially the process of writing for one. She was excited to be published, but also concerned that a former teacher would criticize her work harshly.

Individual issues

She was concerned about her lack of computer skills, and felt that she was "way behind everyone else" (Interview, December 7, 1999). Coming from a more rural community, Norma was concerned when Mary "considered [her] a hick from the sticks" (ibid.) and so may have kept to herself more in this class than was her wont. It is to Norma's credit that she continued to help Mary in this class.

Norma felt that she could "dare to be different," and not have to come up with the same graph as the professor. This led her to question some basic tenets of Schenkerian analysis and made her critique more valuable. One comment of hers which thrilled Bill was: "On a personal note, I'm beginning to let go of my previous experience with Schenkerian analysis and not see it as necessarily a reducing technique" (note to Mozart - Minuet in C conference, September 25, 1999).

Nishka

Personal

Nishka was one of the older students. She displayed confidence in social situations and was frank regarding her concern about her analytical skills. During this semester Nishka undertook another major task outside of the university, and so was extremely busy. Consequently she was rarely on campus except to attend classes.

Experience

Nishka was fairly comfortable using a computer, and was the only student who used a Macintosh. Although she was comfortable using a word processor, she preferred to write out drafts longhand. She learned to use a PC in the graduate lab. She was familiar with the Internet, as her live-in partner was a web designer. She had taken an electronic music course in which she used a number of computer music programs. Nishka had done collaborative analysis assignments in pairs and found that they "really helped both of us get a better grasp of the concepts" (Introductory survey, September 15,1999).

Regarding education, Nishka wished to "keep [her] options open." Her goal was "just to learn." While she avoided discussing her personal goals in terms of analysis, Nishka did feel that learning more about computing was important to her future. Although she had a basic undergraduate training in theory, Nishka was self-conscious about analysis because she had

very little training in music theory before attending university. She had never studied Schenkerian analysis.

Summary of course experience

Nishka improved her web design skills, as well as her general comprehension of computing. Nishka was very interested in collaborative work, and produced two collaborative assignments, first with Hannah and Norma, and then with Mary. She was not shy about asking for help, especially with analysis. Nishka got along well with all students except perhaps for Donald, who she tended to avoid after reading his first few postings on-line. Nishka was not on campus often, but she earned respect for her hard work, as well as her diligence on the layout committee, her knowledge of computing, and her sense of humour.

Nishka felt part of a close-knit community in the class, and made friends during her work on the layout committee. In the final survey Nishka stated that she did not feel that she had much to say to the analysis community and that she lacked the proper "analysis language" with which to address them. While she enjoyed the class, and learning analysis, she was still "very much a musicologist" (Survey, November 29, 1999).

Nishka's final paper demonstrated strong writing and reasoning skills along with a solid analysis and a good Schenkerian graph. Although her approach was not solely Schenkerian, Nishka did incorporate it into her argument seamlessly.

She felt that it was the process of doing the journal and learning to write for one that was valuable. She also felt that she gained "a greater knowledge both in terms of Schenkerian analysis & computer learning / publication" (survey, November 15, 1999).

Individual issues

At the end of the semester, Nishka admitted that at first she had found Schenkerian analysis "really bizarre" and was not very enthusiastic about learning it. She found computing much more interesting. Nishka was more confident in her own abilities. She had directed her own learning to an unusual extent because she had little time to spare and also because she was very organized. She explained that she did all that was required in the time that was required because that was just how she was. "I'm never one to complain about time, just because you *should* be able to do it. When it comes right down to it, make the time!" (Interview, December 9, 1999).

Even though she found the requirement to post twice per week "a big source of stress for me!" (ibid.) she did average two notes a week over the entire semester. She also stressed that

the class was an experience that needed all of the components of Schenkerian analysis, LearnLink, collaboration, and the journal.

She felt that the other professors demonstrated resentment towards Bill for his popularity with the students as well as his accomplishments with technology. She pointed out that two other professors had failed to use email lists effectively.

Jane

Personal

In class Jane was quite quiet, but she displayed a calm command that caused everyone to pay close attention to her when she did speak. She also displayed good writing skills. Jane brought a performer's perspective to analysis, and performed a piece in the second class at Bill's request. She seemed to be a loner at first, although she became quite popular by the end of term. Jane was friendly with all members of the class and was the only person not to mention problems with Donald.

Experience

Jane had a good deal of experience with word processing and was comfortable using the Internet for research. She computed from both home and the campus computer lab. She reported doing a considerable amount of group work, mostly in pairs but also in groups of up to five. She was ambivalent about group work, because although she often found others' insights interesting she felt that groups often became unwieldy, and that not everyone contributed.

Jane planned on an academic career and was seeking her own niche combining Schenkerian analysis with feminist music criticism. She was unsure of the usefulness of computing for learning at the start of term, reticent to collaborate, and uncertain of the value of Schenkerian analysis, but she maintained an open mind. Jane had done a good deal of analysis before this class, but had not studied Schenkerian analysis. She did not know the names of the methods that she had studied.

Summary of course experience

Jane made a dramatic advance in her computing knowledge over the semester, which pleased her greatly. She felt that this would definitely enhance her career prospects. She was annoyed with the technical problems and access disruptions over the semester, but felt that her gains made the experience worthwhile.

Jane collaborated with Mary on two assignments as well as the journal. Jane found the collaboration very frustrating at times, but ultimately rewarding.

Jane finished her article on time despite some last minute computer problems. Even though Bill found her article very good, Jane felt that it did not represent her personal voice accurately enough and she re-wrote the article over the Xmas holidays and posted the new version. Jane felt a part of a strong local community, and saw the journal as the start of her career as a publishing academic.

Individual issues

Jane had a number of suggestions for future courses that she would also implement in her own teaching: marking on-line participation, having hands-on tutorials, and setting up formal appointments with students to keep track of their technical progress. In addition she would choose better analytical readings and discuss them more on-line and in class.

She felt that she had to do analysis to learn the method, and that lectures were secondary to more experiential learning. Even explaining concepts to Mary was valuable for her own learning, as well as exposing her to a very different perspective on learning. The only lack she noticed was in terminology, where she felt that she could not really discuss Schenkerian analysis using the correct terminology. She brought up this concern on-line, and ended up asking Norma for help privately.

Summary of First-year Students

The first-year students were all fairly quiet in class, although they all contributed to discussions. Hannah and Norma were most active on-line, while Nishka and Jane became more vocal in class toward the end of the semester. Over the course of the semester, all of the first-year students became very friendly. All of them were planning careers as musicologists and teachers, although they all had some interest in analysis.

They were all helpful to each other and to the second-year students as well. There was a consensus that collaboration was valuable to get to know one another, and to get started with this difficult subject. They felt that the most valuable collaboration for learning was just reading each other's ideas and seeing their thinking processes. Except for Jane, they all wished they had done more collaborative work. The journal was the most exciting part of the course, and was the focus for their learning. They exchanged ideas freely, and their articles were all very good in Bill's opinion – he rated them much better than the second-years'.

They all gained strong computing skills, although they all encountered exasperating problems too. The general feeling was that this computer knowledge would be more valuable for their careers than Schenkerian analysis. There was a residual ambivalence about the usefulness of computing for teaching versus the time needed to learn the software and diagnose bugs, but there was a consensus that CMC was important for university teaching.

All four commented on the tension among the second-year students, and on their own desire to be more understanding and bring a synthesis of approaches to their field. There was an undercurrent of distress at the conflict of viewpoints between their two professors.

Second-Year Students

Karen

Personal

Karen had a good deal of self-esteem on campus. In class, she was very confident and spoke easily. She held to a question until she understood it, and was not afraid to say that she could not follow an argument or explanation. She often sat with her friend Pasquale.

Experience

Karen reported that she used "word processors, as well as email constantly" for both personal and academic use (Interview, December 17, 1999). She spent a good deal of time on campus, in the TA office and the computing lab, although she was equally comfortable computing from home. She was adept at using the Internet for schoolwork, personal projects, and research. She was also comfortable with a few computer music programs. Karen had done several collaborative projects in both graduate and undergraduate programs.

While Karen reported a personal interest in analysis, her orientation was towards musicology and music criticism. She had a rather vague goal of a university teaching position. Karen had taken several theory and analysis courses during her undergraduate work. Although she had not studied Schenkerian analysis, Karen had seen Schenkerian graphs.

Summary of course experience

Karen enjoyed learning more about computing as well as gaining experience with CMC. Karen collaborated with Pasquale on both parts of the Allegro in Bb assignment. She felt that collaboration was not successful with this class because of the personalities involved, and that it likely would be in another class.

Karen helped to form the local community. She often added helpful remarks to a discussion, and was supportive of the others, especially the first-year students. She brought in candy for the class after Halloween. She seemed to have occasional problems with Mary, the only student more dominant than Karen in the class, and she resented Donald's lack of participation in the class. Karen was key in her role as "den mother" to the first-years. She counseled them not to worry about posting two notes per week. She told them to post their ideas without worrying about polishing them beforehand. "For me that was not an issue, just because I know that's not an issue for Dr. R" (Interview, December 13, 1999). Karen felt that the process of doing the journal was more valuable than her actual article, which she denigrated.

Karen wrote a good article, but the analysis was not outstanding. Her article contains more musicological than analytical detail, and its outstanding features are its layout and effective use of HTML. Regarding her paper, she admitted that since analysis was not her field, she was not so serious about it. "So I wasn't thinking that I was coming up with some great analysis or whatever. ... I didn't have enough invested in it, really" (ibid.). Reading others' work, Karen "realized that I myself focussed more on the style and layout, rather than content" (note to the Dave conference, September 16, 1999). She was skeptical of the journal as a real publication and of the outside world's interest in their work.

Individual issues

Karen was a strong contributor to both classroom and on-line discussions. She learned a great deal about computing and a good deal about analysis, but her work does not display more than an adequate grasp of Schenkerian analysis. Karen was somewhat jaded by university life. Her goal for the course was to "get the credit" so that she could begin her thesis work.

Mary

Personal

Mary was outgoing, confident, and in class held a point until she got it. Dominant and questioning in class, especially regarding her own piece, she seemed to try to impress Bill in class, and perhaps her classmates as well. She was also very concerned about marks and grading procedures. All of the others mentioned that she could be annoyingly dominant in class, concentrating on her own piece too much. In particular, Mary seemed to dislike Norma and reportedly taunted her for not being sophisticated enough. She was quite defensive at times, especially with computing and analysis issues. At mid-semester she told me that the

previous year's students were very competitive and she was glad that they were not in her classes this year, but in her interview she said she missed their passion and interest in music. Mary was sometimes aggressive in class, challenging Bill for control or in the final class, verbally 'fighting' Pasquale for control of the journal discussion.

Experience

Mary reported strong basic computer skills, including data base use. She was quite comfortable using the web for research or personal interests. She was on campus fairly often, and after experiencing access problems from home did all of her computing in the campus computer lab. Mary had done a large number of collaborative assignments, "so many that I don't know where to begin!" (Introductory survey, September 25, 1999).

Mary presented a paper at a graduate students' conference during the semester, and took steps towards organizing a similar conference locally. She reported having no professional goal, but several personal ones, some relating to post-modernist musicology. Mary had completed several theory and analysis courses during her undergraduate degree and felt very confident about analysis, although she had little interest in it.

Summary of course experience

Mary struggled with computing, especially at the end of term. She resented spending time learning computer applications, but enjoyed the freedom to work on her own schedule. She felt that computing would help her in her career.

Mary was committed to the idea of collaboration, and she collaborated on the greatest number of assignments of all students in this class. She produced two assignments with Jane, one with Nishka, and one with Hannah, which they did not post on-line. She was very active with work on the journal, but not very well organized.

While she felt that forming a community was very important, Mary seemed to alienate her classmates. Her article was good but a little disorganized, seeming to reflect her last-minute assembly of her materials. She took the journal quite seriously, more as an editor than a writer.

Individual issues

Mary was pleased to have learned a good deal about analysis, but doubted that she would ever use this skill. She attributed her "generous" comments on people's helpfulness to her lack of confidence in analysis, adding "in another course where I think I'm in my forte, I

might not sort of feel that other people are so helpful" (Interview, December 15, 1999). Mary was the dominant person in class, monopolizing discussion time.

She felt that none of the students were "theory experts." She thought that lectures were not so useful with this subject, and that it relied on demonstration and practice, but she later said that she wished there were more lectures. After the semester, Mary said, "I wouldn't say I know a lot about Schenker, no, but I would say I learned a lot."

Pasquale

Personal

Pasquale was fairly confident in class, but was often quiet. After some early disagreements in class, which seemed to reflect tensions between Pasquale, Mary, and Donald, Pasquale took a low-key and conciliatory stance in class, until the final two classes where discussion again became somewhat tense. Pasquale was confident of his abilities in computing as well as analysis, but was less sure of himself with Schenkerian analysis.

Experience

He was very often on campus, in the TA office or the computer lab. Because he had also done two years of a computer science degree, and was very comfortable with basic computer tasks, he became an "in-house technical support" person for the class. Pasquale had done some collaborative work and was comfortable working with others. He planned to teach at a university and to do research.

Pasquale had a very strong background in theory and analysis from his undergraduate degree, including a course in Schenkerian analysis, and reported a special personal interest in music theory.

Summary of course experience

Pasquale reported learning a great deal about web design and CMC, which he found very interesting and valuable for his career. As the journal developed, technical issues became more critical, and Pasquale emerged as a leader. He produced excellent work on his journal committee.

Pasquale found it difficult to give suggestions to others on their analyses since he found Schenkerian analysis to be very complex and hard to master. He felt that others might not have tried to help him with theory because he had let them know about his strong undergraduate training in music theory and analysis, even though he felt that these skills were now "rusty."

Pasquale's article was very good, demonstrating his interest in different types of analysis. He included very good Schenkerian graphs. Pasquale was not concerned about posting his article, because although he wanted to do a good job he felt that he was not publishing in his true field. He acknowledged in his first survey that "I always thought of myself as part of the music analysis camp. Because critical musicology has tended to move away from formalist analytical technique, I have not been involved until this course." In his final survey, Pasquale wrote, "I don't think anyone outside the school will read my paper" but he was quite excited when a friend at another institution read it via the Internet.

Individual issues

Pasquale rarely commented on the theory or made analytical suggestions, preferring to make jokes or ironic remarks. Pasquale had definite plans to get his Ph.D., but "won't use Schenker" in his research (Interview, December 13, 1999).

Pasquale had a self-directed philosophy of education: " I guess it's this Spartan view of academia: 'Study it yourself!' " (Interview, December 13, 1999). He felt that the professor should not have to tell him what was important for him to learn. He had a personal style of critique, which consisted of asking questions, much different from the others in second year. In class, he adapted what was discussed to his personal interests. Pasquale found the work on the journal the most interesting, with the learning of new computer skills and using them in the service of his musical ideas.

Donald

Personal

After speaking a little in the first class, Donald rarely spoke in class again until mid-November. Although he kept to himself during most classes, he did occasionally talk with one of the first-year students during coffee breaks. Donald was as uncommunicative on-line as he was in class, and after the semester he was the only one to report making no friends within the class. He seemed particularly hostile to Pasquale and Karen.

Experience

Donald claimed to be very comfortable with computing and the Internet. In his introductory survey, Donald claimed to "have experience with both Macintosh and PC languages. Perfer [sic] PC's." He added that he was comfortable creating essays on the computer, and was the only participant who was comfortable inserting graphics into an essay.

When asked about previous collaboration, Donald wrote, "Have worked with teams when assignments were outrageously difficult. Sometimes there are advantages to working alone."

Donald reported a "traditional" background in theory and analysis, but no experience with Schenkerian analysis. He announced in the first class that he intended to use Schenkerian analysis for his thesis, which was surprising given that he considers himself a musicologist and not a theorist. Donald planned to earn a Ph.D. and to teach musicology at a university.

Summary of course experience

Despite his claims, he had many problems creating computer graphics, and did not seem to understand the basic graphics formats. He left his work until the last minute, and had a large number of computer problems. Donald refused to collaborate with anyone. He did not copy-edit his assigned article, and only did one cursory critique of the two he was assigned. He denied the existence of a local community, and only cared about his own entrance into the professional community.

Since Donald considered the journal "the best part" of the course and he also "wanted to get [his] name out there" it is surprising that he wrote such a poor article. In his interview, he stated

> I WANT MY NAME OUT THERE! [bangs table] That's what I want. And *you*, Dr. R, [the other prof], you obviously have what it takes to get me there, because your name is out there. My expectation coming here: Pass me whatever it is that you have so I can take the reins and go with it. That's what I want! (Interview, December 16, 1999).

Although Donald claimed to take the journal seriously, his article was well below the class standard. While he blamed the late submission of his article on computer problems, the graphs were not very complex, and it is the actual text that Bill found most in need of revision. Bill, Karen, Mary, an external reader, and Donald himself commented on the poor quality of the article.

Individual issues

He was late with work consistently, and Bill had to tell him to start posting notes on LearnLink, and handing things in on time. He stopped using LearnLink in mid-October, and did not do his two critiques; he did only one of his two required copy-editing assignments. Donald was censured for skipping a test invigilation in mid-semester, one of his TA duties. He was very quiet in class until the last two meetings. As the semester progressed, he proved

incapable of some basic analytical tasks, such as discerning the key of a piece, or understanding what constituted a cadence.

Many incidents suggest that Donald was not truthful in some of his claims. Despite his alleged comfort with graphics programs, he had great difficulty in creating graphics in the appropriate format for his paper. He seemed to have little understanding of how to name files. He also depended on his classmates for a great deal of help which he later denied was given to him. I was concerned about Donald's veracity when he told Bill that no one would help him with his computer problems and yet I had seen Hannah and Mary helping him when I visited the lab to help him, and he had told me that Karen had helped him as well. He even told Bill that I had not been helping him after I had visited the lab with him and spoken with him on the phone twice. He told me that he had an arduous bus ride to get to the campus, and so was there as little as possible, and I arranged a special session with him in the lab, as well as personal phone support.

Donald was the only student not to complete all of the course requirements, and except for Jane all of the participants complained about him. At the colloquium, Donald told me how Bill and he had different analysis styles and he had to change his to accommodate Bill because he was marking him. He felt that Bill's corrections of his work were just "different styles of analysis." At the end of the term, Donald was disappointed that he did not learn enough Schenkerian analysis in the course to use it for his thesis, or enough terminology to take part in a professional discussion. After Donald posted his article, Bill pointed out to him the text did not betray any knowledge of the theories that he was comparing. Donald himself admitted that he was disappointed with his paper.

There was also some resentment from Mary, and most others, that Donald was able to pass without completing all of the required work, or helping with the journal. Donald's actions illustrate an excellent coping strategy for passing with the least amount of effort, but a poor strategy for actually learning.

Donald may have learned the strongest lesson of the semester. Given his interest in "getting his name out there" as well as his avowed intention to earn a Ph.D. using analysis, his realization that his work was of inadequate quality may have been a breakthrough for him. His comments during the semester, and his work, betray no awareness of a level of quality expected of him or his peers. During his interview he dismissed the assistance from his classmates as inadequate, and yet felt that they did not need his help. He dismissed Bill's criticism of his work

as a difference of opinion. It was only when considering that the world at large would read his paper that Donald realized that it was not good enough. However strong this realization, though, he did not change his paper over the Xmas holidays, as he claimed he would.

Summary of Second-year Students

The second-year students had a more jaded outlook that Karen referred to as "my second-year attitude." In general, they did not take the work or others' criticisms, as seriously as the first-year students did. They were more skeptical of the validity of the journal, more cutting in their criticism, and more critical of the professor. Karen, Mary, and Donald all felt that they had a special relationship with Bill. In general, the second year students did not get along, except for Karen and Pasquale, and this affected their interest in collaboration. Only Mary collaborated on more than a single assignment, because she worked with first-year students. Mary and Donald did acknowledge that Karen had helped them with computing problems, and Mary agreed that Pasquale had become a technical support resource for the class.

Like the first-year students, most of the second-years felt that computing brought them closer to their professional goals than did Schenkerian analysis. While they all felt that they had learned a great deal about analysis in the course, their essays are not of equal quality to the first-year students. There was often a feeling of "just getting through the course" with them, rather than a desire to engage with the material. There was also a wider variation than in the first-years, from Pasquale who was quite interested in the subject, to Mary who was clearly not interested. Donald acted interested but did not do the work, and Karen admitted that she had little interest in analysis.

Participant Summary

All of the students advanced their ability in musical analysis, but their learning of Schenkerian analysis was at a rudimentary level. With the exception of Donald, they did form a functioning on-line community that helped them with their learning, with their assignments, and with the final journal. Surprisingly, all of the students felt that learning computing skills was more important to their future success than learning Schenkerian analysis. Collaboration was seen as most helpful as an introduction to the subject and their classmates. Otherwise, on-line posting was praised for giving models of writing and showing working processes. The journal was an exciting project because it gave them a goal to aim for, and an audience to whom they could present their final articles.

Bill identified three "intellectuals" in the class as the best students: Norma, Hannah, and Jane. Except for Donald, all of the students took their teaching assistant (TA) duties very seriously (Donald was reprimanded three times for missing invigilation duties). Jane was only a half-time TA, while all of the others were full-time.

CHAPTER FIVE - FINDINGS

Introduction

The first half of the course, until approximately the end of October, consisted of an introduction to Schenker's theory, the computer technology, and the other students. Students worked on assignments alone or in groups. In November and December the students applied Schenker's theory in writing their individual articles and created the journal. Over the semester, several important issues emerged, the most important of which are presented here. There were several significant areas of disagreement between the perceptions of the professor and the students. The students felt a distinct lack of power in the class, and they reacted to this in several ways. They also related their learning to their future careers much more than to their current studies or to the syllabus for their degree program.

Because the course was logically divided into halves, I present the findings of this study in two parts. In order to answer the main research question regarding the students' experience of this course, I organize the data for each half in turn according to the sub-questions on the efficacy of CMC, collaboration, and legitimate peripheral participation, as well as emergent issues. Due to the holistic nature of this investigation, there is an inevitable overlap between the data for these areas, such as the roles of CMC and collaboration in creating the local community of legitimate peripheral participation. I have endeavored to present the data in the most appropriate section, with only the most essential references back to it when it adds to the understanding of a different question of the study.

September and October - Work on Assignments

Overview of first half of semester

For the first two months the students were involved in learning the basics of Schenkerian analysis and getting to know one another. They learned fundamental computing skills for using CMC and encountered a number of technical problems. Collaboration on the five assignments was optional. Opportunities for legitimate peripheral participation were limited to the formation of a local community, and work within it. Issues that emerged were the students' strong interest in relating new skills to their careers, and also their confusion about the marking scheme.

CMC during the first half of the semester

The students were required to use the computer conferencing system for this course in the hope that it would aid their learning and allow them to create an on-line community. Because they had little previous computer experience they were gradually introduced to the necessary technology. During the first three weeks, they were expected to learn to use the CMC system, to scan images, and to add the scanned image files to their CMC notes, all while becoming familiar with the graduate students' computing lab. All of the participants were receptive to using CMC for this course. They began to use the conferencing system within a few days of the first class, and usage was steady during the first two months except for periods when the system was unavailable. The conferencing software system was somewhat unstable, and was often down when the participants wished to work.

The participants used the conferencing system to form and maintain their local community. Although they had personal contact at least twice a week during classes, they reported having almost all of their analytical discussion on-line. They identified several benefits to their learning, as well as sources of frustration. Many of the students confused issues of CMC with general computing problems, most likely because most of the participants were relatively unfamiliar with computing, and due to the integration of the conferencing system and the Internet for the journal.

An important emergent concern was the confusion about the marking scheme for the course. Most participants were unaware that they would not be marked on conference participation or assignments until this was made explicit later in the semester.

CMC Usage patterns over the semester

Here I present computer use over the entire semester, since this most vividly depicts the changes in use over time. Despite having little computing experience, the participants began to post to the conferencing system the day after classes began. A series of technical problems interrupted access to the system. Figure 1 shows the total number of notes posted by all students each day, with Mondays, class day, labeled. (The graph represents the entire semester from September 13 to December 8. The final Monday is December 13.)

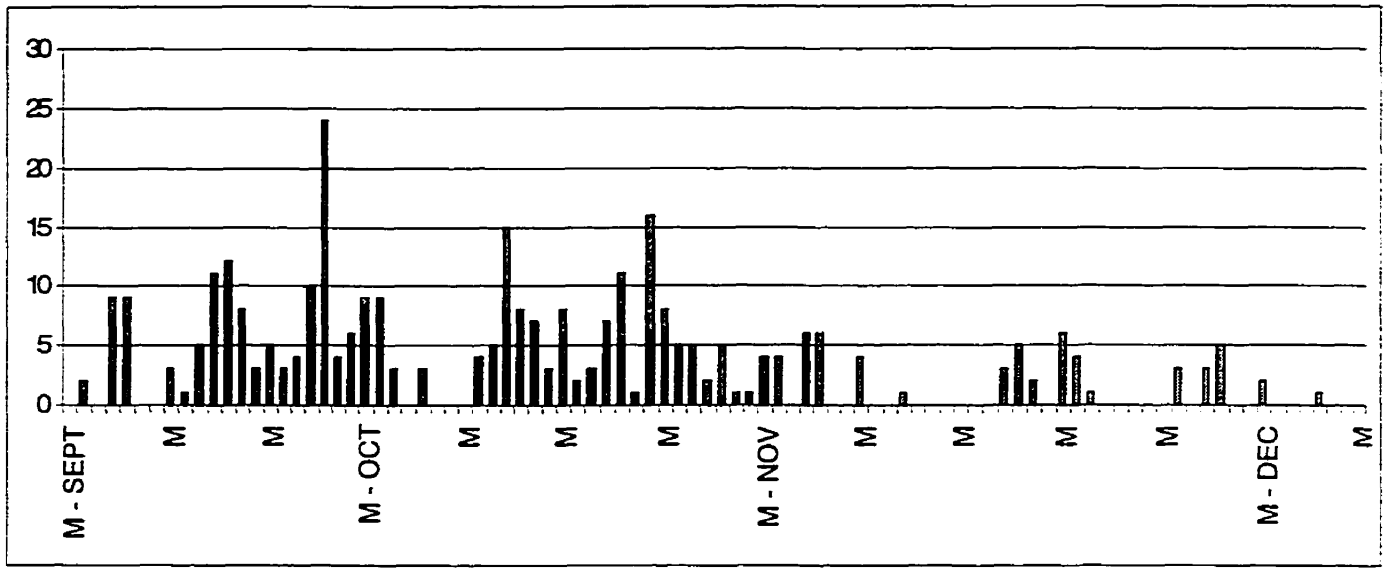

Figure 1. Number of notes posted per day. (M = Monday)

Almost every gap in posting coincided with either a server crash or network outage. After the first few notes were entered (on September 14) a problem with conference names barred the participants from posting. This was resolved on September 16, two days later. Two days of successful posting followed, but the server crashed on the first Friday of classes, and was down all weekend. On Monday September 20 the students were concerned that they were "doing something wrong" and I explained the crash to them. They resumed work, but the server crashed again the next night. Service was then restored until October 6, when it was down from 8:30 p.m. until 11 a.m. the next day (the next gap in the graph). After only one more day, the server was again unavailable (either from a server crash or network outage) Saturday and Sunday (October 9 and 10) of the long Thanksgiving weekend, and no notes were posted until the following Tuesday. Aside from a network problem on October 19 the system was available until a crash on Saturday November 6, when service was restored Sunday evening. (The gap from November 3 and 4 may be due to work in the other class or unavailability of the computer lab.) In class on November 8 the students expressed their annoyance at the unreliability of the conferencing system. On November 10 the campus network failed for most of the day, which was seen as a conferencing failure by most of the students.

The reduction in activity for November and December coincided with the end of the assignments and beginning of work on the articles. It also coincides with losses of access on November 6, 7, and 10. From November 8 to November 17 only one note was posted, by Jane. A

network outage on November 20 and a server crash on November 24 interrupted the next two posting groups. Classes ended on December 1 and the journal was published on December 8.

The nature of the course work in the second half of the semester required fewer actual postings to the conferencing system, but the timing of activity did seem to have been influenced by access problems. On the September 27 survey only two students complained about conferencing while four praised it. By October 18, six praised it while only Nishka complained, the first complaint regarding access problems on the surveys. On November 1, four complained about access while only two respondents praised conferencing, and on November 15 six reported "mixed feelings" about conferencing, with four people complaining about "computer glitches." In the final survey, five people reported mixed feelings. Also, while all but Donald reported a good deal of interaction on the first two surveys, they all reported on November 1 that they were becoming "more solitary" and on November 15 none reported much interaction at all, reflecting the work of writing their articles. The layout committee members plus one other all reported communicating in person, most likely their HTML layout work which was done in the computer lab. Of the others, only Donald reported "some person to person interaction."

The participants all used the graduate computer lab as their main site for conferencing except for Nishka, who worked from home more. Pasquale, Karen, and Jane were comfortable working from home as well, while Mary, Hannah, and Donald found access from home too slow. Norma spent a large amount of time in the computer lab, as did Pasquale and Karen, and Hannah and Donald worked in the lab when they were on campus. Although the five who used the conferencing system from home all complained of the slow response of the web version, only Karen downloaded and installed the faster client software, despite my offer of help in installing it.

Learning computing skills

The participants found learning computer skills to be valuable, and also an unexpected opportunity to become acquainted and help one another. Everyone but Donald reported that learning computing brought the members of the class closer together. The participants helped each other with computing problems occasionally on-line, but more often in person in the computer lab. Pasquale was very comfortable with the technology, and he quickly became the main support person for the class, with a good deal of assistance from Karen. Of the first-year students, only Nishka was fairly comfortable with computing. Although she felt that she had started the class "pretty far behind" everyone else, she was actually giving support advice to

her classmates during the first week and first learned to use Netscape Composer. Nishka found that knowing a little about computers gave her a chance to get to know others and to have fun with them, learning about her classmates and computing at the same time. Norma, Pasquale, Karen, Hannah, and Jane also mentioned making friends while struggling in the computer lab.

Karen noted that she and Pasquale spent a great deal of time in the computer lab, often helping others. While the first-year students praised her for helping them, Karen pointed out that she usually did not offer musical help.

> Certainly where a lot of face-to-face things were happening were in the computer labs! People having problems – technical problems! So it wasn't learning, it wasn't Schenker that I was working with people through; it was *computer things* that I was working with people. And not always me helping! I got a lot of help as well. (Interview, December 17, 1999)

Norma noticed that they collaborated often on computing problems. "We did help each other a *lot* when it came to computer things ... scanning together, having scanning *problems* together. Yeah, it was a support group" (Interview, December 7, 1999).

Interest and achievement as motivation in learning computer skills

The participants put in a great deal of work in using the conferencing system, as well as creating Internet-based articles. While they reported frustration and even anger with access problems and "computer glitches" they kept using computers to a large degree out of personal interest. After the semester they all reported feelings of achievement and satisfaction in gaining computer skills. The first-year students all reported interest in learning computer skills, and while Mary was somewhat ambivalent the rest of the second-year students reported being very interested in computing in general.

Although she had relatively little experience before the class, Norma became quite proficient at computing by the end of the term, and described it as one of the best parts of the class. Nishka learned computing skills very rapidly, surprising even herself. Jane began the semester only knowing word processing, but became proficient and comfortable with the technology. At the end of the semester she stated that "it just amazes me how much I can do on the web now. So, I think it's great" (Interview, December 14, 1999).

Karen was very enthusiastic about learning computing applications. Even Pasquale found the use of computing the most exciting part of the class. He found learning the basics of

web design "very important" and felt that graduate students should take it upon themselves to learn the basics of computing.

Mary described herself as "lazy" when it came to learning computing; she just did not want to do it. "I'm lazy and I sort of want to be outside of that kind of stuff and don't want to try with it. So it sort of bothered me that I had to try" (Interview, December 15, 1999). Still, she was pleased that her technological skills "have improved a lot." Donald also rather grudgingly agreed that the computing aspects had been valuable to learn. He did not answer consistently about computing on his surveys, but given his inability to create a web page until the last week of class, he must have improved, at least temporarily.

Hannah summarized her own progress by saying that in September

> if I'd called home and they said "So what are your classes like?" I would have said, "I have to use computers. I'm so scared!" But at the end of it, I think I'll be talking to my dad and telling him "Yeah, I'm doing this really cool class, and we do all of this collaboration on the computer" (Interview, December 3, 1999).

Social factors affecting CMC use

On-line, everyone was courteous and helpful, except for one hostile response to Pasquale from Donald. Pasquale's notes were polite and self-effacing, as if he were determined not to be aggressive or argumentative. He noted that he was often "stern" and that in person "I probably a few times might have pushed people in the wrong way" (Interview, December 13, 1999).

Mary and Donald cut back drastically after October 14, and while this reduced the number of participants it also left a more homogenous group. Donald stopped replying to notes and only read a few sporadically for the rest of the semester. He was contradictory on the issue of community, complaining of frustrated expectations and the "impersonal" nature of CMC and yet on his surveys he reported communicating mostly via CMC and that "the [conferencing] system is good. It has much to offer!" (Survey, November 1, 1999).

Learning via CMC

The participants noted several benefits from using the conferencing system that helped them to learn. They reported being better prepared for class, seeing new perspectives on work, having models to start on and improve their own work, and having greater opportunity to take part in the class.

Preparation for class

During an informal discussion at the start of the November 8 class, Nishka was the first to notice that CMC prepared her better for class than just reading and doing her assignments. "Otherwise I would have had *no* idea of what was happening in class!" (Interview, December 9, 1999). Jane agreed that by having her classmates' presentations on-line before class, she was prepared to discuss them during class time, and could relate them to the current analytical readings for the course.

Hannah found that

> because of the preparation that you go through in doing LearnLink it's a way of preparing yourself for class. Because, to be honest, the days that we weren't doing LearnLink on pieces, I didn't feel that I had as much of a feeling for the pieces that we were discussing that day (Interview, December 3, 1999).

Hannah noted that this class was using CMC to look forward to the next class, so that they all helped each other prepare for a better discussion of the issues. She contrasted this with the other class, in which email discussion had failed, abandoned by the students.

> The only reason that it came to me is because I know that our other professor really wants us to be having email discussions. *Really*! But it's flopped! And I think that some of it has to do with it being always in retrospect (ibid.).

Mary also remarked on the failure of email discussion in the other class, attributing it to a lack of interest and its being unmarked.

> I know that email discussions have not worked well in our other class this year, although last year when they were incorporated into the mark ... they happened a lot. But then there was [sic] a lot of complaints about that, so this year they're not incorporated into the mark, and now there are no email discussions (Interview, December 15, 1999).

Similarly, Karen felt that the clear organization of the discussion topics helped keep discussion going, whereas in the other class

> it's different. People take the discussion to a different area, and then you're lost. If you come too late then everybody's moved on and you can't go back to that same argument.... Even if it's five days later, you can still go back and it's still all there.

> Whereas in email, things quickly take different turns, and then you can't really go back to something in the same way (Interview, December 17, 1999).

More discussion facilitated by CMC

Karen felt that the conferencing system encouraged discussion outside of class that prepared them better for deeper discussions in class time.

> I think that if it wasn't for this, if it wasn't for LearnLink or email or whatever, you wouldn't *have* these discussions. If it was all left up to in-class, and then your own private time outside – at least in my case, I wouldn't do it. I wouldn't spend the time with my colleagues looking at my paper, or looking at my work. That doesn't happen; that doesn't happen for me, or that's never happened. So I think in that way it helps (Interview, December 17, 1999).

Norma agreed that "it *did* promote communication outside of the class, because really, what normal people are going to discuss the use of structural II outside of class?" (Interview, December 7, 1999). Norma noted that using conferencing

> meant that I didn't just draw pretty graphs, which I know I could do. I've done it before. I had to actually talk about the graph and say that this is what the graph means and this is how the graph shows that. And I thought that was really important for writing the journal article (ibid.).

Pasquale and Karen noted that the ease of attaching graphics was particularly important for a class on Schenkerian analysis, where the primary product is usually a graphic analysis. The ability to post their graphs along with a textual commentary, made discussion more interesting and informative. Working on the first assignment, Hannah wrote "I found it very useful having a copy of your graphs to look at while I read your text" (Reply to Karen in Minuet in C conference, September 24, 1999).

Nishka found these pre-class discussions vital, remarking on how new perspectives blended with preparation for class for her.

> You could read other people's analyses, and think, "OK, so they see it this way. Why would they see it that way? But I see it this way." It would either challenge my thoughts or it would reinforce them. And so then when we came in to class, and Dr. R would proceed to start from the beginning pretty much and do an analysis on the

> board, it was neat to see how it incorporated everybody's ideas. So that maybe I was right on something, or Donald was right on something else. It was interesting. Especially since I think each of the pieces showed different things (Interview, December 9, 1999).

She concluded that the discussion was very important to her learning, and that without conferencing such discussion would not happen "unless we had class every day" (Survey, November 15, 1999). Even though the number of messages in some of the conferences made them very time-consuming,

> I did find it very useful that our discussions on LearnLink then gave me the knowledge to actually go into class and be able to understand what was going on. That was the one thing that I thought was very beneficial (Interview, December 9, 1999).

Along with the benefits of deeper discussion, there was peer pressure to keep up to date as well as to post good material. Hannah mentioned that there was a "pressure to perform" but to "respond even with mundane comments" (Survey, November 15, 1999). She felt that both of these degraded her tendencies to reflect before replying and to answer only when she had something to contribute. She also resented wasting time when others posted merely for the sake of fulfilling a requirement. Mary reported an internal pressure to present herself well in writing because it was "so concrete" (Field notes, classroom discussion, October 7, 1999).

New perspectives on analysis via CMC

By posting their work on CMC, the students were able to see each other's work, as well as their working methods. Several participants found the unexpectedly rich perspectives on music and analysis from their classmates to be the greatest learning experience in the class. The participants encountered new perspectives in person as well as on-line, but all of those who mentioned learning from new perspectives credited the conferencing system with facilitating them.

In her interview Norma noted that the peer-review process helped her learning by showing the others' perspectives on the same work.

> After doing the peer review of Karen's piece, it was nice to be able to read what the *other* peer review person said, just to see "Oh, I totally missed that!" or "That's a

> really good point!" So I thought that it was a good way to be able to check up on what other people had said about the same piece (Interview, December 7, 1999).

Although Nishka felt that she got little help with her article on LearnLink apart from Bill, others did help her learning indirectly as she was "trying to understand where they were; what kinds of ideas they were coming up with. I think that was more helpful for me (almost) than any feedback I got" (Interview, December 9, 1999).

Hannah felt that the different perspectives taught her to look at a piece of music in multiple ways, rather than just her accustomed manner adding, "where I did learn from my colleagues was in reading their posts on the web" (Interview, December 7, 1999). She noted that seeing the others' ideas online gave her an insight into their thought process. Norma remarked on the different styles of analysis that others used, finding that Hannah and Pasquale in particular showed her new ways of doing analysis. Jane felt similarly about Norma: "I find myself reading her messages thinking, 'That is what I should have said, or that is how I should have explained what happens'" (Note to Allegro in Bb conference, October 6, 1999).

Mary found that being able to read others' work and see their thought processes was the most useful about the conferencing system. She found the work in progress the best use of both the conferencing system and the web. "It helps me see where other people are coming from" (Comment, colloquium, December 1, 1999). After only four weeks, she wrote on the October 18 survey that conferencing "gave me interesting perspectives" (Survey, October 18, 1999).

Jane was surprised that Pasquale had such different views from her, and that Donald, who seemed to have the same ideas as her came up with such different conclusions. Karen remarked on how Jane's perspective as a performer made the practical application of Schenker's theory a reality for her. She mentioned that from Jane's style of critique she "learned much about my own biases and my own method of critiquing" (Reply to Jane, Dave conference, October 16, 1999).

In a discussion that erupted spontaneously in the final class session, they explicitly discussed the value of these new perspectives. Jane suggested that it was particularly hard for musicians to see other points of view, and that their discovery of them in this class was a personal breakthrough. She suggested that they had been imbued with the "Royal Conservatory's rigid view" that there was one right answer to problems of theory, with no room for discussion. Mary agreed, and stated that this was why she purposely looked for

different approaches. Donald likened this to Derrida's concept of "le difference" and noted that "meanings are *always* multiple!" (Field notes, classroom discussion, November 29, 1999).

CMC postings as models of practice

The most useful aspect of conferencing for Jane was modeling her early assignments.

> We would get our assignment, and I would sit there looking at it, and I wouldn't even know how to start. And then I would look at LearnLink, and just by seeing somebody doing something, I would think "OK, OK, now I can start!" (Interview, December 14, 1999).

Even though the models were often what Jane would not want to do, they helped her formulate her own thoughts. Hannah found some of the others' work to be excellent models for analytical writing. Karen found models helpful in coming to grips with the subject.

> You've never done Schenker before, you don't know. And it's the first thing that you are turning in in a degree and whatever. Of *course* it's good to be with people, and sort of get that ... you're on the right track. If nothing else, even just seeing what Pasquale was doing, and I see that I am on the right track. And that's good enough to get you moving in what you're doing (Interview, December 17, 1999).

Enhanced opportunity to take part in class via CMC

Mary and Karen dominated the in-class talk to a great degree, while the first-year students were somewhat shy. The more reserved participants found that they were able to take a larger role in discussions by using conferencing, and also that they could do so on their own schedule.

All of the first-year students made important contributions to discussions on-line, where they were much more active than in class, and even Pasquale took part more in the conferencing system. CMC had a great effect on Norma's participation in this class. Norma was shy, and glad that the conference was closed so that others would not criticize them for not knowing much about their subject. She found LearnLink to be "a great way" to take part in discussion since "class situations are rather intimidating ... so I prefer to just keep quiet and do my work" (Interview, December 7, 1999). She explained that just because she was quiet in class did not mean that she did not grasp what was being discussed and its implications. Other students and Bill mentioned that Norma was a key part of the class, and yet her major contributions were on-line. Norma was particularly happy that they were able to continue their

discussions when they missed a class due to Thanksgiving. This participation extended throughout the entire week, and included all of the other students except for Donald.

Nishka, Hannah, and Jane were rarely on campus except for classes, and so the freedom of time and space to contribute enhanced the accessibility of the conferencing system for them. When asked about her communication with others, Hannah replied, "most of it was on LearnLink, definitely" (Interview, December 3, 1999). Jane answered similarly, "Except for working with Mary, it was only LearnLink" (Interview, December 3, 1999). Nishka stated, "I'm never really at school, ever, so the personal interaction is probably a little bit more difficult for me" (Interview, December 9, 1999). Pasquale was more active on-line than in class, but felt that most of his interaction with classmates was face-to-face, mostly in the computer lab. Donald rarely spoke in class until the last two sessions. His contributions on-line were his major communications until then. Even Karen, who spent a good deal of time in the computer lab, found the conferencing system liberating.

> It's so hard to work on somebody else's schedule. Whereas this way you do it whenever you feel like it – 3 in the morning, whatever — you can take it at your own pace. It's sort of the best of both worlds, because you still get the interaction, but without the hassle of having to face-to-face meet with somebody (Interview, December 17, 1999).

Dissatisfaction with CMC

Mary was less enthusiastic about conferencing, probably because she dominated the classroom discussion time. Mary felt that she communicated more in person than in the conferencing system because she was more orally oriented.

> I just find LearnLink very tedious. You get something out, and then you have to wait a day for somebody to respond to you, and then you have another response. It's just very time consuming, right? Whereas just to sort out some little small problem, which takes like two minutes in person, can take days (Interview, December 15, 1999).

She also found it hard to "re-adjust [her] mind" to the discussion online. Part of Mary's concern stemmed from her difficulty reading from the screen. She had to print out the notes to read them, and resented having to pay for the paper to do so.

After his initial skepticism, Pasquale remained ambivalent about LearnLink for his own learning, although he did see its value for others.

> For instance, that you are able to follow three different threads for instance, without having to search for them like in an email system, where there's only one line going through, here you could have three at the same time. That kind of thing. So I understand the good things about LearnLink, but ... (Interview, December 13, 1999).

He was unconvinced that it had helped him a great deal. He was very aware of the limitations of communicating in a text-based environment. The most help he got online came from Bill. This could be due to his knowledge of both computing and analysis; he was acknowledged as the class leader in both.

Problems using CMC

The participants reported only two problems with using CMC: the amount of time required to learn and use it, and difficulty accessing the system at times. The students reported a high degree of frustration from the combination of time pressure and being denied access due to system outages.

Time required for the use of CMC

The participants expressed concerns about the amount of their time taken up by reading and writing notes as well as its intrusion on their personal time. Most of this concern was expressed during the first half of the semester. Time was mentioned as a problem by fewer than half of the participants on the five surveys (3, 2, 4, 4, and 3). Other than a few ambivalent references by Hannah, only Mary mentioned time as a problem more than twice, and Karen and Pasquale specifically mentioned that their time pressure was due to an assignment in their other class. Bill also noted that students seemed to "drop from sight" when their assignments were due in the other class. For example, on November 1, while four students complained of time problems, Donald and Jane both found that they had ample time that week. That same week Norma had her presentation, and Nishka had the flu. Several participants complained of network outages as well. On November 15, Jane and Donald both complained of time constraint. By the final survey the only participants who complained of time pressure were Donald and Mary, who both handed in their assignments at the last minute.

As she was the only part-time Teaching Assistant, Jane felt that she had more time than the others to spend on LearnLink. "I found that it took a lot of time, but I have it" (Interview,

December 14, 1999). During the week of November 15, Jane was the only person to post to LearnLink. She suggested that the amount of time spent on LearnLink led to reducing time on other activities such as reading the assigned articles, although the poor quality of the readings contributed to this as well. She sometimes found the number of notes to read overwhelming.

> I found myself running to LearnLink to see if anyone said anything about my analysis. And then I'd open it up, and there were responses to me. But at the same time, there are 15 other responses that I have to read. 8 people responded to Norma, and 12 people responded to, well you know. There's 12 responses to this, but on top of mine... well, I liked to read the responses to mine, but I didn't care about anyone else's ... then I also felt obligated to read the others as well. So, I would say that I liked having input right away, other people's input on my stuff, but it was just a lot of work. (Interview, December 14, 1999).

Still, she found value in using CMC to share ideas and to see how others thought. She summed this up on her Nov. 15 survey as "I think I would miss it [if they stopped using conferencing]. I like knowing the others' ideas. On the other hand, it would free up a lot of time" (Survey, November 15, 1999).

Nishka found that the trade-off for all of the new perspectives and preparation for class with conferencing was that the number of notes to read could be overwhelming. She also mentioned that some times she had to search for notes to respond to, since she was not personally compelled to answer any in particular. With her hectic schedule Nishka found it easier when the number of respondents was reduced with the journal work, and felt that it was with these critiques that collaboration was truly worthwhile.

Intrusion on personal time by CMC

While some students felt that they should not have to use the conferencing system on their own time during the week, Karen disagreed.

> That was more of an issue I think when we started using email in a mandatory way in classes. Now LearnLink is just the same thing for me. It was just more of the same thing. I have already come to terms with the fact that I have to be checking email. Right? But certainly the first time we were using email, which I guess for me was in our third- or fourth-year seminar classes, where we'd have email discussions – there were distribution lists in class – that was more of an issue then, thinking "Oh my

> God, I have to do all of this work outside of class? I already did three hours of a seminar; do I have to sit here now?" So, I think at first it's a bit of an issue if you're not used to doing that as part of your daily routine, or whatever, but for me at this point it *is* so much part of my daily routine, the email checking, so LearnLink was just more of the same. I didn't find it an issue (Interview, December 17, 1999).

Mary was the most vocal about computer work intruding on her own time, writing on her final survey that she found the number of notes to read overwhelming. "In fact, I *refuse* to spend my time reading them all" (Survey, November 29, 1999). Mary was the most reticent about using technology. She also found the software too slow to run from home and resented having to come to the university to read and post. She also lost a post during a system crash, which soured her thinking on conferencing. Donald also found conferencing and computing to be bothersome, labeling them as "a hassle" and "a big time-waster" in his final survey (Survey, November 29, 1999). In his interview he stated "I think it was *useful*, but for me personally I though it was just a big *time-consumer*" (Interview, December 16, 1999).

Time learning general computing skills

As with conferencing, some students were concerned about the time spent on computing in general. Mary also felt that computing was very time-consuming and that to compensate she did not read all of the assigned analytical articles. Jane particularly resented wasting time on computing problems, and felt that her paper suffered because she had to waste time diagnosing computer failures.

At the end of term, Hannah felt that she had spent a great deal of time developing new computing skills, but she felt that were valuable. Hannah managed to keep her expenditure of time on computing manageable.

> I had a lot of computer problems, but I never spent six hours struggling [with] the computer. ... But a lot of people, I think because their work spreads out so much, that if the computer problem is taking five hours then they *let* it keep spreading out, spreading out, spreading out (Interview, December 3, 1999).

In their interviews Norma, Nishka, Karen, Jane, and Pasquale all emphasized the importance of managing time well, and none of them reported time pressure at the end of semester.

Karen maintained that graduate students were responsible for finding out what they needed to know and learning it, and that a certain level of computer knowledge should be expected of any graduate student. She felt that "in this day and age, it should be up to us to make sure that we've got the skills that are necessary and if not, figure them out. But figure them out *early* enough in the semester" (Interview, December 17, 1999).

Problems using computers

Other than the time required and system crashes, there were no problems reported that were specific to CMC. While the participants reported a great deal of frustration from computer glitches and problems, almost all of these involved either access to the conferencing system or problems with creating digitized materials. The former was discussed in "CMC usage patterns over the semester." The latter included problems scanning, transferring files, and naming files correctly.

Creating materials on the computer

Students were expected to include digital images of their analyses along with verbal discussion in their CMC postings. All students created their images on regular music paper and then scanned these into the computer in the graduate students' computer lab. Scanning images was a challenge for all of the participants, but most of them learned to do it within two weeks. Pasquale noted that problems were often quite simple and included difficulties scanning images at an appropriate resolution and saving scans with the correct file type and file extension.

None of the participants had difficulty in creating notes in the conferencing system, or including text from word processing documents. No one expressed interest in adding sound files to their notes, and none of the students who had used music software before used it to create materials for this class.

Support and training for learning computer skills

All students except for Pasquale felt that they had poor computing skills compared to other students, and several mentioned that younger siblings would be more knowledgeable in computing when they entered university. Most students wanted more support and explicit help with learning computing, but Pasquale, Karen, and Nishka all felt that they were responsible for learning basic computing skills themselves and had done so already. All three felt that the written instructions and in-class demonstrations were sufficient to learn the computing skills required. They also helped others, especially Mary and Donald at the end of the semester.

While Norma, Hannah, Mary, and Jane wanted more explicit hands-on training, and Norma also wanted night classes in basic computing, only Nishka took notes during in-class demonstrations. When asked what she thought of the instructional emails that I sent over the semester, Jane replied "I never read them. But Pasquale did!" (Interview, December 14, 1999).

Learning benefits from CMC

The participants found that CMC helped their learning by augmenting their in-class experience in specific ways. It helped to extend discussion throughout the week, and prepared them better for the next class than they might otherwise have been. They valued seeing each other's work and felt that they learned from it. Some also felt that they had a greater opportunity to take part in discussion than they would have had with only seminar hours.

The students and Bill agreed that by posting original presentations or ideas on-line, and having preliminary discussion in the conferencing system as well, the classroom discussions were richer than they would have been. The most interactive parts of the classes were the discussions of the piece for that week. Even the quiet students usually took part in these. The forward-looking use of conferencing, plus the requirement to use it was helpful at the start of term, while the student perception of value in using it kept it going.

Over the semester, all participants noted repeatedly that computer skills learned for CMC use would be valuable for their careers. All participants reported with satisfaction that they had enhanced their computer skills. The students' perceptions of the value of learning computing changed over the semester. The first-year students were all somewhat concerned that too much time was spent on computing at first, but were very pleased with the result by the end of term. The second-year students' opinions divided along skill levels, with Pasquale and Karen unreservedly enthusiastic about computing, and Mary and Donald less so.

Forming a sense of community is difficult when graduate students have different schedules, and are rarely on campus at the same time. If the participants were to take part in a local community there had to be a way for that community to form virtually, to overcome the time and space barriers of their different schedules. The local community was built and sustained by the students, with Bill taking a very secondary role in it. The students noted that they had discussions that would not have happened outside of the conferencing system. Even resolving computer problems became an opportunity to build stronger community ties. Most of the support was for computing issues, morale, and writing style, with little help on Schenkerian

Analysis beyond personal breakthroughs ("Oh, now I get it!"). Most students read the messages from their peers, but not the instructional emails that I sent.

Summary of CMC use

The participants were quite enthusiastic about conferencing, especially during the first half of the semester. They found enough value to continue using the system even after they discovered that they were not being marked on their contributions. The major benefits from CMC as perceived by the students were the learning of basic computer skills, the sense of community on-line, and the enhancement of their learning and their eventual career prospects. These outweighed the costs of extra time spent learning computing, and the frustration of dealing with computer problems. There was a general feeling that the time spent was mostly worthwhile, although most participants would have liked better help from their peers.

Access problems and computer outages were accepted as annoying features of the system. In his colloquium address, Bill noted that only those students who left their work "until the last minute" encountered time problems. Although Hannah expressed concerns early in the semester, in her interview she said "I think in the end that time hasn't been *such* a huge problem, because I feel fairly on top of things right now" (Interview, December 3, 1999). Mary felt that people stopped participating in the conferences because they were so busy that "we just stopped caring" (Interview, December 15, 1999). However, Nishka, Norma, Hannah, Pasquale, Jane, and Karen all felt that they had good time management skills that allowed them to keep to the schedule and finish with time to spare.

Jane summed up her feelings by saying "I didn't come out of the class feeling like – and maybe this wasn't the point – that I'm a Schenker expert at all ... But, if it was about a *new experience* of analysis, *totally*, LearnLink contributed to that!" (Interview, December 14, 1999).

Collaboration during the first half of the semester

The five musical analysis assignments given during the first half of the semester were the major opportunities for collaborative work. Even though Bill did mention that he would consider the possibility of a collaborative final article, no one pursued it. After an initial flurry of collaboration, interest slowly faded as the majority of students returned to individual work on their assignments. During the last two weeks of October, the students became aware that they were not being marked on their assignment work, and collaborative work stopped along

with almost all individual work on assignments. There were also other social factors that affected collaboration, such as the stratification into "first-year" and "second-year" students.

Introduction to collaboration

The participants produced two types of collaborative products: some of the assignments posted on the conferencing system in the first half of the semester, and the journal in the second. In addition, they cooperatively created a supportive local community that provided its members with assistance in learning skills such as computer competency and writing style.

The collaborative efforts of the participants took place at specific times, for specific tasks, and in specific places. In some cases the patterns changed over the semester. They were also influenced by, and conversely influenced, the local community. There were limits to the collaborative interactions from the perspectives of subject content and social interaction that affected the overall collaborative environment. Of particular interest was the students' concern about relevance to their future careers.

Collaborative assignments

Seven of the eight participants produced a total of six collaborative assignments. Only Donald did not work in a group. The last collaborative assignment was posted on October 13. After this, the students worked individually on their assignments and their journal articles.

For the five optionally-collaborative assignments, seven students worked in groups on the first, four on the second, and two on a third. Only Donald did not collaborate on any. The following table shows the assignments and the groups that collaborated on them.

MINUET IN C	– all solo work
ALLEGRO IN Bb	– First half groups: (Hannah, Norma, Nishka) (Jane, Mary) (Pasquale, Karen)
	– Second half groups: (Jane, Mary) (Pasquale, Karen)
SCHUBERT C MAJOR	– all solo (only Karen, Hannah, Norma, Jane, Pasquale submitted an assignment)
BACH MINUET	– first half group: (Nishka, Mary)
	– Second half: no groups
BEETHOVEN BAGATELLE – no posts! (Mary and Hannah worked on this piece. Mary says that they did not post it because no one else posted that week.)	

Figure 2. Assignment groups.

Pattern of Collaboration

From the outset, Mary and Nishka were advocates of collaboration, Hannah and Norma were very interested in it, and Pasquale, Karen, and Jane were willing to try it. Only Donald was opposed to collaborative work.

Bill allowed collaborative assignments as of the second class, and the seven interested participants began collaborating immediately. Bill limited the size of groups to "two or three" but there was only one group of three. Norma mentioned in her interview that three was too large for a group, and the participants found it difficult to co-ordinate even such small numbers. In their interviews, all seven remarked that collaboration allowed them to become acquainted with each other. All of the first-year students found collaboration to be an effective way to start working in this class. For example, Hannah explained that she collaborated on the first assignment "because I was very insecure about doing analysis for the first time" (Interview, December 3, 1999). Her second collaboration grew out of an interesting discussion that she had with Mary, although they did not post the results because, as Mary reported, "no one else posted that week" (Interview, December 15, 1999).

The Minuet in C was assigned in the first class before the participants had a chance to form groups. Three students did not submit work on the Schubert C Major assignment, and no one submitted anything for the final Beethoven assignment. Work in the Schubert conference (September 27 to October 4) overlapped work in the Allegro in Bb conference (September 22 to October 6). The fourth conference on the Bach Minuet began immediately after the Allegro in Bb (October 8 to October 26), suggesting that the Schubert was "lost in the shuffle." Events discussed below suggest reasons that the Beethoven conference was ignored.

No collaborative assignments were posted between mid-October and the beginning of writing the journal articles, which began around the first week of November for most participants. Several students reported becoming more solitary at this time, and there was a shift from addressing the local community via assignments to addressing the wider community of practice with their articles.

The participants were unanimous in reporting that the difficulty of scheduling and amount of time taken up by collaborative work were the reasons for discontinuing it. Norma described how their group had come about through a chance meeting:

> And so the three of us were together, and so we did [the collaborative assignment]. And after that, what are the chances? Nishka rarely comes in to the office – only

> when we have classes, and maybe on other day a week. ... Hannah only comes in on days she has classes and maybe one other day of the week. ... So that affects things a little, the fact that we're not in every day. It's a little bit difficult to time things (Interview, December 7, 1999).

Karen agreed:

> It just takes time, and again, it's like "... How much time am I going to have to sink into this, and how much frustration? And is it *worth* what I'm going to get out of it?" (Interview, December 17, 1999).

The two students who were determined to collaborate as much as possible, Nishka and Mary, continued to communicate informally, especially on their journal articles. They both found this very beneficial because they both analyzed similar pieces and were able to find analytical similarities between them.

There was very little inter-group critique. It was restricted to the Allegro in Bb assignment. After Hannah, Norma, and Nishka ceased to work together, only Pasquale and Karen critiqued assignments together. Although Mary worked in groups with Jane, Nishka, and Hannah, she pointed out that none of these groups critiqued another group presentation.

In the two busiest conferences, the individual first-year students consistently responded to other groups, while three of the second-years did not reply to another group at all in the second one, to which Donald made his only contribution to either.

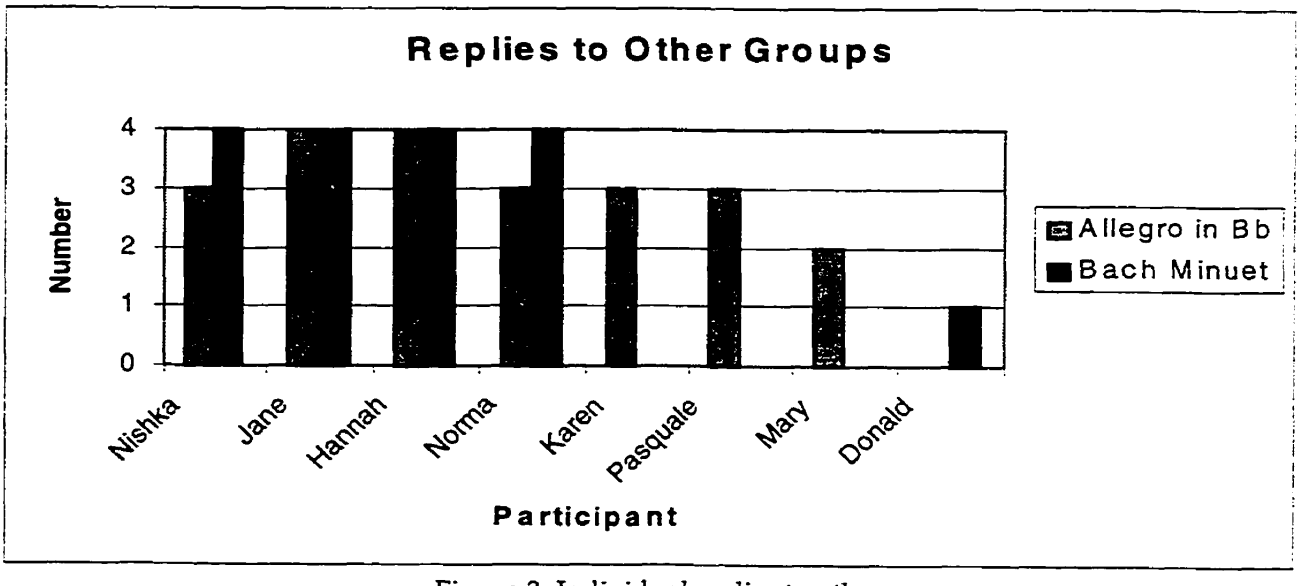

Figure 3. Individual replies to other groups.

Locations for collaborating on assignments

All students collaborated on their assignments over the telephone or in person, meeting in the library or at one person's home. Only the finished assignments were posted on-line, even though the students were encouraged to do their work on-line to demonstrate their processes. (These processes did come out, however, during discussions on-line and in class.) For students such as Hannah, Jane, or Nishka, who were rarely on campus, such collaboration was more difficult than for the others, who were there more regularly.

Although all eight students shared the same office, it was the site of very little analytical discussion. Norma, Hannah, and Mary each mention one or two isolated incidents of such discussion; otherwise it was only a location for social chat. Karen explained that the office was not a location for analytic discussion because "people come and go a lot. ... So it's not like our office is a place to work together. That hasn't been like that, not since I've been here anyway" (Interview, December 17, 1999). Pasquale said "we *hardly ever* talked in the office [about school work]. ... It wasn't the place to talk about this stuff. ... The office just wasn't the place for academic discussion" (Interview, December 13, 1999). Nishka avoided the office because "I get *way* too distracted at school, especially in an office with seven other people. It's just too much" (Interview, December 9, 1999).

Pasquale mentioned that there was a lot of discussion of the notes as people read them, and wrote them, in the computer lab. "We talked more *in the lab* while we were posting to LearnLink!" (Interview, December 13, 1999). Norma concurred. "There was a *lot* of helping each other. ... We *did* talk a lot about [music analysis] in the labs, and especially when we were doing the group work" (Interview, December 7, 1999). On the other hand, Mary felt that she "collaborated" most in class, by asking questions that the others were too shy to ask.

Social factors affecting collaboration

Bill and I had hoped that the second-year students would help the newcomers adjust to the program, but their social history precluded this to some degree. While the first-year students were a highly cohesive and supportive group, the second-year students were more divided and solitary. As Jane summarized it, "There's tons of tension in second-years. *Tons of it!*" (Interview, December 14, 1999). Mary explained the source of some of this tension with ambivalence: "Last year the dynamics were very, very different, and we had a lot more competition. And there was like a lot more power-tripping stuff going on. But at the same time we had really enthusiastic people, who loved what they did" (Interview, December 15,1999). Of

the second-years, only Pasquale and Karen collaborated, and even they stopped after doing both parts of one assignment together. Pasquale admitted that he should have been more active in the conferencing system but that he chose to concentrate on his own paper instead. Still Pasquale and Karen were very active in the conferencing system all semester, while Donald and Mary cut back drastically in mid-October. Pasquale and Karen also became friends with the first-year students through their help in the computer lab. Pasquale helped Mary and Karen helped Donald but this did not seem to alter the social tension. Karen mentioned that there were "certain people" with whom she would refuse to work. "They're not big conflicts, but it's just the kind of people, the kind of workers" (Interview, December 17, 1999). Mary "was more concerned about what Dr. R thinks of my work actually than what anyone else did" (Interview, December 15, 1999). She also stated that "there are definitely people I wouldn't collaborate with and ... there are topics which I would feel with certain people I wouldn't collaborate" (ibid.).

Donald took part in few discussions even in class until the last two weeks, when he took part in post-modernist debates and also spoke about his piece when asked (which seemed to take this to "break the ice"). He seemed to feel that Pasquale and Karen were hostile to his views on postmodernism. Donald tried to side with Mary during discussions of post-modernism in the last two classes, but she did not reciprocate. Everyone except Jane had some complaint against Donald. For example, Norma was concerned that Donald was extremely late in posting even his first draft article, and so her critique of it was rushed.

Mary felt that she had to "establish trust" with the first-year students and she did collaborate with all of them but Norma, who she seemed to dislike greatly. Hannah was another strong supporter of collaborative work, but her advocacy was tempered somewhat by her decision that "in terms of work no one stood out that I would have wanted to collaborate with" (Interview, December 3, 1999). Norma felt that each student brought something different to the class, although none of them was really strong in Schenkerian analysis.

One other source of tension came from the professor for their other class, which consisted of the same students. Several students complained that analysis was derided in that class and that several arguments from that course seemed to carry over into this one.

Collaboration and learning

On their first survey the students reported enjoying the collaborations, as well as being better prepared for class after on-line discussion. Six of the seven participants who tried

collaboration felt that the experience helped their learning. Only Pasquale felt that it did not help, and his arguments with his friend Karen may not have been based entirely on course content. Mary and Nishka were very positive about collaboration before the class, and even moreso after it. Hannah and Norma both enjoyed collaborating, and Karen felt that it would have been more useful for her with a different partner.

Although the students were mostly in favor of collaboration, they only produced six collaborative assignments in contrast to thirty-two individual assignments. There was no overt incentive to collaborate, as the assignments were not marked, but this was not apparent to the students until mid-October at the earliest. There was also confusion as to what was assigned, and what constituted an assignment. Only five students posted assignments to the Schubert conference, indicating that some felt that it had not been assigned. No one posted an assignment to the conference on the Beethoven Bagatelle, for which there may have been two reasons. The analysis of this piece was assigned in the same class that the students were told that they were not being marked on assignments. After the class, there was some discussion in the hallway as to whether this assignment was "one of the five" or an extra one. The confusion was as to whether the two parts of the assignments on the Allegro in Bb and the Bach Minuet were separate assignments. The following week Bill was surprised that there were no postings to the Beethoven conference, but he was not perturbed by it.

Karen spoke for all seven when she stated that "the sharing of ideas, under whatever guise, is important!" (Survey, November 15, 1999). She suggested, however, that the most valuable type of "collaboration" was the interaction within the community, rather than "group work on assignments." This echoed a general feeling among the participants at the end of the semester that they had worked on their journal articles for most of the term, while collaboration on assignments was limited to two weeks. This reflects the marking structure for the course, which allotted all marks for the final articles and none for assignments. Given this constraint, it is surprising that the students would collaborate at all unless they found real value in doing so. The reasons they gave were becoming acquainted and getting started in this difficult subject. After accomplishing this, each took a more individual stance in a sharing community of peers.

Summary of collaboration

Collaboration took place over approximately one month, with CMC postings from September 22 to October 26. Counting authors rather than papers, there were 13 authors of

collaborative assignments versus 32 solo authors. While this might be more indicative of the amount of work put into each paper, it still illustrates that more than twice as many papers were non-collaborative as those that were. While several enjoyed working together, especially Hannah, Norma, and Nishka, even they produced few collaborative assignments. The general feeling was that the time required to coordinate work was not justified given the benefit derived, and some social tensions circumscribed the second-year students.

Bill found the student collaboration brief but fruitful. By the end of September, he commented that the work on the collaborative assignments surpassed his expectations of the individual students, and at the end of October he judged those assignments that were done collaboratively to be the best submitted to him this year. Bill felt that this class collaborated more than any other he had taught, and more than he had expected.

LPP during the first half of the semester

Overview

For the first two months, participation was limited to the local community comprised of the class members, the teacher, and myself. The community was formed through the interactions of the students, during cooperative work outside of class hours, during collaborative work on assignments, and while working together to solve computer problems and learn computer skills.

Forming a community with CMC

Although at the start of term only Donald reported feeling "part of [any] music analysis community" (Survey, September 27, 1999), in their final interviews all of the participants felt that the conferencing system had allowed them to form a local community, and all but Donald found this beneficial. While six felt able to be part of the community of practice, Norma and Nishka felt that, as Norma explained it, they did not have "the analytical tools to be a part of this community" (Survey, November 29, 1999). Benefits cited from this community included on-line sharing of ideas, rich discourse, emotional support, and simply getting help when needed. Reasons for the effectiveness of the community ranged from the organization of the conferences and access to previous information to the ability to attach graphs easily to notes. Concerns about this community included the perfunctory nature of some postings, the pressure to perform on-line, preference for face-to-face interaction, and lack of response.

Jane's thinking changed greatly over the semester, from feeling that there was too much computing at first to appreciating the ability to communicate with her classmates and the world. She and Nishka both felt that the turning point which made them want to take part more was when the discussion became less formal and more colloquial.

From the start, Mary and Donald read few notes in the conferences. After October 14 Donald stopped posting notes, only reading occasionally, and Mary posted occasionally and read about half of the postings. The rest of the students read most of the posted notes, sometimes from each other's screens as they posted in the computer lab. Pasquale, Karen, and Norma worked together in the lab much of the time, joined by Nishka at the end of the semester. They often talked about their postings as they wrote. Likewise Mary and Jane, who collaborated in person, read few of each other's notes at that time.

Social factors affecting the local community

Over the first two months, the students formed two separate groups, comprised of the first-year graduate students and the second-years. The latter were very competitive and somewhat contentious. In contrast, the first-year students were a supportive group who all liked and helped each other, and the second-year students, as much as possible. Over the course of the semester, this milder attitude won out, and all of the second-year students reported good relations with the first-years, although the relationships among the second-year students did not improve.

Limits of community help

The local community provided its members with help on general music issues, computing problems, and writing skills, but several participants noted that they were unable to get much help with Schenkerian analysis from other students. Cooperation was also constrained by students "censoring" their on-line remarks, as well as by other social factors. On the October 18 survey, the students were equally divided between asking another student or Bill for help first. By the end of the semester, a slight majority had decided that the professor was preferable. All participants except Donald felt that their peers were helpful.

Beyond specific course-related help, the first-year students reported receiving a great deal of emotional support from others while on-line. Again with the exception of Donald, all students reported feeling a welcome part of the community and receiving some benefit from this.

Help with Schenkerian analysis from peers

When students reported that they were disappointed with on-line help, it was most often regarding specific Schenkerian issues. Direct questions might have been embarrassing to ask on-line, since it would be admitting a significant lack of knowledge. Several students seemed disappointed that they had not become "Schenker experts" in the single-semester course, indicating that they held unrealistic goals for the course. The most likely explanation for the lack of Schenkerian Analysis assistance is simply that none of the participants had the expertise to offer help with the difficult analytical issues faced in this course. Bill noted that such a class usually has at least one person who is quite strong in the theory, and that this group was an anomaly in his experience. Six participants were new to Schenkerian analysis, and the others, Norma and Pasquale, were both unsure of their grasp of the subject. Accepting that there was little analytical discussion in the TA office, most of the discussion of Schenkerian analysis must have happened in person.

Pasquale was reticent about sharing his knowledge of Schenkerian analysis with anyone but Karen. "I guess I helped her out a bit. Then again, it was just me and her, so she was asking me 'Is this how you do this?' and I would say 'No, you should probably do this' " (Interview, December 13, 1999). In his interview, Pasquale corrected my question "You have studied Schenkerian analysis before?" to "I have *seen* it before" (ibid.). He had taken an undergraduate course in the subject but felt he had not mastered it.

> I'm a bit indifferent to critiquing other people's work. Certainly in theoretical things like Schenkerian ... you know, their graphs or things like that. Critiquing their thoughts or what they've written – their ideas – that's even difficult as well, because who am I to critique what they've slaved after or something? (ibid.).

Norma was similarly unsure of her abilities. Hannah, Mary, and Jane reported getting help from Norma on Schenkerian terminology, but always face to face, after class, or in the computer lab; Norma rarely gave such advice on-line, and was never asked on-line. Her presence on campus made personal contact easier for her, and she preferred it when possible after she got to know her classmates.

> Some people would come to me (because I had kind of done Schenkerian analysis before) and they would ask, "What is it called when you do this?" and I would say whatever it was, and they would say, "That's a great term! That's totally what it

> does!" and often they'd go "Right!" and look better than I did, and I gave them the idea! And that's *fine* (Interview, December 7, 1999).

Norma felt that she also got a great deal of help from the others. "Maybe not necessarily about the theory, but about the writing style and with the journal. That was invaluable help. It's really great to have other people read your work. Very beneficial" (ibid.). She singled out Hannah for helping her a great deal with her writing style.

General quality of on-line discussion

All of the participants except Donald enjoyed the on-line discussion and felt that they learned from using the conferencing system. There were differences in the quality of their experiences, and some had individual concerns about its effectiveness.

Hannah found some of the help from others to be disappointing. Referring to the conferencing system, she said "There were some times when I felt that I wasn't learning because not every one would put up really thoughtful responses, and that's what I found frustrating" (Interview, December 3, 1999). Nishka also questioned the quality of response given. "There were a couple of things that were really helpful, but often times I found them almost empty comments, and that it was just posting for the sake of posting" (Interview, December 9, 1999).

Karen felt that she got most of her help from Bill, and that although she took part in discussions "it wasn't like I was getting *tons* of help from people" (Interview, December 17, 1999). "I think that for my journal, I only maybe got ... just my two reviewers. Which were somewhat helpful, but not ...[very helpful]" (ibid.). "I would say maybe 3 or 4 people *max* even looked at my work" (ibid.). Karen felt that she was not overly helpful to others, and her own view was "If I can respond to somebody, great; if I can't, I don't care" (ibid.).

Pasquale felt the same way. "Their comments on LearnLink about my work were not the greatest. I'm not saying that my comments for them were anything either, though.... No, I don't think I got that much help actually" (Interview, December 13, 1999). He met with Bill twice "that's two hours. I didn't spend anything like two hours talking to my colleagues about my work. Certainly not" (ibid.). He also noted that none of them, himself included, was very helpful with Schenkerian analysis (even with his considerable background in music theory).

Jane did not receive much help with Schenkerian Analysis per se from her classmates, but she felt that she learned the jargon of the music community: "I was totally just admiring the lingo!" (Interview, December 14, 1999). Jane was impressed with the quality of the posted collaborative assignments.

Self-censorship in discussion

Participants were very careful about what they shared, and how they phrased their comments. While some of this may have stemmed from disinclination to expose lack of knowledge on one's part, several of the participants made concerted efforts not to appear argumentative or "difficult" in the conferences. Mary, Pasquale, Norma, and Nishka all mentioned the importance of providing positive feedback rather than negative criticism. Also, as Pasquale's earlier comments demonstrate, there was a feeling of "who am I to criticize?" Hannah found that positive comments sometimes went overboard and made it difficult to provide constructive criticism.

> Sometimes I felt weird. I thought, "I shouldn't be saying anything!" Specifically, with what's been on my mind lately with the journal, giving suggestions to people, I took it seriously. I really wanted to make positive suggestions – things that I saw that maybe could have been done or thought of differently. But then you think "Am I taking on a position of authority by making suggestions?" (Interview, December 3, 1999).

More specifically, she felt that her peers restricted their comments to general matters of style heavily laced with "cheerleading" encouragement. She felt awkward providing more in-depth comment.

> I'd think "I'm just sending people these nasty notes about what I think they should do differently, or what I would have done differently, and everyone else is sending me these 'great great great' messages." And so there is a part of me that thought, "I don't want this!" but there was another part of me that thought, "Well, maybe this is what other people want. Maybe they don't want this 'rigorous' (I would call it) criticism back" (ibid.).

On the other hand, Nishka appreciated the help.

> I got some really good positive feedback. From one person in particular [Mary] about writing style, and some ideas. And also at the same time very, very good suggestions about how to improve it and I do think that my paper was improved in the end (Interview, December 9, 1999).

Still, all of the participants would have liked more specific, helpful feedback on their postings, and yet only Pasquale and Nishka were able to recognize their own reticence to provide such feedback.

Self-direction within the local community

Within the community, many of the students exhibited a strong sense of self-direction. The students enjoyed Bill's teaching style and his de-emphasizing of in-class lectures. Several students appreciated the more self-directed approach. Karen liked being left to work on her own. "Give us enough to get us going, and then be there for us when we need you! Be there for us when we fall, and then help pick us up" (Interview, December 17, 1999). Hannah also enjoyed working on her own, and accepted a number of challenges from Bill to explore ideas she raised in class and on-line. She liked how he led them through the process of discovery rather than just telling them the answer. Norma added that she worked hard because she wanted to improve her understanding of analysis and "did not want it to be a bird course."

At times some of the participants lost interest in analysis. Karen admitted that there were times that she wished Bill would just show them "how to Schenkerize" and "just give us the right answer" (ibid.). Mary felt that she needed more direction at times, but then amended this by saying "I'm not really sure that analysis is the kind of course where a lecture is really helpful" (Interview, December 15, 1999). Jane concurred that it was "doing analysis" which helped her learning.

Summary of LPP

Over the semester, a strong sense of community developed among the participants. Only Donald did not find it beneficial. All of the other participants drew upon the community for support. While all felt that help was available within the community, the limits to this help were felt differently by all participants. The common complaint was that there was not enough help with the specifics of Schenkerian analysis. Conversely, the participants felt that there was a great deal of help available for general music analysis issues and computing skills. Mild dissatisfaction with on-line discourse was mostly voiced after the semester in their interviews.

November and December - work on the journal

Overview of the second half of the semester

During the second half of the semester, the students wrote their journal articles and critiqued the articles of their peers. They learned more computer skills to post their articles to the World Wide Web. Although they cooperated on creating the journal, each was responsible for their own article and no collaboration was allowed. During this time, their focus turned outward, to presenting their ideas to the wider community of practice.

CMC during the second half of the semester

Comparison with the first half of the semester

Usage patterns

There was a reduction in all of the participants' use of CMC during the second half of the semester. As noted in "CMC usage patterns over the semester," this was partially the result of recurrent system problems. It was also partly due to the shift in emphasis to more solitary work, and the more formal and lengthy articles and critiques. Finally, most participants polished their work more to present it to the larger community than they did when presenting to just their class.

The progression from using CMC for assignments to creating a journal on the World Wide Web reflected a move from dependence on the local community to preparing to engage with the community of practice on their own. For example, for the first month Nishka preferred to interact with others in person whenever possible, but by the October 18 survey she was more in favour of using LearnLink for "instant feedback." She noticed that her classmates and herself had become "more solitary" as they worked on their journal articles, and LearnLink kept them in touch during the week when they rarely saw each other in person. Nishka also found that the conferencing system kept her motivated while working on her own.

The computer lab remained the most common site for computer access for everyone but Nishka. There was more face-to-face work within the journal committees than during the assignment work, and these meetings were most often held in the computer lab as well.

Social factors affecting CMC use

The social interactions of the participants were similar to the first half of the semester, but more intense. The four first-year students became closer and more supportive of each other, while the second-year students became closer to the first-year students even as they were more distant from each other. Donald withdrew from almost all social contact.

The coursework was more individual in the last month of classes, and the general level of social interaction between classes declined. Students concentrated on their own articles, discussing them only with their closest friends. Even the critiques were seen as individual obligations not to be publicly discussed.

Problems using computers for the journal

As in the first half of the course, there were several problems with creating digital materials for the journal. Pasquale noted that the main problems at this time were formatting web pages and transferring these to the web server successfully. The former included a problem with WordPerfect translating filename references into uppercase within HTML documents, which then did not function properly on the unix web server. Mary and Donald also had problems scanning images, naming them, and transferring them to the web server.

Because the concept of file transfer was new to everyone but Pasquale and Nishka, there was concern among the rest that they did not know what they were doing, even when they were successful. Students relied on Pasquale and Nishka to help them, even though Pasquale felt that they could have succeeded on their own.

Time required to create the journal

All of the first-year students finished their assignments well before the deadline, and all of them retracted their earlier concerns about the amount of time required. Hannah was concerned about the time required of the committee members, but felt that she was not pressed for time personally. Karen was very pleased to hand in her "first ever early assignment." Pasquale also finished on time, but felt that he might have slighted his other coursework by spending too much time on the journal. Only Mary and Donald found the journal too time-consuming.

Pasquale felt that those who posted late (Mary and Donald) had problems because they tried to learn it all in the last week of class. Mary said in her interview "I just kind of wasn't going to fool around with the technology until I was done and comfortable, somewhat comfortable with my paper" (Interview, December 15, 1999). She required a great deal of

assistance from Pasquale and Karen to meet the journal deadline, and she must have forgotten how to scan if she had learned it earlier. Similarly Donald received a great deal of help at the last minute from Hannah, Karen, Mary, Bill, and me, although his paper was still late.

Summary of computing use in the second half

The students posted their articles to the web server, formatted their journal, and learned more advanced computing skills to create and format their web pages. Posting their articles on the Internet allowed them to present their work to the community of practice. Most of the participants felt that this was a means of communication that would be important to their careers, since several music organizations are becoming more accessible via computer communications. CMC was used for fewer notes, but these were more complex.

Collaboration during the second half of the semester

Collaboration on the journal

By November the collaborative efforts of the participants centered on the creation of the journal. The participants worked in three groups. The editorial committee included two students; two others comprised the layout committee; and three more made up the copy-editors. The final student began as a copy-editor, but switched to the layout committee in the final two weeks to help balance the workload. All of the participants contributed to its success, although Donald did little more than write his article. There was a feeling of community that created strong bonds among the other participants. Hannah described this as a responsibility:

> I thought we were supposed to respond to people, especially for the journal, and when I didn't get responses back, then I thought 'That person isn't living up to their *class* responsibility!' And it doesn't become just about you as an individual, it's about you having responsibilities to your classmates....
>
> [The journal] definitely gave you a sense of you not being *against* your fellow students, but you're actually *for* them, and you really want them to write a good paper because this is something that you're putting together – together! And so the reason you're supposed to respond to two people is because you want to make it better, and you want to help each other. You really do. And when you don't get it back you think, 'Why don't you feel that same responsibility to me?' (Interview, December 3, 1999).

Norma expressed a similar thought when she referred to the journal as "a collective writing, a collective product at the end that everyone would be responsible for contributing to" (Interview, December 7, 1999). In contrast, Karen was less engaged, saying, "I didn't take it hugely seriously. I didn't spend hours writing up reviews for people" (Interview, December 17, 1999). There was some tension between the five students who spent a great deal of time on the journal, and the three who were neither part of the editorial or layout committees.

Individual responses

Jane's 'conversion'

Jane was the only student whose view of collaboration changed significantly over the semester. At the start of term, Hannah, Mary, Nishka, and Norma were enthusiastic about collaborating with their classmates. Pasquale and Karen were cautiously in favour of collaboration, and Donald was not interested.

Jane was initially wary of collaboration, and in her interview admitted that she had never collaborated on an analysis before.

> I was going to have a new experience, because I never do group work. I never, ever did it. And I said 'OK, I'm going to do it.' And then, I never called anyone actually; Mary called me – I was hoping that no one would want to work with me. [laughs] And then she called me, and yeah, I would say that that is what I got out of that. It was almost like getting experience teaching. Even though I did find it a waste of time, and frustrating, but that part was good (Interview, December 14, 1999).

Jane felt that she got less from the collaboration than Mary did. She found the actual collaboration more time-consuming than using the conferencing system, where she quickly learned to skim. At the end of term, Jane felt that the collaboration had little benefit for her learning of Schenkerian analysis. However, on reflection she realized that she was able to consider music from Mary's perspective as a singer, which was quite different from her own as a pianist, and this led her to appreciate that her future students would have all sorts of different perspectives that she would have to account for in her teaching style. She felt that her collaboration with Mary had changed her views on teaching.

> How I can make myself understood to someone who's a singer? You know what I mean. She's seeing it this way; I'm seeing it this way. It's *because* my experience is

> different, and so I have to change. So that I realize when I'm teaching, maybe in a university, that I'm *not* just teaching piano majors, I'm teaching singing majors, and I'm teaching clarinet, whatever. So, you already are aware there is that problem. You're right. Group work is great! (Interview, December 17, 1999).

Donald's refusal to collaborate

Donald's feeling that collaboration was a waste of time had ramifications for his work. Even though he shirked his responsibility to critique Hannah's paper, she wrote him four useful notes on his article, the first of which actually solved a problem that he left unsolved in his final version. This reflected a similar incident from the class. When Donald was unable to understand what a cadence was, or how a motivic figure was being used, Hannah said to him "It is like my piece." She tried to explain how she had solved the same problem with her analysis, but Donald refused to listen to her.

LPP in the second half of the semester: the journal

After forming a local community aided by CMC, collaboration, and working together on learning computing skills, the participants prepared to contact and enter into the professional community of practice via the journal. In November and the first week of December the journal was designed, all of the students wrote articles, and all but Donald critiqued two other articles as well. All of the participants viewed the journal as a success. Factors influencing the students' perceptions included their enjoyment in creating the journal; their own direction of much of the process; its benefits to their learning; and their perception that skills developed in the process would help their careers.

The shift to the journal and more student control

Even though Bill explained in the first class that the journal was to be managed and created by the students, and they chose their roles and committees on September 27, they really only began to take charge of the journal in late October. The first evidence of this was Bill's handing over of the floor in the October 25 class to the editors. From this point on, the editors or the layout committee took part of each class to explore current issues and problems with the journal, and to give instructions to the contributors.

The students controlled several aspects of the journal, with Bill's permission. They changed its name, formed their own committees, chose their own roles, and even controlled Bill's contributions. Although Bill had named the journal "Schenkerian Analysis Forum," on

November 8 Mary suggested deleting "Schenkerian" from the title, since "we are using a lot of tools ...other than Schenker" (Field notes, classroom discussion, November 8, 1999). A vote was taken among the students, and a new title was chosen.

When Bill asked if he would be permitted to write an appendix to the journal, the editors chose to think about it for a week, and to consult with their classmates before deciding to grant their permission. The editors assumed that they would have the last word on what Bill wrote and how it was designated, i.e. as an appendix or an article. On behalf of the layout committee, one student announced the journal's format and polled his classmates for their opinions, but not Bill. He assumed that they had complete control over the format, and the only suggestion that Bill offered was that it would be simplest to emulate the format of a print journal.

By the end of November the students were deeply involved in formatting the journal, writing articles, submitting critiques, and copy-editing. Bill stayed on the sidelines, sending out comments, suggestions, and appraisals of the work in progress. In the last class meeting, on November 29, Bill allowed an hour-long discussion of the journal to evolve, since all of the class members were taking part and talking about musical issues as well as the layout.

Journal committees

Two students made up the editorial committee. They discussed their work on the phone and consulted the others during and immediately after class sessions. The layout committee had help from on other officially, and another informally. They met mostly in the computer lab. They discussed layout issues with the others present in the lab (which is how the unofficial member became involved) and in class as well. Because there were a number of widely disparate views on design issues, the two original members finally made their decisions unilaterally.

The rest of the students made up the copy-editing team. One was originally a copy editor, and joined the layout committee when editing was done. Donald did not fulfill his responsibility of copy-editing his two assigned articles, giving Mary's a cursory check and ignoring Nishka's altogether. Another was active in copy-editing, but otherwise confined herself to offering suggestions to the layout team when she was in the lab with them. Although not a part of the team, an unofficial member spent a great deal of time in the computer lab and considered herself one of the designers.

The Journal and Communities

Although the participants felt that the class, and the journal in particular, would be of benefit to their careers, none felt a part of the larger community of professional practice until after the journal was announced. On the other hand, many of the participants reported feeling a part of a real community of practice within the class, and several cherished this experience. Even though Bill identified the target audience for their journal as other graduate students, most of the other participants considered it to be publishing academics.

Further local community formation via the journal

All of the first-year students indicated that working on the journal gave them the feeling of being a local analysis community rather than just being members of a class.

On her final survey Jane noted that she felt part of a music analysis community when getting feedback on her journal article. In her interview she mentioned Hannah's help with writing and Norma's explanation of terminology, as well as Mary's new perspective, and Pasquale and Karen's help with computing. She was also the only one who found that she and Donald agreed on analytical outlook.

Hannah reported her feelings of community on her final survey. "Outside the class? Not at all. Within the class, I felt like we were definitely a music analysis community, helping each other, working through common projects / problems" (Survey, November 29, 1999). Hannah found the local community very rewarding, especially when Bill told them his strategy and progress on a review he was writing. "I wish we could have taken that further. It was just really like a bunch of colleagues gathered around the table with this 'head colleague'" (Interview, December 3, 1999). Norma noted that the different styles that her two reviewers had helped her learn, and felt that they were truly colleagues.

Nishka also reported in her final survey that she felt a part of their own analysis community but nothing bigger. She found interaction with others very valuable for learning, and her annoyance at technical problems was mainly that they kept her from getting feedback from others and getting on with her own work. However, Nishka was disappointed with the feedback she got on her article and felt that there was little interest in the class in her work. "So I thought 'Well, I've done my work, and I can see what everyone else is saying, so I'm still doing the learning myself.' And that was fine, but I felt 'voided' ... a little bit" (Interview, December 9, 1999). Perhaps part of this was due to her absence from campus most days. Donald however

denied feeling part of any musical community in his final survey, although he did indicate in his interview that he was about to enter the professional community.

Participants' attitudes toward the analytic community of practice

Many of the participants did not realize that their articles were accessible by the community of practice until Bill sent the announcement to the SMT list. Along with elation at this announcement, some participants experienced dread that they would be subjected to harsh criticism for this, their first foray into musical analytic writing. Others were relatively unmoved, skeptical that the journal would evoke any notice in other graduate students or the professional community. After the class ended, all but Norma and Nishka felt ready to enter the community of practice, and several mentioned changes that they would like to help implement in professional conduct.

Pressure from exposure

Hannah succinctly phrased an idea expressed by all of the first-year students regarding the actual publication of the journal. "It was 'neat'! I got to tell people in far away places that they could look at my stuff" (Interview, December 3, 1999). The people that she told were family and friends, and she did not connect this visibility with the wider community of practice until Bill announced the journal to the SMT list.

> In terms of being part of an intellectual community – being up on the web, being available to anyone in the world – I guess I *didn't* see how it made us available to music analysis in a broader sense until I got an email from Dr. R saying that he had sent an announcement out to the Society for Music Theory mailing list. I thought "A-ha, this is maybe the good that comes from being on the web, that suddenly you are out there." And there's a pressure being out there, because you want your work to be good enough (ibid.).

Norma also felt that "people all over the world might read this ... so that's a little bit of pressure" (Interview, December 7, 1999). She was also concerned that a former teacher in particular would write to her "and will point out my numerous mistakes and errors" (ibid.).

Having her first published article available in the web journal excited Nishka.

> I thought that was fantastic. I also think it's great that the end result is an actual journal in which we are all published. I love that idea, just because it makes us realize

> that it is possible. That we are not these "lowly beings" that have no sort of input into musical society (Interview, December 9, 1999).

On her November 15 survey Nishka wrote that she was concerned that her work was not publication quality. This colored her excitement at its appearance in the journal.

> I got very excited about it. The only thing that I was a *little* concerned about was the idea of having a notice sent to the SMT. I was just afraid that we were going to get slammed. I meant to write an email to Dr. R asking him to *please* write a little disclaimer in his email; the fact that we're not really theorists. "Please don't kill us!" Because I've seen some of those discussions on SMT get "interesting" so I just hope that they take into account that we're just lowly beginners (Interview, December 9, 1999).

Mary felt that she was publishing for the only time in music analysis, but she also worried that she might be criticized harshly for her first (and last) attempt at writing a high-level music analysis paper.

Donald had a stark realization when the journal was announced to the SMT list.

> For me, that was a reality check, saying that now, a work that I produced is open to the public. I have yet to get into a Ph.D. program, and if someone wanted to look me up, there's my writing on the web. Let's say if I wanted to go to [his preferred choice], and I said, "Oh, I'm a student of [this university]," well there I am. And to me the surprise is that "Wow, it's open to the public. I've published this. And you know what? It's really not up to par." That was my shock; that was a reality check right there. ... I am totally taking this Xmas break and I am re-doing a lot of that stuff. Because, you know, the excuse is that in the real publishing world, you are under deadlines and all of that stuff. Well, I'm sorry, that paper *can not stay* in the shape that it's in. And it's a *Schenker forum*? Uh-uh. Sorry. Nope (Interview, December 16, 1999).

Donald did not change his article.

Doubts of Journal's Validity

Karen and Pasquale were unconcerned about criticism of their articles since they felt that the journal would be ignored by the field, however worthwhile it might have been for their learning. Karen was not engaged with analysis and this colored her view of the journal. "I guess people would read it, but maybe because analysis is not my field. So I didn't take it as

seriously" (Interview, December 17, 1999). She was not overly concerned with the quality of her paper. Many of Karen's comments indicated her doubt that those outside the class would read the journal. In her interview, on reflection, she softened her tone somewhat.

> I could see how a student could come across it. But I don't think that scholars ...like you said, the periphery is OK, but the sort of central thing, I didn't see it as ever coming into contact with my paper ...[but] ... The Internet is a small place in a way. A small world. I guess you're right that you might be surprised at who might just stumble across your page (Interview, December 17, 1999).

Pasquale was similarly skeptical. In his November 15 survey, he wrote, "I'm not sure how many people will actually read any of it" (Survey, November 15, 1999). He reiterated this in the next survey. Although Pasquale was generally skeptical of the value of the journal to the professional community, in his interview he did think that more volumes would add to its validity. "Maybe this can continue, for the next few classes over the next years. Maybe there'll be a volume 2 of our little journal. Which is good; I think that's good" (Interview, December 13, 1999). Pasquale felt that the professional community would not be interested in the work of graduate students. In particular, he felt that no one would cite it like a "real journal" and so it was less important.

> Maybe I'm too close to it. And it needs a few more issues for me to say, "OK, it is something, and we *did* do something good." And maybe somebody would look at it and say "Hmm. That's kind of an interesting seed of looking at this piece. I've never thought of it that way!" And then go off and write their own little *real* study (ibid.).

Intention to change the community

The participants were stakeholders in the professional community of practice, with personal interest in its continuation. All of them felt that they would be active in some aspect of the community of academic musicians, and they felt that this was at least closely related to the community of music analysis. They also demonstrated intent to foster change where they felt it was necessary.

The first-year students also changed the local community, gradually replacing the social tension of the second-year students with their ethos of mutual helpfulness and support. In the final interviews, all participants mentioned the importance of understanding and tolerance. All of the first-year students were alarmed at the visceral rejection of analysis by their other

professor. This was the most distressing situation reported by the students, most vividly expressed by Jane.

> I think it's *wrong* that I go to [the other prof's] class, and he says "Bah! Schenker analysis!" [pejoratively] and then I go to Dr. R's class and he says "Gender." *whoosh* [makes Bill's 'over my head' motion] and I think that's *wrong*, they need to get together. That's *wrong*, it's *WRONG*. To me it's so unfair to the students. It blows my mind to go from class to class to the next. *It blows my mind*! (Interview, December 14, 1999).

Hannah tried to infuse their discussions with a "humane" quality, which she also thought was appropriate for professional writing. Jane and Norma both reported that in their careers they planned to strive for tolerance of other views and a synthesis of analysis and musicology, in opposition to the trend to "marginalize analysis" which Norma identified as prevalent in musicology (Interview, December 7, 1999). Norma also expressed alarm at the vituperation aimed at analysis in her other class, and vowed to be "more understanding of different viewpoints" (ibid.) in her professional work. Jane was concerned about the lack of consideration that faculty members gave each other and each other's fields of study. The rude chatter during their colloquium talks particularly bothered her.

Mary also felt that there should be more civility among academics.

> I think that that is something that academia in general needs to start to pick up on. I think that that's just a larger philosophical problem in the academic, educational institution of hierarchies and power versus community. It's a larger issue (Interview, December 15, 1999).

As well, Mary felt that the system of academic marking had to be overhauled.

Pasquale wanted to address the rejection of computing by some of the academic music community.

> That's fine, but I don't agree with them at all. And I would hope that some of the faculty members would not agree with that either. Simply because I think that it's very useful to have stuff accessible on the Internet. And I think that those of us that would hope to go into academics or into some kind of scholarly field, it's great knowledge to be able to set up a web site for your class, that they can go and find the information themselves, instead of always hounding the teacher for a course outline,

> or a syllabus, or something. It's on-line, and they can access that information there. It makes things much easier, I think (Interview, December 13, 1999).

The journal and learning

All of the students found that the journal process helped their learning in some way. Even though Donald found the technology frustrating, he was enthusiastic about the journal. "I think that that whole process – learning to do the web page, learning to post, learning to do a journal, learning to publish – to me that was the whole of the learning experience" (Interview, December 16, 1999).

Some of the participants noted that the journal focussed their learning over the semester. Norma was surprised at how little work the journal article was, because she had prepared the materials and drafts over the term. After correcting her drafts with the help of the critiques, there was little to do for the final paper. "I've gained a lot more from this course than I have from other courses I've taken here so far" (Interview, December 7, 1999). Hannah saw this most clearly. On her November 15 survey she noted that she concentrated on her "personal piece" that week, and this "gave me a chance to reflect on the readings we've been doing to date in a more grounded (applied) manner." In her interview Hannah was ambivalent about the efficacy of the journal in learning, but felt that it had helped her.

> I had my doubts at times. But at the same time, I really liked doing it, and I think that means something. I think it just gave us a direction for our learning. In most classes, the direction is writing your own paper. But, this is where I think that doing a journal is significant, or maybe just the way our class did it, I don't know. But it's not that you're *just* writing a paper, and that you're going to write that paper within a week and a half at the end of the year, but you're going to be putting together a journal and you're going to start that process in about October ...the fact that we were putting together a journal was in my mind part of the reason that we started working on our pieces so early. Maybe I'm wrong, but it was like "Let's start this process so by the time it comes to actually put together the article, it's not just a paper that you're going to write for a class. It's something that you've been making a part of your own research, a part of your own thinking for a substantial amount of time." And, that only came to me recently, that idea (Interview, December 3, 1999).

She found that just reading others' articles helped her learning.

> For example, I would read Jane's analysis and I would think, "Oh, that is really different from mine." And sometimes I would still be stuck on mine, but at least I knew then that there was something different out there (ibid.).

Mary was the least enthusiastic about the on-line aspect. She found the journal interesting and helpful for learning but was distracted by learning the technology. Still, she felt that as a learning experience the class was successful. There was also a strong feeling among the participants that the process of creating a journal was a valuable skill to obtain.

Help from other students with the journal

The most common reason cited for the journal's efficacy was help from others, more a collective experience than a collaborative one. This was most often in the form of the peer reviews of their articles, since each was required to review two other articles. Part of this can be traced to Hannah's suggestion in early October that at least one reader per article be working on a similar piece of music. The resultant pairs led to successful cross-fertilization, except for one, who was stymied by Donald's lack of participation. Two remaining students were not a pair because they analyzed dissimilar works by very different composers.

Appreciation of their peers for their journal work began to show up on the November 1 survey. Nishka noted working with others this week "only in relation to the online journal." She mentioned becoming more solitary "mostly because the nature of our work has changed, but also because I am not at school very often." On the November 15 survey, Nishka wrote that while she was glad to have more time to work on her piece, she was impeded by technical "snags" and the disappointing lack of response she received to her analytical ideas. On this same survey, Hannah also complained of a lack of feedback by her reviewers and a lack of material from those she was to review. On the November 29 survey, Nishka stated that discussions with the author that she reviewed had helped in writing her article and that author reported that she found discussions with Nishka especially helpful with her article. In their final versions, they cited each other's articles, one in a footnote, and the other with a hyperlink.

In her interview Jane remarked that she and the author she reviewed helped each other's learning because they analyzed similar pieces and shared insights. Jane found it very helpful to her learning to critique the work of others.

> First of all, it makes you read another person's writing. And I think back to my undergrad, you don't have that experience of reading other people's work; you just

> do your own. And it's always really interesting to read how other people write, and how they express themselves. And even with Pasquale's paper again, I'm being detailed, but it's about the coda, and I was so shocked that he didn't think it was a coda! And to me, it's just obvious, and he said "Nope! It's not." And I'm like [gestures helplessness - laughs]. And he didn't change it. I'm glad he didn't but it's interesting. You know, "Well, sure it is!" And you can actually critique it, or say "Well I like your argument, why you don't think so," or whatever (Interview, December 14, 1999).

In the private conferences, there was little discussion or help on articles beyond the two assigned critics. Statements in the interviews indicate that this was due to lack of time at the end of semester.

Learning the article-writing process

Donald and several other participants felt that learning the process of putting together a journal would help their learning as well as in their careers. On her November 15 survey Karen stated that she was not sure that anyone would read their journal, but on the November 29 one she called the journal "a wonderful experience, if not for the end product, rather for the process. ... I thought the class went wonderfully. All aspects came together to make it an invaluable learning experience" (Survey, November 29, 1999). All of the students mentioned learning the journal process as an important and rewarding part of the class.

On her November 15 survey, Norma wrote, "it's great to go through the process. This technical knowledge will also come in handy in the future" (Survey, November 15, 1999). In her interview, when asked merely how this class differed from others that she had taken, Norma returned to this idea of a collective process.

> I'd always been in a room, writing my essay; send it in; get it marked; send it back; "Oh, that's interesting!"; but here I felt that the process of going through everything was really helpful and it will be useful in the future when I am (hopefully some day) writing an article for some magazine. I will know what the steps are, what the process is. Even though I know that we were not *true* to the editorial form, but at least I have a definite idea of the process of copy-editing, and the steps it has to go through (Interview, December 7, 1999).

Jane also felt that the journal process itself was a great help to her learning, because she could give and get input from her classmates over the term, as well as seeing how others approached the final article.

> I would say that I didn't get a final product that I wanted, but the *process* part was 100 times more valuable than a normal paper-writing process. Because, what is it? You sit with a bunch of books, in a room, locked; you don't discuss it with *anybody*. Like [the other professor's] paper, for example, *no one knows* what everyone's topic is about! We just kind of sit there and say, "How many pages is yours? 15?" And then you write 2 more. [laughs] No, I'm just joking! But, you know, we actually got to see everyone's paper *grow*, which is totally different, and very valuable, I think (Interview, December 14, 1999).

Mary formed a holistic view of the course in which it was impossible for her to consider the journal as a learning experience without including conferencing and collaboration, because they were all part of the learning context for her. Norma and Karen voiced similar feelings. Nishka saw all of the aspects of the course as a whole, with the journal as its culmination. She felt that the keys to doing the journal were consistent work and feedback from peers, which was "the only way you can learn" (Interview, December 9, 1999).

Enjoyment Creating the Journal

Each participant found a great deal of enjoyment or satisfaction in creating the web journal. Pasquale pronounced it "*very* worthwhile" (Interview, December 13, 1999) and Donald remarked that "to me that was the most exciting part of the class!"(Interview, December 16, 1999). Nishka noted that she made several friends while working on it, mentioning specifically Pasquale, Karen, and Norma. Bill allowed the students to choose their own tasks for the journal, and they chose those that reflected their own interests. This had a marked effect on their enjoyment. All of the students were pleased at having learned the process of creating and editing a journal. Karen, Norma, Pasquale, Jane, and Nishka were all excited to learn the computer technology involved in creating the journal, and Hannah admitted that it was valuable to know. Even Mary and Donald allowed that they were glad to have learned the computing aspects, even if they did not use them in their own teaching.

Pasquale was particularly interested in the technical aspects. On his November 15 survey he wrote, "I think it is very important to gain the skills of web publishing" (Survey,

November 15, 1999). On his November 29 survey, referring to learning how to create web pages, he stated "I liked it a lot!" (Interview, November 29, 1999). In his final interview, he elaborated, "I loved it. I thought the web stuff was great, great experience. That was the big difference from any other class" (Survey, November 29, 1999). He elucidated a theme that several of the others touched on

> I thought it was great to use the web for that stuff. There's not enough of that happening, at this point. Meaning graduate studies. ... Certainly in graduate school it should almost be an across the board thing. And I'm not necessarily saying that there should be sort of a formal journal set up, but possibly even class forums of some kind where a class would post some of their work or something on the Internet. I think that would be very, very appropriate (Interview, December 13, 1999).

Problems Caused by the Journal

Even though she was the first to finish her article, one student expressed concern that too much work was required at the end of the semester for the layout committee, although neither of the original members felt that they were under significant time pressure. Nishka pointed out that the work was not shared equitably, and that three of them did considerably less than the others. Pasquale and Mary also found the work unevenly distributed but diplomatically declined to say who did not contribute.

Pasquale and Karen felt that because there was a flurry of activity at the end of the semester they were not able to put as much time and effort into the paper for their other class as they would have liked. Donald alluded to this same problem, while Norma, Nishka, and Hannah all felt that after finishing their articles they had sufficient time for the other paper.

Summary of the journal as LPP

The journal was an academic success, as well as a personal one, for the participants. All felt that they had learned valuable things, and there was a feeling of pride in having created and written for their own journal. While there were problems with technology and group dynamics, these were outweighed by the benefits according to the participants' interviews. The participants all mentioned that the local community had enhanced their learning. For all but Donald, the journal solidified the local community, and also was found relevant to the participants' careers.

The students' concern about the larger community of practice shows in their concerns about the journal's reception, their intent to change the (perceived) community of practice, and their pride in creating the journal. Although only four participants were able to identify the members of their community of practice, those who did cited musical academia.

Bill also found the journal worthwhile. "Great! Terrific! I'm surprised that everyone isn't doing it! It's just so much fun!" (Interview, December 22, 1999). He felt that the students – except for Donald – wrote better papers than he had expected of them based on their abilities coming into the course. He also felt that as a whole this was the best set of papers submitted to him by a graduate analysis class. He attributed this in part to the process of peer review of drafts, since he found that students rarely did initial drafts for their papers in past classes. Bill gave the highest grades to the first-year students, the same students who indicated that they took the journal most seriously. Bill also noted that the students moved from a collegial community during the assignments to "a more solitary existence" (ibid.) when writing their papers. At this time, it was the critiques that kept them in contact.

Bill presented the journal as a work in progress to the faculty and graduate students of his department in one of their regular colloquia on December 1. Before this talk he gave the students a survey of his own. The following are quotes from this survey, which Bill included in his talk, that address the journal in particular.

> "The journal was a great incentive and a useful process."
>
> "The journal is great preparation for future careers."
>
> "The journal was one of the most exciting aspects of the course."
>
> "The journal works to facilitate quality writing and thinking."

Reaction of the professional community to the journal

An advantage of Internet publishing is that the potential audience is not so fragmented as for a single journal, although the readership is limited to those with Internet access. Beyond this, they need to know that it is available. For this reason Bill announced at the start of term that he would inform those on the SMT list of the journal's publication when it was ready. Although the students felt responsible for the journal, none of them suggested an additional forum for announcing it, and they seemed to accept Bill's judgement that the SMT was the appropriate body to inform.

Bill sent a note to the Society for Music Theory's mailing list inviting them to peruse the web journal on December 8. On February 15, 2000, a warmly appreciative note was sent by Professor Boris Plotnikov of the Professional School of Arts and Institute of Arts in Krasnoyarsk, Russia praising the idea and implementation of the journal. After thanking Bill and the authors, he explained his perceived value of the journal.

> Though, in principle, well aware that analyzing methods (and teaching analysis) prevailing in my country differ from those common in the USA and Canada, one could not clearly identify the points of difference. Studying the works on the Web page is very useful for expanding one's teaching eyesight (Boris Plotnikov, email to SMT-list, February 15, 2000).

He gave detailed praise of the articles, finding only Donald's to be below the level of a masters student.

> The level and depth of analysis differ in particular works. To be frank, the level of the paper on [one composer's piece] corresponds to a regular mid-semester analytic assignment of a theory majoring student at a secondary professional school I work at or an entrance exam sight-analyzing assignment at a graduate school (conservatory or an institute). The works on [another composer] are more impressive. To generalize, I would like to advise that this kind of spreading experience via the internet become common practice of other educational institutions too. Reading ABOUT a work cannot substitute reading THE WORK (ibid.).

Professor Plotnikov reiterated his praise in a second note to the Society on April 12, 2000, stating:

> This sort of [analytic] information is of great use in narrowly practical sense too. E.g. yesterday, I handed the two texts on Chopin to my undergraduate student (alas, the only one that fluently reads English), without any introductory comment, and offered her to read the texts, make her own analyses, define the difference in approach and express her personal opinion on the matter. ...
>
> My point is: these are examples to be followed by the others. The principle ideas and condensed concepts spread in Internet comprise a very important source of classified information for professionals all over the world.

> Let the good example be followed by others (Boris Plotnikov, email to SMT-list, April 12, 2000).

In addition, John Rothgeb, a noted Schenkerian theorist, sent Bill a reply to Bill's presentation of ternary form. Bill obtained his permission to append this to his presentation in the journal. The Society for Music Theory also included a link to the journal from their web site.

Emergent Issues

Career

All of the participants mentioned at some point the importance of computing, CMC, and learning the journal process to their careers. As the semester progressed, this theme became more insistent in responses to survey questions and in the interviews.

Importance of CMC and general computing for their careers

As the semester progressed, the participants reported little interest in Schenkerian analysis, but more interest in conferencing and computing in general. This interest was almost always linked to career. While there were frustrating problems and not enough support, these were compensated for by help with learning but even moreso by the participants' perceived advantage in the job market.

All of the participants felt that knowledge of conferencing or computing in general were valuable skills for their careers, and that this class enhanced those skills. Several participants who planned to be teachers wanted to use a conferencing system, so long as the class was small enough for it to be viable. Nishka, Jane, and Karen were adamant, while Hannah was ambivalent, feeling more resigned to needing computer skills to relate to her future students. Pasquale and Donald both doubted that they would use conferencing for teaching. Mary, unsure of her career goal, was hesitant to adopt conferencing for her future teaching, but felt that it had some merit.

> Although there are things *from* the LearnLink ... The idea of like, you know, during the week, being able to share, things like that. Finding a forum in which to share, or have discussion (Interview, December 15, 1999).

Pasquale, Jane, and Karen noted that some of the introductory courses have hundreds of students, and that conferencing might not work in that environment.

Jane was won over by her own astounding progress in learning computer applications, adding, "compared to what I was three months ago, I just think I'm tremendously capable! It's incredible to me how much more computer stuff I know" (Interview, December 14, 1999). Mary was ambivalent, finding computers both helpful and extremely frustrating. "I don't like computers much, but I do ... I love them. Like, God help me, if I didn't have my computer for my thesis, I'd die, right? So, you know, I recognize the value of them" (Interview, December 15, 1999). Norma felt that her new computer skills gave her an edge when applying for jobs.

Nishka was most interested in computing, and felt that the class offered "the added bonus of learning more about computers. That's so marketable in the future, that I was really excited about that!" (Interview, December 9, 1999).

Karen felt that using computers enhanced her career prospects. "Even just the scanning and that kind of stuff, I think that does get me to my professional goal, whatever that professional goal may be" (Interview, December 17, 1999).

The journal process and students' teaching plans

As with computing, the participants were most vocal about how the journal process would help them in their careers. Everyone mentioned this. In addition to providing them with skills and introducing them to the process of putting together a journal, they reported that the "real-world experience" of doing the journal gave them practical knowledge and an example of their own work for their portfolios. Several felt closer to their career goals, even though these goals were different.

Pasquale felt that this would be valuable for any graduate student, so that "they would know the process, and they can get their stuff out into the open" (Interview, December 13, 1999). Hannah saw the journal process as the backbone of the entire course, shaping their work over the semester. Norma stated "I felt that the process of going through everything was really helpful and it will be useful in the future" (Interview, December 7, 1999).

All of the participants who planned to be teachers indicated that they would use a journal in their teaching. In her November 29 survey, Norma indicated that she would not wish to use conferencing, but would use a web journal in her teaching. In her interview she elaborated on the ideas she would take from this class.

> Definitely the journal idea. That was invaluable. I can not stress that enough! It was a real life experience, here we are writing our own articles, to be posted in a real journal. How many other people in matching programs across the country can really

> say that? Unless they search it out themselves, and do it all on their own – *not* school work time. And here I was, getting *credit* for doing this, and there it is. It's done! I have a published article in a journal, and "Congratulations me!" Before my 22nd birthday (Interview, December 7, 1999).

Karen said in her interview that she would incorporate a web journal in her teaching. Similarly, Jane planned to use a journal for teaching so her students could see each other's work in progress. Pasquale said that he would use a journal in his teaching, but – reflecting his reservations – would represent it more as a "student journal" rather than a "real" one, adding that it was learning the process that he felt was important (Interview, December 13, 1999). Even Mary, who had no set career goal, planned to "use a journal" for teaching.

Donald gave the most passionate reason for using a journal in his future teaching.

> When you come to a program like this, in a sense it's your heart's desire to get your work out there; get your ideas on the line. Because, there's not much glory in this field, but in a sense you want your name known. And so that's my motivation – the fact that I can publish. And so yes I am going to encourage that in my classroom. Yes I'm going go to say "You want your work, you want your name out there? Well, then this is what you have to do. And that's good that the class provided me with this opportunity to publish. I can say that it's my first time. But yeah, I think a *lot* of the things that we did I would *definitely* use in my own classroom, and the idea of publishing period is one of them (Interview, December 16, 1999).

However, because he found the computer applications so frustrating, for his own teaching Donald planned to use a paper journal.

Career Goals

Donald said, "I *desire* to be a musicology professor, and I desire to have my Ph.D. ... So, yeah, the class has definitely directed me toward my professional goals" (Interview, December 16, 1999). Karen had little invested in analysis and did not plan to use it or teach it, but even she felt that the class brought her closer to her goal as she learned to use computing and CMC in an academic setting.

Asked if he were closer to his goal, Pasquale replied, "I certainly am because of the technical stuff!" (Interview, December 13, 1999). He probably would not use Schenkerian analysis in his future work, "but certainly the technical stuff, the web design was invaluable.

And moved me towards my goal for sure" (ibid.). Jane was very enthusiastic about creating the journal. She explained that is was in actually writing the article, as well as critiquing others' articles, that she learned how to write properly. She was very interested in becoming a part of the professional community, and saw good presentation in the journal as a first step.

Differing student and professor perspectives

The students had significantly different perspectives from Bill on issues regarding CMC, collaboration, LPP, and the emergent issue of marking.

Introduction – respect for Bill as a teacher

Hannah summed up the students' feelings about Bill. "Everyone thinks, "Hail, Dr. R!" Even today, when he walked into the room at the [end of semester] party, everyone was saying, 'Dr. R just came in! Dr. R just came in!' Everyone adores Dr. R" (Interview, December 3, 1999).

Hannah felt that Bill was a mentor for her, and that she learned a great deal from his personal integrity and example. Norma liked Bill from the very first class and enjoyed his teaching style. She credited his kind demeanor with her staying in the class, since she was reduced to tears in her first class in the other course. She felt that he was a mentor to her. Norma summed this up as "He's so great!" (Interview, December 7, 1999). Nishka liked Bill a great deal, and admired his personal teaching style. She considered him "a mentor." Jane found Bill to be "kind of – not totally but somewhat –a role model" (Interview, December 14, 1999). Although she did not plan to be an analyst, she admired his teaching style. "Dr. R is really great that way; his criticism. He says it, but he doesn't make you feel ... *like a loser*!" (ibid.).

The second-year students were more reserved. Karen felt that she knew Bill very well and that he was a "really good prof" but not her mentor (Interview, December 17, 1999). She was too uninterested in analysis to interact with him more than the minimum required, but she did enjoy his teaching style. Mary was most concerned with what Bill thought of her work, far more than any of her classmates. She also wanted him to think her intelligent. Mary felt that she had a personal relationship with Bill that transcended student-teacher. Pasquale respected Bill and appreciated his help, but felt that "he was just a regular prof.... I knew that he knew his material. But other than that, I didn't think of myself as 'a student under...'. I didn't think of myself as that" (Interview, December 13, 1999).

Donald's relationship with Bill was problematic. He expressed concern over Bill's "poor classroom management" and his "unsatisfactory" student evaluations for the previous course,

but then liked his teaching style (Interview, December 16, 1999). He added "I've gone to him and asked him to *be* my mentor! ... He is definitely mentor; he is definitely master" (ibid.). Donald also asked him to supervise his thesis, to which Bill agreed.

The students' positive feelings were reciprocated. In the colloquium, Bill complimented "the excellent group of students" that made up this particular class (Field notes, colloquium, December 1, 1999). In his interview he commented that this group handed in the best work of any class that he had taught, and that their grades were "almost embarrassingly high" (Interview, December 22, 1999). Still, Bill's perspective and perception of the students' learning did not always match the students' reported perspectives. The students' perceptions differed from Bill's on marking, participation, their autonomy in creating the journal, and the requirement of learning technology for the course. Their views were similar on the time required, effective use of conferencing, the usefulness of lectures, and course content.

Marking

Bill decided to try a "learning contract" for the course. He created a web page that detailed his approach, and presented this marking scheme in the first class. He then encouraged the students to read the web version and to contact him with any concerns they might have about it, but it was not discussed again in class until October 25.

> **Grading** will be based on a contract approach:
> In order to attain a grade of A-, a student will complete a term paper with an adequate degree of content and presentation on schedule and see it through the publication process in *Schenker Analysis Forum*. This involves familiarity with the literature of the course, development of a satisfactory analytical ability, ability to clearly present ideas, knowledge of and appropriate use of terminology. In addition, a student will effectively critique other students' work during the course of the term.
> In order to attain a grade of A, a student will do all of the above, with many areas showing a high level of ability.
> In order to attain a grade of A+, a student will do all of the above, as well as fulfilling efficiently and punctually a role on the publication committee of *Schenkerian Analysis Forum*.
> Grades of B+ and lower are reserved for students who do not fulfil the above requirements.
> NB: There is no limit to the number of A+ available!!

Figure 4. The class learning contract from Bill's web site.

The students were confused about the marking scheme. Some were surprised that no marks were given for participation in the conferencing system. More did not realize that the assignments were not marked. Finally, some students thought that their work on the journal, not just their article and critiques, was to constitute a larger part of their final mark. At the end of October Bill clarified to the class that their mark was to be based entirely on their final article, somewhat contradicting his posted policy.

Bill's strategy was to use CMC as a non-judgmental (unmarked) system for the students to collaborate. The students wanted their participation marked, whereas Bill saw it as "getting their feet wet." Unfortunately, he did not explain this to the students, nor did he offer them the option to negotiate. At the end of term, Bill felt that the students did share ideas and learn to express themselves well in this environment, and that this showed in their final articles. The students, though, were proud of their contributions and wanted credit for ideas that would not turn up in their papers, or would turn up in others' papers when they helped them.

Bill asked for the students' ideas, thoughts, and changes regarding his marking scheme, but received no feedback. In the October 25 class he announced that it was "time to re-visit our evaluation methodology" (Field notes, classroom discussion, October 25, 1999) but the students did not reply and seemed to have forgotten how they were to be marked. Bill suggested that they review it from the course web site and contact him with their concerns or changes. On October 26 Bill wrote an e-mail to the class saying that the learning contract that he had proposed awarded marks only for "completed work" which he took to mean the articles. Again, no one responded, publicly or privately. In class on November 1, Bill referred to his e-mail, concerned that he had received no feedback and asking if anyone had any concerns about grading or his note. No one said anything, so he suggested that they re-read the note and let him know right away if they had problems with it. Again, no one responded and the marking scheme was not changed.

In his interview, Bill stated

> I brought up the topic halfway through the class. "Now this is what we are hoping to do." Hoping to get them to say "No, that seems terribly unfair to grade that way! And what about all of this work we have been doing week by week; shouldn't that count for something at all?" And I invited them on several occasions to speak to me in person, or on the email, or any way that they wanted to speak - *their feelings about it*. And according to that, nobody had a problem with it. Which either is *great*, or

> shows that they are scared to talk about it or ... But, but, I can only read it at face value. OK, this is great. And then I looked again, right near the end of term, I read that thing again, and I looked at the work they had been doing, and I thought about it. "It seems OK to me." And then I applied it at the end, as accurately as I could. And graded these people. And I thought that the grades were fair. They were *high*; I mean, they did good work. By and large, the grades were high; maybe embarrassingly high! (Interview, December 22, 1999).

Even after the semester, Norma thought that she would be marked on "participation." Donald was also confused about the marking scheme in his interview. Nishka was concerned about the mark being "entirely" based on the article, especially since Donald did not bother to copy-edit hers. She felt that Bill would probably take their work during the term into account, even though the marking scheme did not allow for this. She mentioned that she and Mary discussed this, with Mary holding the opposite vie. Mary was most concerned about her mark, although she mentioned that she did not care how they were arrived at so long as she got a good one, because they were important to the educational system and for scholarships. Jane noted that if marks were not awarded there was little incentive to participate in conferencing, and added, "I thought there should have been a participation mark or something" (Interview, December 14, 1999). On the other hand, Karen felt that marks had little to do with learning. "Are you doing it just because Dr. R is going to check that you did it? Again, it's a bit of that mentality of people who are too worried about marks" (Interview, December 17, 1999).

CMC issues

"Two Substantive Notes per Week" requirement

In the first class Bill announced that the students were responsible for posting "two substantive notes" in the conference per week. No one met this requirement, although all of the first-year students and Mary reported feeling pressure to do so and guilt at not fulfilling the expectation. Reasons cited were lack of postings to reply to; determination not to post for the sake of posting; disbelief that this was a serious requirement; and lack of incentive. Other factors that affected postings were the clarification that conferencing participation would not be marked and system failures. The significant decline in the number of notes posted began in the first week of November, just after Bill's second mention of the marking scheme in class, and at the time of two serious computer communication disruptions. The extent of the effect of these

factors was impossible to ascertain precisely, as the students began working on their individual articles at this same time, and it was expected that participation in the conferences would decline at that time.

Hannah noted that non-compliance tended to

> snowball. ...If people don't put into LearnLink, you can't respond to them. To a certain extent it was that. To a certain extent it was "I don't have anything to say. I've responded to one person, and I don't have anything to say to the second person! I could write them a response saying 'I liked your graphics' but I might as well not, because that's OK to not always be telling someone something like that" (Interview, December 3, 1999).

Norma spoke about the two-note-per-week requirement in her interview.

> I was anxious originally, but Karen told me "It's *no* big deal! It's just Dr. R. Whatever you can do is fine. That's just the way he is. He's really easy-going that way. Just as long as you show that you've tried to do something, that counts!" (Interview, December 7, 1999).

Jane suggested that Bill's decision not to mark LearnLink participation left them with little incentive to take part in discussion. She added that several students, especially the second years were so busy that they decided not to participate fully in the on-line conference out of time constraint. Since they were not being marked, she felt that there was no incentive for them. Karen felt that she should do "whatever it takes to make the prof happy and forget about it" (Interview, December 17, 1999). Mary refused to read all of the notes posted, and by mid-October posted sporadically. While none of the students fulfilled this requirement, the average number of notes per student is just over 25 (25 ¼) for the semester, almost exactly two per week.

Responsibility for learning technology

Pasquale, Karen, and Nishka felt that they were responsible for learning the necessary computer skills, but the rest of the participants wanted more direct, hands-on training, and felt abandoned to some degree. They also felt that they wasted time dealing with computer problems that were not part of the course content.

Bill had a different view. By September 30 he felt that the technical part of computer use had been taught, and that it was only a matter of practice from thereon. He felt that there was

enough support in place for the students, but that they were responsible for learning as much as they could on their own.

> In this technical business, "help" means "There's no point in me explaining everything to you because there's too much to explain and not enough time. You go do your stuff. When you get to a place where you don't now what to do, then that's when the resources kick in, and someone comes and *shows* you the next step" (Interview, December 22, 1999).

Bill was surprised when the students showed little enthusiasm at his suggestion that they all put up a personal web page in order to become familiar with creating web pages for the journal. Bill thought that they would "have fun" creating their own web pages, but they took it as an assignment and only Pasquale and Nishka created more than the simplest page.

Collaboration issues

In-class presentations

Hannah was quite vocal about collaboration.

> We were collaborating on LearnLink, but what I would have liked – and its odd to request more work! – but I would have liked to have had to do a presentation with someone in the class on something perhaps even very small, and then we could get up in front of the class and talk about it, because I think even though that kind of collaboration was encouraged there's a certain degree to which I think things have to be "enforced" (Interview, December 3, 1999).

Mary had prepared a presentation for class on November 22 but declined to mention it when no one else had done so. She stated a preference for collaborating more, in person, and presenting in class. Donald agreed that he wanted more discussion in class, and that they should have done presentations in class as well.

LPP issues

Lack of participation by Donald

Bill felt that participation in conferencing and collaboration was so worthwhile as to be obvious to the students, although he did also note that each of them "dropped out of sight for a period" during the semester (Interview, December 22, 1999). Donald was the only one who

refused to collaborate, and the only one who did not fulfill the class requirements to copy-edit two articles and write critiques of two others. Bill regarded Donald's lack of participation as a problem between the two of them, as teacher and student. He also expressed personal difficulty in deciding on Donald's mark for the course.

Bill was concerned about Donald from the second week. Donald was very slow in using the conferencing system, slow to post a note, and then late with every assignment. Bill was soon quite frustrated by him. After examining Donald's posting history, Bill remarked

> I wondered whether he was just not writing but looking at a lot of stuff, but I think he wasn't; I think he was doing basically the minimum in both those areas. I just wanted to make sure of that, so that I could understand as much as I could where he was coming from (Interview, December 22, 1999).

Some other students felt that they were unnecessarily penalized when Donald did not do his copy-editing (Nishka) or critiquing (Jane and Hannah). The only consolation they expressed was that his comments would undoubtedly have been poor. The journal editors were also concerned that they were not empowered to compel him to perform his duties as a copy editor. Some also felt cheated when Donald appeared to pass the course without doing the work that was required, but asked to remain anonymous on this point.

The only other complaint of non-participation from the students was that some had a lighter load in the creation of the journal, although there was no consensus on who besides Donald this included.

Autonomy of the journal

In the first class, Bill announced that while the journal was a required element in the course, it belonged to the students and could be structured as they saw fit. Bill gave them control of several key decisions, but several participants felt that they should have had complete control. Bill did let them decide on the title of the journal (overriding his original title), control his own contributions, and design the layout and logo. He also allowed them to choose the pieces and topics for their articles, design the layout, and critique one another's work without his input. He organized the critiquing assignments according to Hannah's suggestion that one critic be working on a similar piece. In November class discussion became increasingly dominated by the journal, and Bill felt that students should figure out much of the process themselves, with his added guidance when necessary.

During their interviews several of the participants disclosed that they had wanted even more control of the journal than they were allowed. Both editors mentioned their frustration at having to accept poorly written work, and their inability to force re-writing of shoddy work or to enforce copy-editing or critiquing responsibilities. One was concerned that she was identified as the editor, and that someone would think that she chose unworthy essays and so was not convinced that the journal essays should be published and advertised to others. She was very concerned that Bill asked people to make changes after her editing was almost done, since this overrode her authority. "Well, I was like really frustrated with that because I don't think there were clear parameters on that" (Interview, December 15, 1999). She felt that one paper (probably Donald's) had a number of problems and should not have been published, but that it was the professor's responsibility to make that decision, not the editors'. (In fact, Bill did make that decision at the start of term, that everyone's essay would be published.) She also felt that some students did not share in the journal. The layout committee, though, had a different view, and decided on the layout issues without asking for Bill's input, assuming that they had the authority.

Karen and Pasquale were concerned that Bill's suggestions for changes to the articles continued past the journal's publication deadline. Pasquale found this "a bit out of line" (Interview, December 13, 1999) and Karen simply did not make the last set of corrections that Bill identified. When Bill spoke of further changes in the colloquium Pasquale cried out, "Lots of luck getting changes at this late date!" (Field notes, colloquium, December 1, 1999). Everyone laughed but Pasquale noted in his interview that he really did mean it.

Students changing course content

The course outline specified five assignments and a final paper using a fairly traditional approach to Schenkerian analysis, although Bill did encourage combining different approaches in their analyses. The focus changed subtly during the assignments, and quite sharply in the latter part of the semester.

None of the students saw Schenkerian analysis as important to their future, and most chose to synthesize the analysis with their own musicological interests. One attempted to contrast Schenker and Réti in his paper; another combined analysis with feminist criticism; two employed elements of post-modern thought; one added Hegel's philosophy; and two used historical methods of investigation.

The interest that the students showed in their own syntheses of methods, and the quality of their work, convinced Bill to trade off some of his intended topics of Schenkerian analysis for a broader approach to analysis and critique. The cost for this was less time spent on specifics such as terminology and the finer points of Schenker's method. Several students were concerned that they had not learned enough terminology to write a truly Schenkerian paper, but all appreciated being able to make their own combination of analytical approaches. Bill stated in his interview

> It took some of the weight off of the theoretical component. If this was taught as a traditional Schenker class, you know they would just be hunkering down on theoretical issues and analyzing all term. Which would be great for me! I love it. But for these students with a broad range of backgrounds, a broad range of interests, leavening that with other activities I think is a good thing. It contextualizes it and it gives them a break (Interview, December 22, 1999).

Summary of findings

CMC proved helpful in learning and was a beneficial supplement to the in-class course. It was effective in aiding the formation of the local community. CMC and computing were seen as valuable enough to outweigh the frustrations involved in learning them. Some of these frustrations may have been the result of a flawed local implementation of the FirstClass software, but the students were only aware of performance problems with the system.

Collaboration was enjoyable and somewhat beneficial, although it was not perceived as worthwhile when the students became very busy. It was viewed as a luxury because the collaborative products were not marked, and so was not viewed as worthwhile enough given the scheduling problems and time it entailed. Still, the collaborative assignments were some of the best work submitted by the participants.

LPP was felt to be very worthwhile by the participants. The local community provided aid with several aspects of their learning, although not significantly with Schenkerian analysis. Presenting their work to the community of practice focussed their learning over the semester and gave many a sense of accomplishment when the journal was completed. The journal was a successful way to introduce LPP, which in turn motivated students to learn in this class. For all participants, the journal was the most rewarding and interesting part of the class.

Both CMC and general computing were found to be important skills for the students as stakeholders in their own learning, but moreso with an eye to their careers. Many of the participants admitted structuring their course work to maximize their own career interests. Enjoyment was also a large part of their motivation for learning.

Significant differences of perception between the students and Bill emerged. These included the appropriateness of the marking scheme, perceived inequalities in workloads, lack of control over the journal, and inconsistencies in course management.

Plans for future courses

Bill felt that it was a successful course, and that although some minor changes would be needed, he would teach it in a similar way again. His proposed changes for future courses were to arrange more formal computer tutorials and to use Netscape Composer to create web pages. He also hoped that the conferencing system would become more stable with time. If possible, he planned to include an external member of the SMT on the editorial board.

The students had many more suggestions for future courses, including a revised marking scheme that included participation; a completely student-run journal; hands-on computer tutorials and detailed instructions. Most were supportive of using conferencing and collaborative assignments again, and suggested keeping the same basic structure.

CHAPTER SIX - DISCUSSION AND IMPLICATIONS

> "Legitimate peripheral participation as the core concept of relations of learning places the explanatory burden for issues such as 'understanding' and 'levels' of abstraction or conceptualization not on one type of learning as opposed to another, but on the cultural practice in which the learning is taking place, on issues of access, and on the transparency of the cultural environments with respect to the meaning of what is being learned (Lave & Wenger, 1991, pp. 104-5)."

Overview

This study was concerned with legitimate peripheral participation. A major emergent issue was student voice and its implications for teaching. The students were the major participants, and they were the ones who participated legitimately and peripherally in the community of practice; Bill and I were secondary members of the community who supported the students. This concentration on students as the major stakeholders in the course raised issues of the power of students to direct their learning. This in turn suggested refinements to the methodology for conducting the study, which helped to uncover emergent issues of importance to the stakeholders. The ways in which the students coped with the constraints, as well as each other, gave a clearer picture of the sometimes nebulous notion of "communities of practice."

In this chapter I begin with a short discussion of LPP as experienced by the participants of this study. Next I discuss issues of power as they relate to university graduate students, including several aspects of student voice that impact teaching and learning. This leads in to a discussion of the appropriateness of the methodology used in regard to hearing student voice. The approach used was crucial to the study, given the attitudes of the students and the constraints under which they worked. Next I discuss emergent issues which tacitly guided a great deal of the learning in the course: future value to career and present enjoyment in doing the tasks.

Having discussed the more personal side of learning, I continue on to the notion of communities of practice. Lave and Wenger (1991) have noted that these communities are very difficult to define, and so I discuss the students' diverse views of their communities of practice. These include the local community formed within this class, and other wider ones that they feel they have addressed or must address. Implications for teaching and learning are included

within this discussion, since for this study they are incorporated in the students' entry into the communities. Also included are technological issues, since technology both aided and thwarted the students' efforts.

Legitimate Peripheral Participation

The use of legitimate peripheral participation for this course added interest and excitement that made learning more immediate and more focussed for the participants. The creation of a journal gave their coursework more focus while it also helped them to aim beyond the immediate classroom toward their professional work. The atmosphere of the class was infused with the excitement of being "novice professionals" as opposed to "senior students."

The initial spark of interest in the journal was stoked by the local community, even as the members aimed to leave that community for the larger world of the professional community of practice. This larger community also acted to some degree as a "safety valve" for the social pressures within the group, as the second-year students realized that as a group they were soon to part. The local community was held together by the use of CMC, as well as by their work on the journal, and computer technology also allowed them to present their work to the world at large. While CMC is not essential to LPP, this study suggests that it is very helpful, especially for community formation.

There was a great deal of cooperative, collective work done, but few collaborative products were produced. This suggests that the production of collaborative products should be designed into the course in advance, with specific incentives for the students, if they are to be produced reliably. This study also suggests that such products are not necessary for successful LPP, so long as there is a cooperative local community.

Importance of class outcomes for this study

Despite their relatively poor preparation, the students analyzed more pieces than other classes that Bill had taught. He told them in class on November 22 that they were where any other class would have been by December 8 (the end of term). The final articles exceeded Bill's expectations for the group based on their incoming knowledge. One apparent reason is that the students did several drafts of the final article and had them peer-reviewed – Bill found the number of drafts exceptional for his students. The participants' concern with presenting themselves to the community of practice led to a higher quality of essay than Bill had seen of his graduate students in past years, even though they had a slightly inferior background in

analysis. There was also some interest expressed by the professional community after the semester ended.

The course in this study was an academic success in that the students felt that they learned a great deal of value, while the professor felt that all of the students (except for one) had exceeded his expectations by a significant margin. While this does not prove that the design of the course contributed to this result, at least it does not prove conversely that the design hindered learning. It also suggests that the student-led changes to the course content did not lead to inferior work, and may have contributed to the results that so impressed the teacher.

Student Perspectives, Power, and Voice

Importance of student voice

While much educational research has been done on learning, very little of this has benefited from a full representation of the learners and their experiences. Lincoln (1995) notes that the idea of listening to student voices regarding their learning is "relatively unexplored territory" (p. 88). Often the reported "experience" of the students is merely the perception of the teacher. As this study has illustrated, the teacher's perceptions may differ significantly from those of the students. While attempting a contribution to this important literature, this study has demonstrated that even with the good will and support of a professor students still may not feel free to discuss issues of great importance to them such as marks. They may remain very interested in their own learning, but are cautious about expressing themselves.

Hay (1996a) suggests that legitimate peripheral participation is an important notion for education, and that "with some insight from the liberatory pedagogist Freire, could and should avoid focusing on practice at the expense of inadequately considering the student" (p. 98). In many ways these students inhabit what Friere (1970) refers to as an "oppressed" sort of "Third World" where they have been "deprived of their voice" (p. 35). Freire's term is ideological and political rather than merely a geographical label, and implies an absence of power that denies any form of resistance. The students' wariness about expressing their true feelings on "sensitive" issues in this class illustrates their perceived lack of power. As in any social sphere, there are tensions and contradictions within schools that are only exacerbated by combinations of power, technology, and ideology, all of which are meant to serve knowledge.

If they are not actively seeking their "liberation" in the classroom it may be because they do not realize their position, or possibly have become resigned to it. It is also possible that after

spending years in the educational system, "students may not know they have a voice. Or, if they know they have on, they consciously repress it when in the presence of adults in authority" (Lincoln, 1995, p. 91). As Freire (1970) points out such "oppression is domesticating" (p. 36). To seek freedom, the oppressed "must perceive the reality of oppression not as a closed world from which there is no exit, but as a limiting situation which they can transform" (p. 34). Such a transformation, however, must be undertaken by the oppressed as a group, and is beyond the scope of a single course in music analysis. However, this idea does shed some light on the reticence of the participants to respond even to direct appeals from the professor for criticism of his marking scheme. It seems better not to "rock the boat" during the semester, and it is not "safe" to speak freely until after the semester has ended. Only then did they speak freely, and this was to me as a neutral party, not to their teacher.

Balance of power between teacher and student

Freire (1970) feels that the teacher must start the reconciliation of this dilemma by acknowledging worth in the experience of the student. He warns that "projecting an absolute ignorance onto others ... negates education and knowledge as processes of inquiry" (p. 38). He argues against a pedagogy in which the teacher is seen as the only active agent; the only speaker; the sole decision maker; and is invested with authority in opposition to the freedom of the students. The negative points in this description contrast sharply with Bill's teaching style, which featured consultation, some shared authority, and a great deal of intellectual freedom for the students. This is the style that the participants praised unanimously. As suggested by Freire, Bill had a "profound trust" in his students and their "creative power" and acted as a partner in their learning (p. 62). Instead of adopting a transmission view of music analysis, which Freire terms "the banking concept of education," Bill chose a more "problem-posing" method which assumed the "intentionality" of the students to learn. In the course under study, Bill made each piece a "problem" to be solved for both the student and the teacher, and solved these "live" rather than presenting a finished "correct" solution. This interactive and flexible style saved the students from becoming "creatively stifled" and drew the student into the course activities. It also made the course more enjoyable and less formal.

Legitimate peripheral participation hinges on allowing learners access to opportunities to learn and practice skills. Issues of access are closely aligned to those of power. Lave and Wenger suggest that issues related to legitimate peripheral participation that must be considered further include "unequal relations of power" (p. 42). This is important for this study

because academia invests the professor with a great deal of power over students. Knowles (1986) admits that there is a long tradition of the transmission model of knowledge at the heart of American higher education, and that academia requires certain tokens and guarantees of accomplishment. Knowles suggests a compromise, with the instructor maintaining control in key areas such as prescription of objectives and assessment, but with provision for "some degree of initiative by the learners" (p. 149). The teaching challenge for this class was to share power while satisfying university regulations.

McLellan (1996) agrees that allowing learners access and power is vital, because "skills are honed through practice, where the student moves toward flying solo, without the support of a teacher and coach" (p. 11). To be effective, this must be a goal of both the learner and the teacher, but the teacher is much more able to provide access and must cede power. Tripp's (1996) attack upon efforts to "liberate" students as "the pedagogy of the narcissistic" (p. 159), while correctly cautious about passing theoretical fads, misses an important point. In any case, the student's experience must be less than optimal if the teacher retains all of the power. No group can have the same individual needs or interests, and ignoring student voices of dissent can only perpetuate this situation. While "liberation" seems to be too extreme a term for Tripp, allowing students to take more control of their learning is analogous to modern medicine's encouragement of patients taking more responsibility for their own health. Ultimately, the students will construct their own view of the subject, and integrate it into their own learning, and this study suggests that this desire is a conscious one.

While academia places constraints on the control students can have of their scholastic endeavors, as Knowles (1975) notes, there may be more to the problem than regulations. Freire (1970) points out the problem with viewing any group as "the other." This view, as has been noted by postmodernist thinkers such as Foucault, usually entails seeing the "other" as inferior in some sense. Lave (1996) cites Rommetveit's point that "any investigation designed to explore evidence of 'ideal' problem-solving activity is sure to reveal the 'shortcomings' of its subjects" (p. 97). Both of these points seem to converge on the teacher-student dynamic, wherein the teacher may view the student's lack of familiarity with the academic forms of expression as a lack of intellectual capability. Lave notes this same sort of bias when scientists studied everyday use of mathematics by "just plain folks" and compared them to scientific ideals of mathematics "without reference to the intentions of [the] actors" (p. 98). While Lave sees a place for everyday and scholastic mathematics in life, she notes that the latter is "blessed with an ideological

power" (p. 99) not given the former. Evaluating students in this way reinforces orthodox procedures but dulls the impetus for creative thinking. For this study it would be tantamount to denying the students any insight into the music that they have proven to know so well.

Control of the journal as power

Control of the journal was a problem for many of the students involved with it. Bill retained the prerogative to compel inclusion of all articles written, as well as those to set deadlines and assign marks. While this was an issue for some students Bill really had little leeway on these points and was compelled to follow the policies of his university. Given that the professor has certain responsibilities, it is reasonable that Bill should have provided the outline of the course, the assignments, and the marking scheme. It is laudable that he allowed the students a good deal of input into course content and the marking scheme. However, it appears that this same educational system taught the students not to comment on the marking scheme even though all had some concerns about it. Similar sentiments were voiced regarding the journal. For example, Mary remarked that "we were given the opportunity to express our concerns. I know that I didn't because I knew ... that's not what wants to be heard" (Interview, December 15, 1999). This bears out Lincoln's point that students will often silence themselves before a teacher.

This reflects the gap in power between the students and the professor. The students were more successful at effecting a change in course content, but even the move away from "hardcore" Schenkerian analysis followed Bill's suggestion that articles synthesize a number of approaches. For the journal, there was widespread dissatisfaction with Bill's suggestions of changes very close to the deadline, but only Karen refused to make these changes (although Donald did ignore them, promising to do them "later"). When to stop advising on improvements to a paper is a pedagogical decision. Bill chose to override the deadline and offer last-minute suggestions, which he felt were necessary to make certain articles effective. Like his insistence that all articles be accepted for the journal, Bill relied on his years of experience in teaching to make his choices. The students resented not being consulted, or not having the rationale explained to them, but they kept this resentment from Bill.

The students wanted more power to enforce compliance with course requirements and their own standards. The editors wanted to set a minimum standard for articles to be accepted to the journal. Most students felt that they should have had the right to demand that everyone complete all of their "class responsibilities" or else suffer severe academic penalty. With these

options denied them, the local community provided a degree of peer pressure to maintain a good standard of writing as well as to keep up to date with class work and presentations. Even here they were bound by propriety, which seemed more onerous for the second-year students.

The students were very democratic in making group decisions, usually settling disagreements by majority rule. Social conflict might have dampened enthusiasm at times, but it also helped learning by providing different perspectives. Lave and Wenger state that "Conflict is experienced and worked out through a shared everyday practice in which differing viewpoints and common stakes are in interplay" (p. 116). Differences are apparent, for example, in Jane's understanding and appreciation of Mary's perspective, which was just annoying to Pasquale, and her amusement (rather than umbrage) at Pasquale's refusal to see her point of view. The participants had diverse perspectives on their social interactions as well as their communities of practice, and most felt that sharing these was beneficial.

Access issues for students

If learners are to partake in a community they must have access to that community as well as some control over their own activities.

Access

Issues of access are closely related to those of power. Hay (1996a) states that it "is not uncommon to educational situations [that] the newcomer has little or no ability to make or even impact decisions concerning what is taught, how it is taught, and by whom" (p. 93). A main purpose for the design of this study was to provide students with access to the community of practice, and many of my concerns have already been voiced by Lave and Wenger (1991). For example, they state that "the important point concerning learning is one of access to practice as resource for learning, rather than to instruction" (p. 85). Bill's decision to allow them to run the journal and select their own pieces for analysis reflects his belief that students learn by acting within the real community. It also allowed the students to contact the community of practice with work of their own choosing, and from their own perspective.

Lave and Wenger (1991) also state that "control and selection, as well as the need for access, are inherent in communities of practice" (p. 103). The learners will need these to function in the professional community, and this class allowed them to exercise their discretion from within a supportive environment. Lave and Wenger also note that schools sequester students in "pervasive ways," preventing newcomers from peripheral participation in the community, so

that their legitimacy is as part of the school only. Students learn to be students. A good example is the typical term paper, which is written for the teacher's eyes only. Rather than do this, the students published their papers publicly for each other and the world to see. Lave and Wenger continue that "In the *Psychology of Literacy*, Scribner and Cole (1981) speculate that asking questions – learning how to 'do' school appropriately – may be a major part of what school teaches" (p. 107). This is a concern for many educators (e.g. Scardamalia & Bereiter, 1996), and one that is particularly pernicious as a graduating student prepares to enter the workforce. Posting the journal on the Internet made it available to all of those in the various communities with computer access. In this way computing was an enabling technology, allowing "real-world" activity with a public result.

While this study does accord with many of Freire's concepts of the problems with transmissive views of education, as well as with some of his proposed solutions, there was no indication that the students as a whole would "rise up" en masse to change the system via revolution, but rather that the students tended to keep their opinions to themselves and hope to "ride out" the course and graduate. Plans for changes to the system were kept safely in the future, although the student-led changes in course content were perceived as valuable by students and teacher. The students had few qualms in speaking with me at the end of the term because they had realized that I had no power over them.

Discussion of methodology

The participants in this study were actively involved in their own learning and the methods of data gathering worked well with them. In fact, the prolonged contact with this group of interesting people was very rewarding. Lincoln (1995) states that active learners shape the context of their learning, and that there is a need to study how they do this. She notes that teachers often underestimate the powers of observation of their students, who are "the primary stakeholders in their own learning processes" (p. 89). Lincoln suggests that to research effectively one must want to hear student voices, and know how to hear them. The latter entails asking the right questions, to which I would add asking them in the right way and at the right time. The timing involves proving one's integrity by "passing" tests given by the students, and thus gaining their trust. Lincoln (citing LeCompte) notes that this type of investigation involves story-telling, as well as social activism and critique, and it was my experience that sharing in these requires mutual respect and confidence. Lincoln continues that "the stance of such

classroom research would be fairly open ideologically, grounded in the possibility of multiple, open, competing, and potentially conflicting interpretations of the world, multiple stories, and multiple possibilities for each to use in confronting the world" (p. 91). This required a non-judgmental attitude to create an atmosphere in which it was safe for each participant to tell his or her own story. The safety had to involve immunity from personal or academic repercussions.

When Lincoln (1995) calls attention to the need for student voices in educational research, she warns that "the research teachers need to conduct, however, will look nothing like conventional science, which created the conditions for silencing in the first place" (pp. 90-91). While qualitative methods are no longer viewed as unconventional, they were important for this study for several reasons. With the students as the main participants in this case study, the major stakeholders were thus able to comment directly on their learning over the course of the semester. The prolonged engagement at the site allowed for longitudinal observation (at least over the semester) as well as providing time for the researcher to establish trust with the researched. It was also important that this researcher was able to speak the "lingo" of music in general, and Schenkerian analysis in particular, since many of the stories told in the interviews assumed a knowledge of it. A semester-long study provided the crucial amount of time needed to get to the most accurate representation of student voice possible for this class. There were both subtle and gross differences between the perceptions of the participants, reflecting the multiple realities of Guba (1981), Lave and Wenger (1991), Lincoln (1995) and others. It was important to watch these realities change and mature over the term, and also to see their interactions between participants. This gave a more accurate view of the stance of the individual participant, as well as a more inclusive overview much like the "intersubjective resonance" of Miles and Huberman (1984), allowing for a more nuanced consideration of the research sub-questions. In observing individuals, I found that the similarities binding the first-year students together gradually became apparent, as did the differences separating the second-year students.

The time spent taking field notes in class gave me a good deal of information from which to interpret survey responses as well as outlining issues for discussion in the final interviews. More importantly, the time in the class and interaction with the participants developed the degree of trust that made somewhat intimate interviews possible. I had to prove over the semester that I would not pass on information to Bill, and that they should have no fear of reprisal from telling me things. I also had to show that I was not there to convince them to use computing or collaboration. This trust developed over time. Their first critiques of an article

that I had written were much harsher than their later critiques of each other, and a number of them apologized for their harshness in their interviews. It took weeks for anyone to respond to my questions on-line, and I was only gradually included in discussions during the class break or after class. By the end of the semester, students felt free to joke with me and I was invited to join in the discussions several times. Nonetheless, the students were still often more open with their classmates than with me or Bill, so that they referred to remarks by others which the originator had not mentioned to me.

The bi-weekly survey questionnaires were a vehicle for monitoring changes in attitude over the term. They provided important background information for the tailoring of interview questions to individual participants, so that I could ask each about issues that were important to them as well as those planned for this study. The flexibility in the questions for these surveys became more important as new issues emerged over the course, such as time pressure, the importance of career, disinterest in Schenkerian analysis, reasons for the cessation of collaboration, and their more solitary behavior at the end of semester. While it is tempting to think that a longer study (i.e. two semesters, if the course were that long) would have allowed for more in-depth investigation of more specific questions, it is likely that even more issues would have arisen, requiring even more time for their study. It readily becomes apparent that no such study could be "complete" in covering all details and all issues, no matter the length of time or number of researchers involved.

The freedom with which the participants shared their experiences shows the importance they placed on sharing that experience, and also the value of stories in passing on important information. Brown, Collins, and Duguid (1989) and McLellan (1996) have stressed the importance of narrative for information transfer, and this was borne out in the interviews, where many important ideas were related as part of a specific, often extreme, incident. Brown and Duguid (2000) take this idea further by considering information to be free-standing and non-personal, whereas knowledge is personal. Knowledge "usually entails a knower" (p. 119) whose knowledge is situated and so is inevitably bound to the context in which it was learned and used. Stories are a very rich way of sharing knowledge with a feeling for its context. The more difficult topics became the subjects of "war stories" that share knowledge vividly.

The highly-nuanced and qualified answers to questions such as the utility of computing, conferencing, or collaboration show that a simple "yes or no" answer would not only miss the true experience of the participant, but would sometimes misrepresent it. If asked merely "Was

collaboration useful?" Karen would have said "No" (or as she did in her final survey "not all that useful"), but when explaining her thoughts she qualified this by saying that collaboration was very useful, but just not with "the specific group of people" with their personal history. She had several illustrative stories to explain her point, involving the traditions of her university and the history of the second-year students.

In a different way, contact with Donald over the term helped to understand his contradictory survey replies as well as his inconsistent interview responses. In his case, it was particularly important to me to be able to triangulate with other students', and Bill's, reactions to him. Donald had very strong, emotional stories that illustrated his own perspective very convincingly, but upon triangulation with others' stories it became apparent that his view was not the general consensus. Interacting with Karen over the semester led her to ask me "When have I ever finished an assignment on time?" I would not know if she had, but her assumption that I would know led to the discovery that this was a first for her. Some of the issues were clearly upsetting, such as Norma's torment from Mary; Norma's tears in her other class; Jane's shock at the vehemence of her professor's rejections of each other's discipline; Nishka's feeling of being "voided"; Hannah's fear that computers would take over the world; Donald's feelings of racial prejudice; and Mary's severe nervousness before the interview. They had to trust me enough to share their "war stories" and also the intimate moments and emotions which explained so much of their interaction. I am deeply grateful that they chose to confide in me.

It was also important that I re-affirmed at every opportunity that I was interested in their personal perspectives. Rather than report how good or bad an aspect of the course was, they tended to respond more personally in terms of learning or their careers. By maintaining a non-authoritarian and non-threatening integrity, I was able to establish trust with the participants that led to their sharing stories of an increasingly personal nature. While the first few stories early in the semester were rather nondescript, narrative conversations gradually became more personal. After a few weeks there were tests of integrity, and finally more personal stories and critiques.

Emergent issues: career and enjoyment

Brown and Duguid (2000) find that "people learn in response to need. When people cannot see the need for what's being taught, they ignore it, reject it, or fail to assimilate it in any meaningful way" (p. 136). They continue that people learn effectively and quickly if the

necessary resources are made available. They cite Lave and Wenger's idea that "learning needs to be understood in relation to the development of human identity ... [because] the identity they are developing determines what they pay attention to and what they learn" (p. 138). While this may be the case in any learning situation, the participants in this study were often explicit in their rejection or acceptance of ideas as a part of their current plans. The course content presented was only one input into their learning. As Brown and Duguid put it "information, while a critical part of learning, is only one among many forces at work" (p. 138).

Career

Lave and Wenger note that legitimate peripheral participation "is motivated by the growing use value of participation, and by newcomers' desires to become full practitioners" (1991, p. 122). None of the participants was interested in practicing within the community of Schenkerian analysts. The most enthusiastic comments about the subject were "It's fine" from Pasquale (Interview, December 13, 1999) and Nishka's newfound belief that it was not "bizarre." Part of this is because the course was a required one for their degree but not of great interest to any of them. The participants were unanimously interested in two aspects of the course that they felt were important for their careers: the journal and computing. All felt that the journal had the most direct importance to their careers as an effective connection to the community of professional practice. Although they were not truly engaged with Schenkerian analysis, most were very engaged with issues of writing articles to be published and computing in general. All except for Pasquale felt that they lacked computing knowledge that would be important for their careers, and even he felt that he learned "a great deal" in creating the journal.

Legitimate peripheral participation may have had an even greater effect than was recognized by the participants. The students saw its utility in preparing them for their career work, while the professor saw it as a motivating factor as well as an effective means of teaching. Brown and Duguid (2000) find that the principles of legitimate peripheral participation hold for learning in the work world, and the idea of situated learning strongly suggests that the participants will continue to use analysis in synthesis with their other musical interests, as well as being more aware of the general context in which they use musical knowledge. The classroom prepares them for a career with more than just "facts."

The focus on career subtly influenced many aspects of this study. Enthusiasm for the journal was primarily interest in learning a new process that was vital for success in academia.

Similarly, interest in computing derived from a perception of being behind in learning a necessary skill. Collaboration was affected as well, since all of the participants felt that they would be writing articles on their own in the future, and so collaborative work was expendable when time was tight. Even those who were interested in collaboration assumed that this was more a way of becoming acquainted than a way of working in the future. None mentioned doing an article together and none requested to do their final articles in a group.

Enjoyment

All of the participants found the journal "the best part of the class" and all except Donald said that they enjoyed working on it. Even when it became apparent that they would not receive extra credit for all of the work they put in, the editorial and layout committees continued to invest large amounts of time. This enjoyment is reminiscent of Csikszentmihalyi's (1990) concept of "flow" in which he postulates that the pursuit of an interesting task that is a manageable distance beyond one's current capacity leads to "optimal experience" or pleasure in doing the task. The five participants who were key to the journal all believed that it was worthwhile, and that they were learning valuable skills for their careers. In addition, the challenges presented were attainable, another key to flow.

For participation to be "legitimate" there must be meaningful information communicated between the individual and the community. Wolz et al. (1997) state that "meaningful activities take place when students can reflect on what they have done, and when they can communicate it to others" (p. 59) but while these are certainly necessary conditions they can not be sufficient. Learning must be meaningful to the learner as well, and not merely the demonstration of skills. The enjoyment expressed by the participants in this study reflects their synthesis of personal and academic interests with the subject matter of this course.

Communities of practice

Lave and Wenger (1991) suggest that the concept of "community of practice" needs to be addressed with regard to schooling, since the term can be inexact and difficult to specify completely. As they put it

> a community of practice is a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice. A community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its

> heritage. Thus, participation in the cultural practice in which any knowledge exists is an epistemological principle of learning (p. 98).

The participants considered the community of practice for this class to be publishing academics, even though Bill first presented it to them as the community of graduate students. While the membership of the community may be difficult to establish precisely, the activities should be clear. With the community of publishing academics, the scholarly activities of research and publishing are assumed, whether in an esteemed journal or a student-run effort. This was a community which was relatively clear to the students, and one which most saw as the locus of their career aims. The goals of the instructor included providing access to the community of practice, at least to its periphery, by allowing the students to write publishable articles for their peers. The work consisted of real articles written for graduate music students. The legitimacy of the work done was the responsibility of the student, as was making contact with the community ultimately. The quality of this contact was mediated for the individuals by their own degree of interest in the community, their goals, and future plans.

All eight students wanted to become a part of the music community, and six felt that they were capable of doing so at the end of this course. Although the participants claimed on their surveys that they did not feel part of a community other than their local one, their concerns about the journal may belie this. Those who took the journal most seriously were very worried about their reception by "professional music analysts and theorists" and some of the others were concerned about having work generally available on the web. If they were not connected in some way to a larger community these issues might not exist for them. More likely is that they were entering the community but unsure as to their status or reception at the time since they had received no feedback from outside of the participant group.

Lave (1996) notes that to witness practice first hand requires "assuming that ways of thinking and forms of knowledge are historically and socioculturally situated phenomena" (p. 88). She adds that "the discontinuity in performance between work and test settings suggests that even mathematical problem solving is situationally specific activity" (p. 90). Similarly, writing for a public audience raises questions about the assumed knowledge of the subject and familiarity with methods of one's readers. These are dependent on the author's conception of the community or communities of practice being addressed.

Brown and Duguid (2000) extend Lave and Wenger's (1991) concept of communities of practice. They propose over-arching "networks of practice ... that link people to others whom

they may never get to know but who work on similar practices" (p. 141). This definition narrows the "community of practice" down to "the more tight-knit groups formed, again through practice, by people working together on the same or similar tasks" (p. 141). This definition clearly separates the wider community of academic music writers in this study, the network, from the local group of students plus their professor. The term "network" does "emphasize ... the common denominator of these groups" as well as their common practice and knowledge (p. 141). It also allows for the fact that "the links between the members of such networks are usually more indirect than direct" (p. 142) and include newsletters, Web sites, and e-mail. This relegates the "communities" of practice to "relatively tight-knit groups of people who know each other and work together directly. They are usually face-to-face communities" (p. 143). This definition, while useful in the business world, is problematic for this study, and for academia in general. For example, if the community of practice is academic music, does it add anything to superimpose a network of all publishing academics? If the community is academic musicology, what does a network of academic music illuminate? If this definition implies that the "community of practice" is now what has been referred to as a "local community" and that the "network of practice" is the "professional community" of practice, it is merely a substitution of new terms. Otherwise, it misses colleagues who may be involved in less well-defined aspects of the practice, or others such as Russian graduate students who the participants might never meet but might be very interested in their work. In either of these cases, they might temporarily enter the community, or have a passing interest in one aspect of it. Such work need not be face-to-face to be immediate or valuable.

If the students are actually working with a community of practice in the class, and yet the network of practice is composed of "others who they may never get to know" we lose the middle ground of those further in from the periphery that these learners hope to work with more closely some day. Also, the demarcation of network from community requires some prescience of the individual's future career. While a binary subdivision is neater in theory, the actual situation of the student writers is within a temporary community of practice, en route to a more central place in a larger community of practice, all located within a larger network of practice. Nonetheless, the concept of a network of practice is valuable in delimiting the larger scope of the work and procedures of the communities of practice, and Brown and Duguid make the important point that these networks have "a reach now extended and fortified by information technology" (p. 142). They suggest that communities may grow by using these

technologies "helping people separated by space maintain their dense interrelations. ... It's clear that there are advantages to working together, however well people may be connected by technology" (p. 146).

The local community

Community formation

Lave and Wenger (1991) propose that communities are the locus of learning, and that a learner is often in multiple communities at once.

> In our view, participation at multiple levels is entailed in membership in a *community of practice*. Nor does the term community imply necessarily co-presence, a well-defined, identifiable group, or socially visible boundaries. It does imply participation in an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities" (p. 98).

The participants formed a supportive local community that modeled the activities of the professional community in creating their own journal. With this journal they made contact with their peers as well as the professional community at large. While each student had a somewhat different idea of what the "community of professional practice" was for them, the similarities were most relevant. All assumed that they were likely to teach, probably in a university setting. All considered themselves to be musicologists foremost. It is likely that their communities of practice are closely linked, if not in fact identical.

Changing the local community

When new members join a community, there is a conflict between the continuation of the current status quo and changes that reflect the values of the newcomers. Lave and Wenger (1991) call this the "continuity-displacement contradiction" (p. 116). In this study it was evident within the local community. All of the first-year students wanted their community to be more cooperative and less divisive than the prevailing culture of the second-year students, while the second-year students were more set in their ways. For example Mary, admitting that they were rancorous and competitive, bemoaned the loss of peers who "enjoyed what they do." The contradiction inherent in the first-year position was that they had to fit in with the existing culture, which was not appealing to them. As they became comfortably ensconced, the first-years made strides in making the community "nicer" and thus displacing the culture of

competition and ill will prevalent in the senior students. Also, their serious attitude to improving their own writing to fulfill their obligations had an effect on everyone (even Donald, although too late in his case).

Displacement may also be a means to power in the community. As the first-year students became more established in the community their ethos of mutual support and responsibility became more of a social norm, placing some of the factious disputes of the senior students on the social outskirts of the class. Thus access for all allowed a cohesive group to establish themselves in the community, and as a group to impose their values on the whole class.

Technology

Jonassen (2000) warns "whoever controls the technology creates the reality" (p. 21). In this case the students were compelled to use the computer systems designated by the teacher, but he in turn was required to use what was available on campus. More salient was Bill's turning over of control of both discussions and the journal itself to the students, who were free to use the technology as they saw fit. This use of technology accords with Pea's (1994) argument that such a "transformative" use of technology can transcend a "transmissive" view of education. Students led most of the on-line discussions, and Bill stayed in the background until he was needed or explicitly called for. By being "just one more voice on-line" Bill elevated the status of the students.

This group found that the value of conferencing outweighed the frustration of system problems but this was a very emotional issue for the participants. In particular their pleas for better, hands-on tutorials on computing suggest that there is a role that the university is not playing to prepare students adequately to take part in a more computerized society. This is particularly evident in the students' feeling of "being behind" in computing. Their perception that hands-on computer learning would help has been confirmed by Cuneo (2000).

Impact of community on teaching and learning

The importance of modeling for learning is corroborated by social learning theory (Ormrod, 1995, p. 157). The self-efficacy of students is enhanced as they see that they are capable of successfully completing tasks that resemble those of the real world. Both the teacher and peers can help to set high expectations that can still be achieved. In this study the students wanted the journal to be of a high caliber and felt themselves capable of creating and writing for such a web periodical. Part of the modeling of both analysis and journal creation was the

sharing of strategies for success. Metacognitive skills such as being aware of one's own strategies and evaluating their efficacy fed into discussions on-line and in class. This was heightened by a need to explain these strategies and defend them from critique. This sharing made the local community more valuable in the eyes of the participants.

As a design experiment (Brown, 1992; Collins, 1992), this study attempted to enlarge the contact within that community, as well as to provide some access to the community of practice. Situated learning is social. In his Foreword to Lave and Wenger (1991), Hanks points out that they take the idea of learning out of the heads of individuals and into "certain forms of social coparticipation" (p. 14). The students came to feel part of the local community, especially the five on the editorial and layout committees. The community was formed during collaboration on the early assignments and grew on-line in the conferencing system. Closer relationships were formed during the creation of the journal, and seven of the participants felt that they made good friends during this time. The social nature of learning was particularly evident as the design and layout team taught themselves, and their classmates, the essentials of HTML.

Several participants felt that the discussions that they had on-line helped their learning, and that such discussions would not have occurred without the use of conferencing. The community provided its members with help on computing, writing style, and analysis in general, but little on Schenkerian analysis in particular. This was accepted as a social norm by the participants, although an unpleasant one. The community also had input into course content and changed the emphasis for the class by unanimous agreement. After a month, the students stated on their surveys that they were just as likely to ask other students for help than to go to Bill.

Aspects of apprenticeship

While a few of the students viewed Bill as a "master" none specifically felt as if they were "apprenticed" to him, although everyone expressed an appreciation for his modeling of tasks and processes. The case is more one of semantics since many aspects of the teaching and learning styles exhibited throughout the semester demonstrated the basic tenets of cognitive apprenticeship as outlined by Collins, Brown, and Newman (1989). The students were exposed to metacognitive tasks characteristic of an expert in the field of analysis and musical writing, and they were guided or coached by this expert. They were encouraged to externalize and share their thinking processes, and several reported learning new skills of self-critique from the critiques of their classmates.

Lave and Wenger state that learning and formation of identity are inseparable (p. 115), with "the changing relations between newcomers and old-timers in the context of a changing shared practice" (p. 49). They illustrate a wide variety of behaviors that can be characteristic of a master, and even suggest that "benign community neglect" is important for allowing the learner to develop an independent identity. Schooling often thwarts this sense of identity. Freire's (1985) concept that "all human beings perform as intellectuals by constantly interpreting and giving meaning to the work and by participating in a particular conception of the world" (p. xxiii) seems especially relevant to graduate students, who in this study exhibited a great deal of interest and investment in refining and expressing their intellectual prowess and forging an intellectual identity. Lave and Wenger add that in apprenticeship learning, "opportunities for learning are, more often than not, given structure by work practices instead of by strongly asymmetrical master-apprentice relations" (p. 93). The students learned to analyze by watching Bill do analysis, and then imitating this in their weekly assignments, albeit buttressed by readings and discussion, which can be considered typical apprentice tasks. Beyond just presenting examples, metacognitive strategies were demonstrated, such as how to problematize an analysis for publication, or Bill's own approach to a critique that he was asked to write. We see the "dual focus" of the modeling of expert processes that are situated in the real-world context of writing a journal article. The students began to imitate Bill's externalizing of his thinking processes during analysis, sharing their own thought processes and strategy. This was the basis for their praise of "new perspectives" in learning: they saw how another would approach the same process from a very different angle.

While Bill was sometimes slightly embarrassed to think of himself as a "master" to his students, his teaching behavior was very often in line with Lave and Wenger's concept of a master. As Moore et al. (1996) point out it is not necessary that " 'masters' only exist outside of the classroom" (p. 216). Indeed their approach to education involves "having teachers and other members of the community provide models of problem solving and reasoning ... but not as the sole method of instruction" (p. 216). Bill's approach was similar, sometimes modeling practice directly, and other times giving lectures or assigning readings. By the last class, several of the students regarded Bill as a representative of the professional community.

Social factors had impact on learning in a manner similar to a real journal. The participants had to negotiate responsibilities and procedures, which added realism to their work. The students created their own version of a "producer-critic dialogue" (Collins, Brown,

& Newman, 1989, p. 458) by having external critics for their work within their local community. By considering their own critiques as well as those of their work, each student was able to internalize the process of constructively criticizing their work as well as their processes and attitudes. Although the course itself dealt with music analysis, several of the participants demonstrated a more critical attitude toward their other academic interests that were included in their articles.

In creating the journal, the students were largely left on their own, to work things out among themselves. Lave and Wenger (1991) note that "it seems typical of apprenticeship that apprentices learn mostly in relation with other apprentices" (p. 93). Much of the responsibility for learning is passed on to the community of practice, rather than being invested completely in the teacher. In this course the students were allowed to gradually find a comfortable writing style and to construct together many of the rules of creating a journal. Bill was there to "pick them up when they fell" as Karen put it. They progressed from observers of the community of practice in their first readings and assignments to fledgling members with the journal.

The students who viewed Bill as a master or mentor were mostly first-year students: Hannah, Norma, Nishka, plus Donald. The second-years saw him more as a friend or senior colleague, more of a journeyman attitude. The general second-year attitude may have been a step towards some equality with him on entering the field, and the first-year students to a large degree emulated this attitude later in the term. Bill reported that he felt most like a master to apprentices during the journal, when he could help them write their papers, and "get to the next level." He loved doing the journal, finding it a lot of fun and very rewarding. Bill was very excited that Jane re-wrote her paper after the semester had ended, which he found unprecedented. Conversely, only the first-year students, and Pasquale at the end of the term, seemed comfortable with an apprentice-like role. These five did a good deal of self-directed work on their own, and brought it to Bill for refinement and formatting for professional presentation.

Lave and Wenger quote Bourdieu (1977) that the circumscribed form of participation usual in schools makes the goal that of complying with requirements specified by the teacher, which in turn engenders "a practice different from that intended" (pp. 96-7). Bill's open-ended view of the journal left a good number of the details up to the participants. By not restricting the techniques allowed for synthesis, several novel combinations were forged. In many ways Bill offered them a learning curriculum "consist[ing] of situated opportunities" for developing new

practice rather than "a prescriptive view of the target practice as a subject matter" (Lave & Wenger, 1991, p. 97). Jane, Karen, and Mary all remarked that they learned in this course by "doing" rather than being lectured to. This supports Lave and Wenger's view that "the social relations of apprentices within a community change through their direct involvement in activities; in the process, the apprentices' understanding and knowledgeable skills develop" (p. 94).

Bill felt that there was a higher level of discussion in this class than in previous classes, and that they "got to an additional level of abstraction" because their on-line discussion prepared them better for class. Several of the students noted this as well. Although none of the students but Donald was planning to use Schenkerian Analysis again, several produced quite acceptable Schenkerian components in their essays. Norma, Hannah, Nishka, Jane, and Pasquale all had some very good graphs that were well explained. Those students that produced the best articles were interested in contacting the community of practice with a good example of their work, and were interested in learning the technology to do so.

Change of course content

Because the instructor was sensitive to the voice of the students in this class, they were able to effect change to the syllabus during the semester. This resonates well with Hay's (1996a) call that legitimate peripheral participation "should incorporate a more student-centered education that meets the liberatory needs of learners articulated by Freire" (p. 98). These changes began as what Brown and Duguid (1996) have labeled "stolen knowledge": the students studied one thing but learned something else along with it (by observation). In this case while the content of the course was Schenkerian analysis, the students learned to improve their writing and basic computer skills, both of which they found more important than Schenkerian analysis. Winn (1996) suggests that "the purpose of education is: How to get along without being an expert" (p. 175). He criticizes legitimate peripheral participation for requiring "life-long commitments" and aiming for "a higher standard of achievement than most of us expect to attain (p. 176)." This would certainly seem to apply to the class in this study, where critics must study analysis, and Winn does go on to apply it to "'required subjects' taught in school" (p. 177). This potential conflict was averted in this case because the students were able to creatively adapt the academic requirement of the course (analysis) to their own interests and goals. What began as "stolen knowledge" became part of the new syllabus.

Winn's point applies more to the participants' learning of computer skills, which were not overtly taught in this course. The students learned enough to get by, in order to produce the journal to their own standard of excellence. This was accomplished, however, through LPP by the formation of a strong local community, which was in turn strengthened by bonds of friendship developed by sharing this hard-won knowledge with one another.

Winn presents a false dichotomy between expertise and "just getting along." Scardamalia and Bereiter (1993) demonstrate that non-experts can benefit from the procedures and methods of expertise, which can be regarded as a different way of learning. In the case of the participants in this study, none of them planned to become music analysts, but several planned to incorporate analysis in their musicological and critical work. To do this they would need to be able to analyze music very competently, and the expert techniques demonstrated by Bill could help them to do so efficiently and effectively. Bill noted that his de-emphasis on technical matters was an admission that these students were unlikely to work as professional analysts. This is undoubtedly the case with the majority of students who take this course, and yet it was these students' creative solution that allowed Bill to admit the underlying contrary assumption.

Similarly to Winn, Tripp (1996) states that "high skill in a particular task is usually a trade-off with transferability" (p. 159). Here the dichotomy is between expert and non-expert tasks, but education is more than a series of tasks (as is most expert performance). As Scardamalia and Bereiter (1993) show, it is expert processes that are valuable to the student, and these can be modeled so that the learner can appropriate as much or as little as is necessary by their own situation. In this study, processes included doing a Schenkerian analysis, writing a journal article, and critiquing another's articles. While each involved a number of tasks, not every individual performed the same tasks, nor did they follow the same order for all common tasks. All of the students felt that their writing improved, and that they were capable of writing journal articles at the end of the course that they could not have written before, so these processes must have been learned somehow.

Strong student interest in a synthesis of methods and approaches led to a student-directed change in course content. The students were more focussed on their careers than on schooling. They used the opportunity of local community to skew course content to include their major pedagogical interests, and made the journal reflect their professional interests rather than just Schenkerian analysis. In a recent presentation (Walker & Renwick, 2000) Bill agreed

that the students "knew what they wanted to learn and actively took steps to pursue it. I was happy to go along with it, even modifying the course content, as long as they related it back to analysis somehow." The result was that there was less Schenkerian analysis taught than Bill had planned, but there was more synthesis of musicology, criticism, and other analytical viewpoints. Bill mentioned in his presentation his goals of giving them "real world" experience, improving their communications skills, and using technologies in the way they will use them in their careers, so that Schenker was only part of his goal too. The combination of his flexibility and their interest led to the change in course content.

Bill allowed them a large degree of freedom, and felt that this was rewarded with a higher quality of work than in most of his previous classes. Some of Bill's agreement to focus less on Schenkerian analysis reflects the extreme difficulty in teaching it in one semester. The participants noted that one could only learn it by doing analyses, and even though they did more than any other of Bill's one-semester classes, no one felt that they had learned it well.

Issues with collaboration

Much of the work that was considered "collaborative" by the participants is much more akin to Pea's (1994) concept of "collective" work, rather than the production of collaborative products. Especially with the second-year students, there were some elements of competition and coercion that were visible, and Pea's definition encompasses these as well as collaboration. Collaboration turned out to be perceived as valuable and enjoyable for some, but for it to flourish would require some reward (probably marks) to make the time required worthwhile.

Collaboration was useful for these students, but only for well-defined, short-term purposes. At the beginning of the semester, collaboration helped them to get acquainted with each other and the subject matter. It was most helpful initially in forming the local community and then more formally in creating the journal. The students became more solitary as they worked on their articles. Since the goal of the course was individual articles, they worked on them alone, collaborating again mostly on journal setup tasks. Bill had hoped that they would discuss common features with others' work, but there was no incentive to do this. While two pairs (Nishka & Mary and Pasquale & Jane) referenced each other's articles, neither drew specific comparisons. Also, no one commented on a paper that they were not assigned, although Jane and Pasquale did quote from critiques in their papers. There was a progression from collaborative work, to a group of individuals in a supportive community, to a more formal arrangement of critique and the individual articles. There was a great deal of collaboration on

creating the journal, especially between the editors (Jane and Mary) and the layout committee (Nishka and Pasquale and later Hannah).

By emphasizing the final solo articles, Bill ensured that students would not collaborate all semester long, and they knew that it was their solo performance that would be graded. Despite this, they collaborated early in the semester, and worked as a community to share ideas. Ultimately, the modeling of the journal process and the marks for the class did not require or reward collaboration, and it was inefficient for the students to continue doing it, except to create the journal.

Professional practice

As Lave and Wenger suggest, the social relations of the students changed over time. As the semester progressed and their efforts shifted to the journal, several participants found the community of practice a focus for their efforts that displaced the more general local community.

The journal

Lave and Wenger note that "acceptance by and interaction with acknowledged adept practitioners make learning legitimate and of value from the point of view of the apprentice" (p. 110). It also demonstrates to them that there is an arena for their own mature practice. Hay (1996b) suggests that creating is a vital activity for learners, and that situated learning is its most appropriate educational paradigm. "A space for the activity of creating allows us two important types of knowledge: the ability to create a critical response to tradition as well as an opportunity to create personal knowledge" (p. 208). This suggests that the students were having an impact on the community of practice by the implied critique of its traditions in their articles. This liberating activity resonates with some ideas of Freire (1970), who warns against educational situations that "minimize or annul the students' creative power."

The students' sense of identity within their fields grew as they became more adept at analysis and at writing. They were all concerned that their final articles reflect their personal interests and their stance on music. "If the person is both member of a community and agent of activity, the concept of the person closely links meaning and action in the world" (Lave & Wenger, 1991, p. 122). The excitement of the students seems related to their entry into the real community, although this might have been attenuated by the lack of feedback from that community. Specifically, there was concern as to whether their journal would be accepted, but

while such acceptance is important to future issues of the journal, it is secondary regarding learning in this class.

Part of the journal's importance for learning is modeling. Hanks (in Lave & Wenger, 1991) says "quite simply, if learning is about increased access to performance, then the way to maximize learning is to perform, not to talk about it" (p. 22). This was the basis of having students post and critique their assignments from the start. As these tasks became more demanding, writing for the community and expecting critique were accepted parts of the process. Only Donald, who stopped taking part, stated a preference for more talk and less performance. As Hanks recognizes, it is possible for a learner to become a master of managing the learning situation rather than the performance skills, and this is what tests of performance are meant to guard against. This suggests that it is particularly important for students to take part in the CMC discussions, as well as the collaborative (or at least collective) work. Donald did neither and his performance was not satisfactory: to Bill, his peers, or himself.

The concept of a journal as part of learning is not unique to legitimate peripheral participation. Scardamalia and Bereiter (1994) find value in student-run journals as focal points for construction of knowledge as a collective goal as well as a means of extending these activities to the larger community outside the particular school. While noting that "discipline-based journals harness an enormous amount of energy" (p. 271) they also caution that "the whole journal process could easily be degraded into just another form of schoolwork" (p. 273). The goal of contributing to knowledge must remain a clear goal. In this study the participants invested a good deal in original thought precisely because they perceived that their work would be judged by the larger community, as part of their entry into professional life. A number of participants pointed out the difference between their work on the journal and "ordinary schoolwork" or "a typical term paper."

The peer review process was crucial for maintaining student ownership of the journal, and their learning. The critical stance taken in reviewing another's work can then be mirrored in a more reflective consideration of one's own work. In this way the intentional learner becomes Freire's (1985) "subject of the act" or critical reader. The participants expressed their appreciation for this critical approach as new perspectives as well as specific feedback on their articles, although the suggestions were not always accepted, and rarely accepted uncritically. Freire (1985) states that "the act of study, in sum, is an attitude toward the world" (p. 3). In writing their articles the participants confronted the (constructive) criticism of their peers as

well as their perceived expectations of the professional community, and they unanimously found it a liberating experience. Even their apprehension about the reception from the professional community reflects Freire's concept of the "fear of freedom" as opposed to a cozy and passive acceptance of the status quo. The complete attainment of Freire's (1985) "act of study" which "implies not merely critical penetration into its basic content but also penetration into an acute sensibility, a permanent intellectual disquiet, a predisposition to investigation" (p. 3) – even though he refers to a book rather than a subject – is beyond any single course of study. While students were encouraged to question both the theory and its approach, we can only hope that they will continue with a "predisposition to investigation."

McLellan (1996) highlights Norman's (1993) call for providing opportunities for reflection in learning, finding similarities with Csikszentmihalyi's (1990) concept of flow for "structuring learning experiences that capture both experiential and reflective dimensions of cognition" (p. 9). This imputes to critique an even greater role in providing fodder for reflection at a level capable of providing intense, "flow-like" experiences of learning. Both the layout and editorial committees remarked on getting so engrossed in the journal that they "lost track of time."

This study does ameliorate the inevitability of Scardamalia and Bereiter's (1994) criticism that "the knowledge-advance criterion, universal in scholarly journals, is foreign to the writing students do in schools, even in graduate school" (p. 272). It was an aim of this study to discover whether this group of students was able to create a journal which truly did advance knowledge in a meaningful way, and it was based on their concept that a suitable audience would be other graduate students, which would also make true peer-review viable. This may have been easier in music analysis and music criticism than in other areas since both are relatively new fields. Many major works of past centuries have not been analyzed in depth, and each such analysis is considered a contribution to knowledge at some level. Music criticism is meant to reflect its times, and so contributions to the field can advance knowledge by reviewing earlier work in light of current scholarship.

In fact, the final journal gained praise both as a student journal, and as a journal in its own right. Reasons for this may include that web-based journals are relatively new, and so this may be one of the few that the critics have encountered. The participants' experience was closer to Freire's (1985) view of "humanistic education" wherein, in opposition to a transmission of facts, "education ... is the authentication of knowledge by which learners and educators ... as

ones filled with 'intention' join in the quest for new knowledge as a consequence of their apprehending existing knowledge" (p. 115).

Student motivations were similar to Scardamalia and Bereiter's list of desires for publishing academics: gaining recognition, having impact, and participating in the discourse of the field (Scardamalia & Bereiter, 1994, p. 272). Because this was a first effort, the participants downplayed these to an extent, but emphasized that it was the benefit to their careers that made the journal most immediate to their learning. Even their critique of their peers was as much the learning of proper procedure for the future as a social activity.

As a teaching and learning tool, the journal was a hybrid of real-world relevance with classroom instruction included. The students had a good deal of autonomy but were not abandoned to their own devices. Classroom teaching and legitimate situated learning are not dichotomous, as Tripp (1996) claims. His suggestion that situated learning is analogous to immersion teaching of languages does not apply to every situation. At the graduate level, the communities of school and work are closer than ever, and close enough to interact in meaningful ways to utilize the best of both worlds in learning.

Entering the community

When Hanks suggests that "learning is a way of being in the social world, not a way of coming to know about it" (Lave & Wenger, 1991, p. 24), he echoes the students' position of being aware of the academic community but only starting to become active contributors to it. All of the participants felt that they knew what the academic community was, and wanted to become a part of it, but at the outset doubted that they would. They were much more confident after forming their local community, and working on the journal. The students had a fairly unformed view of the community of practice, but it seems strongly aligned with the academic community. It is not surprising then that those with academic aspirations have the most definite views on that community.

There was also a general concern that not much terminology was covered in the class, and that this would restrict the participants' access to the community of practice. The lack of terminology, as evidenced by the final articles, poses a problem since that language is a part of practice. As Donald pointed out, they did not have the vocabulary to really take part in serious Schenkerian discussion, and yet they made little effort to learn it. This was not so much a problem within the local community, where the concepts could still be used with some extra explanation. In articles for the community of practice however, such terminology is vital. Lave

and Wenger (1991) distinguish between talking *within* and talking *about* a practice (p. 109). Talk within can include "exchanging information necessary to the progress of ongoing activities" as well as sharing stories and community lore. "For newcomers then the purpose is not to learn *from* talk as a substitute for legitimate peripheral participation; it is to learn *to* talk as a key to legitimate peripheral participation" (p. 109). For example, Jane did not feel the need for lectures so much because "it's *doing*" Schenkerian Analysis rather than talking about it that helps one learn. The articles do not use a strictly Schenkerian vocabulary, and yet some sophisticated Schenkerian concepts are demonstrated in the discussion. This suggests that the terminology is still necessary for fuller participation in the community, but as we have noted the community of Schenkerian analysis was not the goal of any of the participants, and so the slighting of terminology might be just economical time management. Another type of terminology for designating pitches was agreed upon when the participants felt that the lack of a standard posed a barrier to their discussion.

Toward the end of the term, as the students began to see Bill as a representative of the community of publishing authors rather than just as their professor, they seemed to view themselves as candidates for the community of practice. Hannah felt that he acted as a "senior colleague" to a group of colleagues. Jane found a new respect for him after reading one of his articles, and hoped to write as well herself.

Technology

Lave and Wenger (1991) emphasize the importance of apprentices interacting with the technology of practice, arguing that to participate fully means to take part in the technologies associated with the field, as well as the social structures and relations determined by these technologies. In fact, they argue that the type of participation depends on the form of participation enabled by the use of the salient technology. The use of computing satisfies the dictum that learning the technology is more than merely acquiring technical skills; it is a way to participate more directly in the cultural life of the community. Hay (1996a) points out "the power afforded by computers to make the connections between the students' activities of knowledge construction and the communities of practice" (p. 96). McLellan (1996) affirms that "technology-related skills are increasingly central to learning in an age when human lives are immersed in electronic technologies" (p. 12). She proposes that learning can occur in the actual work context or a "highly realistic or 'virtual' surrogate."

Lave and Wenger (1991) speak of the 'transparency' of the technology allowing for engagement with the field without too much interference from the technology itself. "The term *transparency* when used here in connection with technology refers to the way in which using artifacts and understanding their significance interact to become one learning process" (p. 102-3). The "visibility" of the technology allows it to become a topic of discussion. "Invisibility of mediating technologies is necessary for allowing focus on, and thus supporting visibility of, the subject matter. Conversely, visibility of the significance of the technology is necessary for allowing its unproblematic – invisible – use" (p. 103). Most of the participants lacked computing experience, and so the technology was highly visible. They did have a very positive attitude toward learning the technology, and this gave its visibility a positive aspect so that even dealing with computing problems became an opportunity for engaging with the community. A good deal of collaborative work was done solving such glitches. However, some class time was required for students to learn to use CMC and also to create web pages. Until this becomes the norm, students are unlikely to take it upon themselves. Some of the class time was arguably regained since presentations and preliminary discussions on-line allowed more in-depth discussion in the classroom, but this gain was not perceived by the students until it was brought to their attention. In addition the participants were able to host more discussion on their own interests in their own conferences, although this was limited mostly to them and their assigned critics.

Changing the professional community

Lave and Wenger (1991) remind us that "communities of practice are engaged in the generative process of producing their own future" (pp. 57-8). As the first-year students caused changes in the local community by displacing the older culture, so the entire local community can be expected to have some effect on the wider community of practice. This would imply that they would change the field of practice in the future, which is well beyond the bounds of study. While it seems probable that they would have some influence, we must remember that "claims *about* the definition of a community of practice and the community of practice actually in process of reproduction in that location may not coincide – a point worth careful consideration" (Lave & Wenger, 1991, p. 99). Hanks (in Lave & Wenger, 1991) also suggests that the apprentices will shape and change the field, and this intention is evident in the participants' critical stances toward the community of practice. The students effected change in their course and their work on the journal started a discussion of student journals on the Society for Music

Theory's mailing list. On a more personal level, confronting the community of practice solidified several of the students' sense of identity within their field.

Students are entering and learning about the practice of the community, as well as beginning to establish their own identities in it. They have a stake in its continuation and its development. Several differences of perception between Bill and his students suggest potential changes to the community of practice. The students had less interest in detailed analysis, viewing it as an adjunct to more general description, than did Bill. They also expected more specific training on what Bill considered supplementary topics, including computing and editorial practice. Also, whereas Bill was regarded as an innovator at the university, all of the students planned to adopt at least some of his innovations in their teaching.

Hay (1996a) goes a step further, suggesting that students "can create or be a part of the creation of a new community of practice ... become a part of several communities of practice ... find new and creative ways to change the practice from a peripheral position ... [or] find new and creative ways into the center of the community of practice" (p. 96). Laudable as these goals are, Hay's approach implies a plan of longer term than is allowed by a single-semester course, but his point is well taken that the learner is liable to impact different communities from those considered during the course. (For example, Nishka now works in computing.)

Bill's strategy of synthesizing the student's primary academic interests with the analysis for the journal was fruitful. "In contrast with learning as internalization, learning as increasing participation in communities of practice concerns the whole person acting in the world" (Lave & Wenger, 1991, p. 49). This emphasizes "the inherently socially negotiated character of meaning" (ibid., p. 50). This very issue was a topic of discussion in the last two class sessions, where the general feeling was that the "meaning" of music was a consensus of the opinions of writers on music. As the discussion evolved, the students seemed to feel that the very validity of Schenkerian analysis was open to debate, and their final papers do not delve into the theory in much detail. Their own syntheses assume more importance, and some aspects of the theory are ignored. As Lave and Wenger (1991) note, "what is learned is problematic to what is taught" (p. 41). This is particularly evident in this study, where the students were taught Schenkerian analysis, and yet it is only an undercurrent for most of the papers.

During the semester, the participants negotiated the place of analysis in their thinking. Once it became apparent that synthesis was truly encouraged, analysis became a tool, albeit a pre-eminent one, to be used in the service of describing and critiquing music and musical

practice. This illustrates the contention of Brown, Collins, and Duguid (1989) that "meaning is not invariant but a product of negotiation within the community" (p. 33). By forming their own community of practice, as well as venturing into the periphery of professional practice, the students began to use such tools as practitioners do, rather than for assignments as students would. In this course, the students' work was not finished with their analysis of a piece, but continued through placing the findings of this analysis into the context of their musicological or critical stance on the piece under study. Such are "authentic practices" by the standards of Brown, Collins, and Duguid because they are "the ordinary practices of the culture" (1989, p. 34). The successful performance of the participants was within their own culture of practice, rather than within the narrow bounds of school. The next step is toward a more involved participation, rather than a disjunct leap into a new milieu.

Impact of LPP on teaching and learning

The usefulness of legitimate peripheral participation for learning in this study resonates with the recent work of Brown and Duguid (2000). Referring to "this sort of simultaneous working, learning, and communication" (p. 126) they note that this type of learning is particularly appropriate to graduate school, where "they form learning communities capable of generating, sharing, and deploying highly esoteric knowledge" (p. 127). For optimal learning, students require more than lectures and readings because they are not "learning about" but rather "learning to be." "Learning to be requires more than just information. It requires the ability to engage in the practice in question" (p. 128). The goals of these students reflect their desire to take part in the music community, and not to just learn about it.

Brown and Duguid (1996) present the central problem of using legitimate peripheral participation for teaching when they ask, "how can these situated theories be operationalized?" (p. 47). By reconceptualizing learning, they note that teaching must also change its conceptual basis, since "a situated approach contests the assumption that learning is a response to teaching" (p. 48). The learner's perspective is the important one, since as they note something is learned during teaching, although it may not be what the teacher meant to pass on. For this reason "what is learned can never be judged solely in terms of what is taught" (p. 49). They maintain that the practice of stolen knowledge is to be encouraged, since much of the implicit knowledge of a subject can not be made fully explicit, and can only be learned tacitly. The social

aspect of learning dictates that communities of practice are circumscribed by their activities, so that it is not a contrast of the individual student coming up against the whole wider world.

For this study, there were many aspects of professional practice that differed in subtle yet important ways from regular schooling. The students learned analysis not just as another subject, but within the context of the practice of journal publishing. Beyond merely learning to analyze, they learned to write up their findings professionally, to take and give criticism, and to find an appropriate voice for these. These are things that "need to be kept close to and reflect actual, ongoing practice" (p. 50) if they are to be meaningful. Far from constricting teaching practice, this can be seen as liberating for the teacher since "even though instruction is minimal, quite complex practices can be learned effectively and easily where the social context is evident and supportive" (p. 50). The learner then needs to "situate the decomposed task in the context of the overall social practice" (p. 52). By this standard, the course in this study was "situated" in that the analysis tasks were rooted in the publication of a real journal. Rather than slighting the subject of Schenkerian analysis, the subject itself was integrated into the social reality of the learners, and so from their viewpoint it was made useful rather than inert. From a teaching perspective, it is reasonable to accept that some well-integrated knowledge of the use of analysis is better than a higher level of skill that is isolated from a specific context of use. For students with little interest in analysis per se, such teaching would be a waste of the time of all concerned. Brown and Duguid state that "designers and instructors need to make available as much as possible of the whole rich web of practice" (p. 53) for their students. This includes the physical, social, and historical aspects of the situation in which the learning is to be used. It is important to ground teaching in the learner's reality, rather than replicate the traditional classroom where "only replicas and not the real thing are on display" (p. 55).

Bill's teaching method for this class revolved around the students' involvement with the journal, rather than his lecturing. Most of the students responded very favorably to this "learning by doing" approach. Hay (1996a) states that "Lave and Wenger's acknowledgement of the historical and 'situational' aspects of learning is an important step away from ... abstract 'instruction'" (p. 91). The students' experience in this study corroborates this idea.

During the planning for this study, Bill displayed a keen awareness that the students would not be arriving "tabula rasa" but rather would have different, complex musical backgrounds. The teaching challenge was to find a way to foster each student's unique learning needs within a single class. The intellectual situation of each student would demand a different

"zone of proximal development" in Vygotsky's (1978) terminology, or what Harley (1996) refers to as a "fusion point." Harley defines this as residing "between a student's previously acquired personal knowledge – created from the historicity of personal experience – and new knowledge substantively defined by the collective agreement of experienced practitioners in a knowledge community" (p. 113). This study suggests that even more is happening at this point. The students were actively synthesizing information from their analysis course as well as their other music course, and combining this with their academic interests into a richer, more variegated whole. The final articles represent a wide spectrum of influence and interest, with Schenkerian analysis as the only common thread. The "historicity of personal experience" is not a static, complete package to be added to, but rather an active process that feeds back into the learning process by choosing information to assimilate and the manner in which to do so.

Bill's avoidance of "spoon-feeding" the students follows Lave and Wenger's caution about "didactic caretakers." They warn that if the teacher assumes responsibility for motivating the learner, rather than allowing the learner to assume it, the focus tends to change to the teacher acting as an agent of change upon the malleable student. Self-direction as the "stealing" of knowledge and legitimate peripheral participation add a new facet to the idea of intentional learners, in that the intention is not just to learn facts or skills, but to participate more fully in the social community of practice, and in doing so to acquire an identity in that culture. The danger that school presents is learning to display knowledge (i.e. during tests) rather than in order to gain knowledge. All students exhibited some interest in taking part in the professional community, even though such participation was not encouraged in their other class.

Beyond a simple presentation of Schenkerian Analysis, Bill's teaching style was notable for allowing the students to question the basic tenets developed by Schenker. This led to some interesting discussion and several profound insights. Lave and Wenger (1991) note that

> legitimate peripherality is important for developing "constructively naïve" perspectives or questions. From this point of view, inexperience is an asset to be exploited. It is of use, however, only in the context of participation, when supported by experienced practitioners who both understand its limitations and value its role (p. 117).

Bill felt that the students learned a great deal and applied it to their personal interests, and he appreciated the self-direction of the students in pursuing their goals.

Even an interested and popular teacher can have a very different view of class issues from the students. Rather than simply learning the material, graduate (and perhaps undergraduate) students may be adapting it for use in their own interests, which in itself is a worthwhile goal of education. Flexibility may lead to synthesis in student work. They were fortunate that Bill was so open to modifying his course, since their interests were so different from his.

Importance of computer training for learners

Brown and Duguid (1996) state that it is "important not to isolate the technology" (p. 52) in learning because it is a part of the situation, so important that knowledge of it may be gained by "theft" if need be. In this study the learners made it a part of their social learning and resented not receiving credit for the considerable work that they did to learn computing. The skills that they acquired should be useful far beyond this single course, and it was this recognition that motivated some of them to learn on their own. Brown and Duguid note that "the means to build connections *between* learners and *to* the world of full-blooded practice are essential" (p. 55). In this study, the conferencing system and the Web were used for such connections. Hay (1996a) also notes that technology can be an important link "to connect students to communities of practice" (p. 98).

All participants identified computing skills as very important to their future careers, and yet none had been adequately trained to create a web page. None had used CMC for classes before this, and it would be the only one using CMC that they would take for this degree. Also, they put in a great deal of work to learn computing and wanted to get credit for this. They did not feel, as Bill did, that they should learn it for their own interest's sake. While they may be among the last classes to enter university with no computer knowledge, they found that after this class they knew more about computing and CMC than many of their other professors. Bill's perspective that the students could learn most of the computing skills on their own seemed more a result of limited time and resources than sound pedagogy. However, it is unrealistic to expect students to learn all of the necessary computing skills in a single graduate course on music analysis.

Simple problems were vexing due to a lack of experience. Basic computer training for all students would alleviate most of the problems creating materials. Assigning adequate technical resources could alleviate many of the most frustrating problems of access by assuring that the server was monitored and re-started as soon as possible after a crash.

Wolz et al. (1997) note that "frustrating distractions may have a legitimate place when no other economical alternative exists" (p. 59). This was borne out in the participants words – that problems were not "that bad" – and their actions, in choosing to continue using the conferencing system rather than making further attempts to arrange face to face meetings.

For teaching, Lawhead et al. (1997) note that "the Web" can be a useful tool for teaching by "examining the capabilities afforded by the technology and using these appropriately" (p. 35). They find that appropriate uses of technology are the extended reach of an institution to students, improved timeliness and quality of communication between teacher and student, and improved interaction between students (p. 36). This study corroborates these points in using technology to support a face-to-face class. It also supports the view that inappropriate uses for technology are to save the teacher time and effort and to make courses easier to maintain.

Recommendations from lessons learned

An advantage of qualitative research is the richness of detail that can be obtained from the participants. Rather than attempting to discover general truths of wide applicability, a qualitative case study can provide an in-depth look at a particular phenomenon with enough description to suggest applications for readers that neither the author nor the participants might have imagined. It is in this spirit that I present a number of recommendations for practice gleaned from this study. Rather than presenting quantifiably justified practices suitable for any context, these recommendations stem from lessons that were learned by the participants. These lessons include many learned by Bill and me, often when we made mistakes and had to rectify them, or when we found that a good idea did not work out in practice. As in many teaching situations, the teacher learned as much as he taught.

A benefit of allowing students greater opportunity to voice their opinions is that we can share the lessons that they have learned and are willing to tell us. We can also learn about ourselves from them. Many of the suggestions for improving teaching are from the students in the class, as a result of their experience as students as well as their reflection on their own teaching practice. Here again the recommendations are truly lessons learned during this particular study. These lessons cover the research areas of CMC, collaboration, and LPP as well as general teaching practice and doing research on teaching. These are the lessons that we learned.

Teaching

Seek the students' opinions on class matters. Although it may take time to convince them that you really do value their input, the students are liable to have excellent suggestions for improving class life as well as the syllabus of the course. Hannah's suggestion about critiquing similar articles had a profound effect on learning in this study.

Pose problems to be solved. Present assignments as problems, and teach students the process of finding similar problems in their own work. Consider their solutions before presenting your own.

Don't ignore enjoyment in learning. At the graduate level, students may have a strong motivation for learning because they enjoy doing what they are interested in. Give them opportunities to work on what interests them and try not to block enjoyment. Share your own enthusiasm with them.

Make assignments, especially journal articles, relevant to the students' future working environment. Explicitly relate goals for the class with the students' academic or career goals. There is less a feeling of "work" for an assignment that has benefits that the student feels are important. This may also transfer a feeling of ownership for the task to the student.

Concentrate on process rather than just on products. Demonstrate applications of knowledge beyond merely passing the course. While the students expressed disdain for doing yet another term paper, they were excited to learn the process of writing a journal article.

Student Relations

Give students credit for previous learning, common sense, and pride. If a student's name is to be attached to some work, that student should have as much control over it as possible. If one student has power over or responsibility for another's work, the relationship should be made clear along with a mechanism for settling disputes. Remember that in a graduate course the student has learned a great deal already.

Don't underestimate the importance of being fair and consistent. Consider carefully all exceptions to rules. One unearned pass degrades the work of the others.

Monitor workloads and as much as possible balance them. Try to stop social loafing early. This is especially important if collaborative assignments are to be marked.

Give appropriate rewards for work that must be done, whether assigned or not. If students have to learn new skills, such as computing, either they should be rewarded in some way or the skills should not be required. For example, a class journal could be "published" in

print, although it would be more difficult to distribute. Alternate arrangements might also be made for the students to submit their articles as word processing documents, with a teaching assistant to create the on-line journal.

Discuss the students' goals for their learning with them. They may not be the same as yours but they may be compatible with yours. You may have to ask whether the current course fits into these, and you may not get truthful answers, but it is worth a try.

Check carefully that course requirements and the marking scheme are not contradictory. Do not omit mandatory class requirements from the marking scheme unless the class could not reasonably be expected to function without them.

Student Power and Voice

If students are to have input into marking scheme, do it early. It is probably better to develop it in class rather than have them critique a pre-existing one. That way they are not "criticizing" the teacher's work.

Discuss absolute constraints that must remain non-negotiable, such as the professor assigning marks or required content in a class. Give the students limits for their power-sharing, but explain those limits. As future professors, most of the participants understood that there were limits within which Bill had to function, and yet none of them knew what those limits really were.

Research

Be careful to separate the research function from the evaluation and assignment of grades. If the researcher is felt to have power over the participants, they are more likely to try to answer "as they should."

Understand the subject, the jargon, and the background of the subject under study. Discussions often included implicit understanding of basic music theory concepts, and many of the most important stories required knowledge of it. Lack of understanding creates barriers with the students that can inhibit trust.

Even a very popular teacher may not hear the true feelings of students with "something to lose" on sensitive issues such as marking or fairness of treatment. Irrational fears due to feelings of powerlessness can not be dispelled by rational discussion in class.

Collect data over the semester and analyze while going along. For example, students were generally more in favor of collaboration while doing it than in retrospect at the end of

term. Also, ideas and feelings change, and participants forget how they felt at certain times. The patterns of change can be revealing.

Prolonged engagement is vital. This study could not have been accomplished with just a questionnaire in the first class and interviews after the term. The participants had to get to know me before they would trust me with their valuable feelings.

Make every effort to get to know the participants. As the major instrument in a qualitative study, the researcher must earn the trust of the participants to get the best data.

Collaboration

Decide whether you want collaborative products, or a cooperative environment. Getting students to collaborate is difficult enough when you know how you want them to. While students may find collaboration enjoyable, there should be some other reward in it to keep them motivated when other priorities conflict. You may be able to help co-ordinate meetings, or even give up some class time, such as a slightly longer coffee break.

Set clear goals for collaboration and reward students for their contributions. A major objection to working in groups is that one's contributions were not sufficiently valued. Setting expectations for contributions and rewards for their attainment can help to diffuse social tensions and limit social loafing.

Consider making collaboration optional. Collaboration may not be the only model for the entire class.

LPP

This study suggests that legitimate peripheral participation helped bridge the gap from university to the real world, and that the students took advantage of it. The entry to that "real world" was exciting, if somewhat tentative, and it was greatly facilitated by the local community and the process of creating a journal.

LPP - Local Community

To encourage a local community, the teacher must sometimes be absent and allow the students to lead their own learning. The local community works well as a community of equals, and it is best if the students invite the teacher to take part.

Don't expect students to teach one another if none of them knows the subject. While students will help one another willingly, there are limits to what they can do. While a great deal can be learned by doing group research, groups can still reach impasses as an individual can.

Try to uncover and defuse (or work around) social tensions. While this is difficult, it is important not to let social problems undermine educational objectives. Letting students choose their own groups can help them avoid those they would rather not work with. Remember that students can be remarkably resilient, as Norma showed by helping Mary with her article.

LPP - Journal

Assignments should lead up to the final article to build skills as well as confidence. A single project can structure learning over the entire semester so long as it is approached from different viewpoints or different levels of depth. Successive drafts can lead to deeper insights.

Peer review can produce better articles. At the very least it will lead to more drafts, and it can aid in fostering a reflective attitude to one's own work.

Make an effort to integrate the students' own interests as well as their previous knowledge. Interest is a powerful incentive to learn, especially in graduate studies where the basics have already been mastered. It is acceptable to make clear that a better result is expected from giving students latitude in this way.

Point out that the students' articles are their own. Their names are on them, and the work reflects on them. Conversely, the credit is theirs. This helps to free the concept of learning from the walls of the school. It also demonstrates a concrete use for learning while adding to a student's portfolio and résumé.

Arrange for an external reader to critique the journal. It is too easy for the journal to become a play exercise which is little more than a term paper. By demonstrating outside interest, the reality of the community of practice becomes more vivid.

If possible, get feedback during the semester, and in time for re-writing. The students in this study would have benefited from a more interactive contact with the professional community. When feedback came, the class was over.

LPP-Community of Practice

Students should be encouraged to discuss their concept of their own community of practice. They are liable to be very interested in how different communities work, and yet embarrassed by their lack of knowledge of them. This might be approached as simply as asking,

"For whom are you writing your article? Who do you hope will read it?" Others might respond better to considering their eventual work environment. The teacher can demonstrate a few widely divergent examples to illustrate that diversity is acceptable or even desirable.

Guest speakers from the community of practice may help define different communities. It is much easier to envision a community by having a representative member. This could be more effective if the students chose or nominated the speakers.

Share your own story if you are comfortable doing so. The students were fascinated by how Bill entered the community of practice and how he went about writing his own articles and critiques, but he had to volunteer this information. The students all seemed to feel that it was not their place to ask.

CMC

Make students' responsibility for learning ancillary computing skills clear – for them and for yourself. Do not inadvertently impose an unnecessarily large burden.

Allow students time to get comfortable with the technology and with each other on-line. Expect things to be a bit stiff at first, but provide opportunities for becoming acquainted, and not just with the teacher. Some apparently social reticence may in fact be discomfort with technology.

Acknowledge that skimming is appropriate. Students can be overwhelmed easily by a large number of notes. Not everyone may be comfortable skimming, so it is good to suggest that they track important threads and skim the others. Skimming is better than just not reading.

Consider formal appointments to track computing progress. If the class is small and the students are uncomfortable with computing, this might be desirable. Some students may procrastinate due to fear or lack of basic skills.

Try to prepare students for technical glitches and service outages. Take these into account when they violate deadlines, and let students know you will take them into account. The students in this study were quite understanding about problems but only after they knew their cause. The feeling that they were to blame cause much undue anxiety for them.

If certain standards are mandatory, such as so many notes per week, make consequences for missing the standards clear and apply them immediately. Remember that non-compliance tends to "snowball." Some tolerance should be given to individual situations, especially where everyone has a conflict with another class, for example.

Encourage peer-to-peer support whenever possible. This has social benefits as well as learning ones. Different students can gain confidence by sharing expertise in different areas. This class was probably atypical in that the best analysis student was also strongest in computing skills.

Discuss the topics for the week to come. Work toward the next class, not from the last one. This will prepare students for class, give them a chance to refresh what they will need to know, and will have better compliance than a retrospective "post mortem" of the previous class.

Acknowledge contributions to discussions on-line, especially from those who are quiet in class. Incorporate these into lessons if possible. Encourage others to share new perspectives that they have gained from each other. Show appreciation for the students' investment of their own time. Let students know that contributing on-line is as valuable as contributing in class, unless there are reasons that they should contribute in person.

Mark participation somehow if it is mandatory. If it is not, do not penalize those who do not take part.

Choose software that allows structured discussion and archiving. Conferencing helps to foster on-going discussion if archived postings are easily retrievable and available for the duration of the course. This also helps students to build on each other's arguments and can lead to collaborative work.

Tutorials should be hands-on. Most students tune out one lectures or demonstrations of technology that they do not understand. Most will not read instructions first either.

Provide support for difficult tasks. If digitized graphics or file transfer are necessary, arrange for a teaching assistant with these skills to be available at times convenient for the students.

Future research

This single case study illustrates the value of legitimate peripheral participation via a journal at the graduate level of university. Areas for future research include variations on this study in different subjects and different levels, further experiments with journals, different implementations of collaboration, and more research into communities of practice.

Variations on subject and level

Because of the uniqueness of this study, it would be valuable to have similar studies from other subject areas at different graduate and undergraduate levels. Although it seems to me that LPP would not be so valuable to junior undergraduates this may not be the case. Also, there may be areas in which contact with the community of practice is not desirable.

Other areas of music education might be particularly interesting for further research, to determine whether the study of music criticism differs from music analysis, composition, performance, or musicology.

Journal use

Research on different kinds of journal use could help determine the most effective ways to implement them. In particular, more interaction with the community of practice seems to be a logical area for further study. A two-semester course would provide an opportunity either for two issues, or for a draft issue that could be critiqued by an external reviewer. The journal might be even more effective, and the community of practice more apparently present, with the addition of an external auditor or critic working along with the authors during the semester. Given the extra work this might entail, it would perhaps be most viable in a two-semester course.

Alternatively, if the class is large enough different teams could create different journals and critique one another's efforts. This idea could be expanded to different institutions collaborating on a single journal or critiquing each other's efforts. This is liable to require more professorial intervention as these relatively anonymous critiques may easily become harsh and inappropriate, but if kept civil much could be gained from the different perspectives afforded.

For groups that are not comfortable with technology, a print-only journal would be an option. Research into such journals could potentially compare the efficacy of an Internet journal versus print. Another variation could be to use a teaching assistant to prepare the web journal from students' word processing files, to alleviate the need to learn web-publishing skills.

Collaboration

Although there has been a great deal of research into collaboration in teaching and learning, this study suggests some specific directions in connection with LPP and CMC. There would be value in doing all assignments collaboratively and continuing with collaborative articles in the journal.

Communities of practice

The greatest opportunity for future research in this area lies in the investigation of communities of practice and their impact on teaching and learning. Several authors are currently researching this area but much remains to be done. There would be a great deal of value in having a good study on what communities of practice exist in different knowledge domains and what they mean for students in those areas. Research should be continued on the extent of those communities and the opportunities that they afford novices for entry.

Such specific studies would not necessarily require CMC to implement, and it would be helpful to compare the efficacy of LPP without CMC to other studies using CMC.

Another interesting variation of this study could investigate whether the local community would suffer or gain from having student notes in the CMC system marked. Conflicting data from this study suggests that students might either post pro forma, relatively empty notes or they might wish to demonstrate their knowledge and share their best thoughts.

Concluding remarks

All of the participants felt that this study was a valuable learning experience. All of the students except for Donald produced work that exceeded their teacher's expectations, and in several cases exceeded their own as well. Bill felt that it was one of the best classes that he had ever taught.

Legitimate Peripheral Participation was effective in motivating the students in this study to learn in order to enter into a professional community of practice. They felt that this enhanced their career prospects, and they enjoyed doing so. Collaboration was enjoyable when time permitted, but due to a lack of reward there was more collective work done. The benefits of CMC were felt to outweigh the frustrations of learning and using it because it allowed for the community to function and also because the participants felt that this "stolen knowledge" would benefit their careers. By allowing the students to express their opinions and acting on these, the participants improved on the initial course syllabus and all of us learned valuable lessons about teaching and learning.

I found this study to be an exhilarating experience, and I thank all of the participants for their hard, honest work as well as their generosity in sharing their insights. Given these data, I consider the study a success as a design experiment into teaching and learning. I hope to continue this research in the near future.

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APPENDIX A - INTRODUCTORY SURVEY

(This survey is meant to give the professor an idea of the capabilities and experience of the students, and to help the students find partners for collaborative assignments.)

What is your background in music theory?

What analytical methods are you strongest in, and which others can you use?

What is your computing background?

Are you comfortable creating an essay on a computer?

Can you insert graphics into an essay?

Are your comfortable using any music software? If so, which program(s)?

Have you used the internet or the web? How?

Have you ever created a web page? If so, did you use graphics or sound?

Have you ever created a web page containing music notation and sound?

Have you done collaborative or group assignments before? Please describe.

Appendix B - BI-WEEKLY SURVEYS

September 27 Survey

This survey is confidential. Please do not write your name.

THE NAMES ARE BASED ON HANDWRITING MATCHES, BUT THEY APPEAR TO BE CORRECT, AND REPRESENTATIVE OF THE PARTICIPANTS AT THE TIME.

What was most helpful to your learning in this course this week? How did it help? How much did it help?

Please share any highlights or insights that you had about the course.

What was most detrimental to your learning in this course this week? Why?

Did you have any specific problems with this class that impeded your learning this week?

Have you worked on or discussed assignments with classmates this week? If so, how many? Was it helpful?

Did you communicate with other students in this class mostly via LearnLink, or by other methods such as in person, email, phone, etc.? Please describe.

How relevant are the class lectures to your work? Please explain.

What did you use LearnLink for this week? Did it help with your work?

How important is analysis to your plans and goals? Please explain.

Do you feel yourself to be a part of the music analysis community? Please explain.

What are your thoughts or comments on the class this week?

October 18 Survey

This survey is confidential. You may write a pseudonym if you wish.

What was most helpful to your learning in this course this week? How did it help? How much did it help?

Please share any highlights or insights that you had about the course.

What was most detrimental to your learning in this course this week? Why?

Did you have any specific problems with this class that impeded your learning this week?

Have you worked on or discussed assignments with classmates this week? If so, how many? Was it helpful?

Did you communicate with other students in this class mostly via LearnLink, or by other methods such as in person, email, phone, etc.? Please describe.

What did you use LearnLink for this week? Did it help with your work?

Did other students in this class have an impact on your learning this week? Please describe.

If you need help with work for this class, where do you go for assistance?

Are collaborative teams a good way to learn? Why do you feel this way?

November 1 Survey

This survey is confidential. Please write your pseudonym or the initial of your first name.

What was most helpful to your learning in this course this week? How did it help? How much did it help?

Please share any highlights or insights that you had about the course.

What was most detrimental to your learning in this course this week? Why?

Did you have any specific problems with this class that impeded your learning this week?

Have you worked on or discussed assignments with classmates this week? If so, how many? Was it helpful?

Did you communicate with other students in this class mostly via LearnLink, or by other methods such as in person, email, phone, etc.? Please describe.

Did other students in this class have an impact on your learning this week? Please describe. Would you say that you are relying more upon your classmates when your work load gets heavier, or do you become more solitary?

Are you working in a group? Are you still working in the group that did your first assignment? Did you change groups, or stop working in a group? Why?

Are the inconveniences of using LearnLink outweighed by its benefits? Please explain.

November 15 Survey

This survey is confidential. Please write your pseudonym or the initial of your first name.

What was best about this course this past week?

What was worst about this course this past week?

Did you work with anyone else this week?

How did you communicate?

How would you feel if we stopped using LearnLink?

What if you had not been allowed to collaborate with anyone else in this class? Would it have affected your learning?

Is there any point to publishing your final articles on the web? What do you really think is the point, if any?

Will you be able to write a publication-quality article by the end of this course?

Has this course helped you to do that?

Final Survey - November 29, 1999

This survey is confidential. Please write your pseudonym or the initial of your first name: _____

Imagine that I have been hired to teach this course, and that I have hired you as my educational consultant. What would you recommend that I do, and not do, based on your experience in this class?

Did you learn more or less than you hoped to in this class? How could this be improved?

How useful was collaboration for doing your assignments? Please use concrete examples if at all possible.

How useful was collaboration for learning other than on assignments? Please use concrete examples.

You are at the forefront of computer use in graduate music classes (really!). What do you recommend for this university?

How did you feel working with LearnLink?

How did you feel creating web pages?

How about other computer tasks such as ftp, scanning, etc.?

How much did you feel that you were part of a music analysis community?

Do you feel able to be part of such a community?

Do you want to be part of such a community?

Who would you consider to be in this community?

LAST CHANCE! What would you like me to know that I have not asked about?

Appendix C - STUDENT INTERVIEW QUESTIONS

(These are draft questions for a semi-structured interview.)

Hannah - Interview December 3

Background / Context

Was this class different from other classes you have taken? How?

CMC

What was it like using the web for class work?

What was it like using LearnLink?

Did it help your learning in any way?

Did it hamper your learning in any way?

How did you find that the use of LearnLink interacted with your work on the web? Did you notice a change of emphasis from LL to web and back again?

How technologically capable do you consider yourself to be?

Did this affect your participation in the course?

Did you work with others more via LearnLink or other ways, such as in person, over the phone, or via email?

What would help similar students in dealing with learning and using the computer applications in this course?

Collaboration

Did you get much help from other students?

How many others would you say helped you?

How helpful was their assistance? How useful was the input from others to her?

How did you feel about it? Why bother to share info with weaker, or less helpful, students?

What kind of help were you given?

Did you help others much?

How many others did you help?

How much help would you say you gave them?

How did you feel?

What kind of help did you give?

How did you feel about posting critiques on-line?

How did you feel about posting your own articles for others to critique?

LPP

Were there enough lectures in this class?

Was Bill a "mentor" or master in the master-apprentice sense? Or was he just another professor?

Did you find that you had, or took, more (or less) control of your own learning?

Are you closer to your professional goal?

Was the journal worthwhile?

Time Constraint

Was time a factor for you, i.e. time constraints or time available or time taken on certain tasks?

Would you take a class like this again?

Norma - Interview December 6

Background / Context

Was this class different from other classes you have taken? How?

CMC

What was it like using the web for class work?

What was it like using LearnLink?

Did it help your learning in any way?

Did it hamper your learning in any way?

How did you find that the use of LearnLink interacted with your work on the web? Did you notice a change of emphasis from LL to web and back again? How technologically capable do you consider yourself to be?

Did this affect your participation in the course?

Did you work with others more via LearnLink or other ways, such as in person, over the phone, or via email?

What would help similar students in dealing with learning and using the computer applications in this course?

Collaboration

Did you get much help from other students?

How many others would you say helped you?

How helpful was their assistance? How useful was the input from others to her?

How did you feel about it? Why bother to share info with weaker, or less helpful, students?

What kind of help were you given?

Did you help others much?

How many others did you help?

How much help would you say you gave them?

How did you feel?

What kind of help did you give?

You were in the very first group to collaborate, which was a very pleasant surprise! Why did that group not carry on, or re-form later do you think?
Would you have LIKED to have worked in another group, or was that not for you?
How did you feel about posting critiques on-line?

How did you feel about posting your own articles for others to critique?

LPP

Were there enough lectures in this class?

Was Bill a "mentor" or master in the master-apprentice sense? Or was he just another professor?

Did you find that you had, or took, more (or less) control of your own learning?

Are you closer to your professional goal?

Was the journal worthwhile?

Did she think creating web pages was good idea, and use of time? One of first to finish!

Time Constraint

Was time a factor for you, i.e. time constraints or time available or time taken on certain tasks?
Would you take a class like this again?

Nishka - Interview - December 9

Background / Context

Was this class different from other classes you have taken? How?

CMC

What was it like using the web for class work?

You used both Mac and PC didn't you? Did you have much help outside the class?
What was it like using LearnLink?

Did it help your learning in any way?

Did it hamper your learning in any way?

How did you find that the use of LearnLink interacted with your work on the web? You mentioned a change in focus of work, which moved discourse from LL to web and back again.
How pronounced was that?
How technologically capable do you consider yourself to be?

Did this affect your participation in the course?

Did you work with others more via LearnLink or other ways, such as in person, over the phone, or via email?
What would help similar students in dealing with learning and using the computer applications in this course?

Collaboration

Did you get much help from other students?
How many others would you say helped you?

How helpful was their assistance? How useful was the input from others to her?
How did you feel about it?
What kind of help were you given?

How much help did you have from outside the class?

Did you help others much?

How many others did you help?

How much help would you say you gave them?

How did you feel?

What kind of help did you give?

Why bother to share info with weaker, or less helpful, students?
How did you feel about posting critiques on-line?

How did you feel about posting your own articles for others to critique?

LPP

Were there enough lectures in this class? Would in-class presentations have been good? In addition to, or instead of on-line presentations?
Was Bill a "mentor" or master in the master-apprentice sense? Or was he just another professor?

Did you find that you had, or took, more (or less) control of your own learning?

Are you closer to your professional goal?

Was the journal worthwhile?

Time Constraint

You mentioned problems keeping up early in November. What was the problem?
Was time a factor for you, i.e. time constraints or time available or time taken on certain tasks?
Would you take a class like this again?

Pasquale - Interview December 13

Background / Context

Was this class different from other classes you have taken? How?

CMC

What was it like using the web for class work?

What was it like using LearnLink?

Did it help your learning in any way?

Did it hamper your learning in any way?

How did you find that the use of LearnLink interacted with your work on the web? Did you notice a change of emphasis from LL to web and back again?

How technologically capable do you consider yourself to be?

Did this affect your participation in the course?

Did you work with others more via LearnLink or other ways, such as in person, over the phone, or via email?

What would help similar students in dealing with learning and using the computer applications in this course?

Collaboration

Did you get much help from other students?

How many others would you say helped you?

Who was your main source for assistance?

How helpful was their assistance? How useful was the input from others to her?

How did you feel about it? Why bother to share info with weaker, or less helpful, students?

What kind of help were you given?

Did you help others much?

How many others did you help?

How much help would you say you gave them?

How did you feel?

What kind of help did you give?

How did you feel about posting critiques on-line?

How did you feel about posting your own articles for others to critique?

LPP

Were there enough lectures in this class?

Was Bill a "mentor" or master in the master-apprentice sense? Or was he just another professor?

Did you find that you had, or took, more (or less) control of your own learning?

Are you closer to your professional goal?

Was the journal worthwhile?

Has your opinion changed now that the SMT has been invited to look at the journal?

Time Constraint

Was time a factor for you, i.e. time constraints or time available or time taken on certain tasks?

Would you take a class like this again?

Jane - Interview December 14

Background / Context

Was this class different from other classes you have taken? How?

CMC

Balancing time devoted to skills versus course content seems important to B.

What was it like using the web for class work?

What was it like using LearnLink?

Did it help your learning in any way?

Did it hamper your learning in any way?

How did you find that the use of LearnLink interacted with your work on the web? Did you notice a change of emphasis from LL to web and back again?

How technologically capable do you consider yourself to be?

Did this affect your participation in the course?

Did you work with others more via LearnLink or other ways, such as in person, over the phone, or via email?

What would help similar students in dealing with learning and using the computer applications in this course?

Collaboration

Did you get much help from other students?

How many others would you say helped you?

How helpful was their assistance? How useful was the input from others to her?

How did you feel about it? Why bother to share info with weaker, or less helpful, students?

What kind of help were you given?

Did you help others much?

How many others did you help?

How much help would you say you gave them?

How did you feel?

What kind of help did you give?

How did you feel about posting critiques on-line?

How did you feel about posting your own articles for others to critique?

LPP

Were there enough lectures in this class?

Was Bill a "mentor" or master in the master-apprentice sense? Or was he just another professor?

Did you find that you had, or took, more (or less) control of your own learning?

Are you closer to your professional goal?

Was the journal worthwhile?

Time Constraint

Was time a factor for you, i.e. time constraints or time available or time taken on certain tasks?

Would you take a class like this again?

Mary - Interview December 15

Background / Context

Was this class different from other classes you have taken? How?

CMC

What was it like using LearnLink?

Did it help your learning in any way?

Did it hamper your learning in any way?

What was it like using the web for class work?

How did you find that the use of LearnLink interacted with your work on the web? Did you notice a change of emphasis from LL to web and back again?
How technologically capable do you consider yourself to be?

Did this affect your participation in the course?

Did you work with others more via LearnLink or other ways, such as in person, over the phone, or via email?

What would help similar students in dealing with learning and using the computer applications in this course?

Collaboration

Did you get much help from other students?
How many others would you say helped you?

How helpful was their assistance? How useful was the input from others to her?
How did you feel about it? Why bother to share info with weaker, or less helpful, students?
What kind of help were you given?

Did you help others much?

How many others did you help?

How much help would you say you gave them?

How did you feel?

What kind of help did you give?

How did you feel about posting critiques on-line?

How did you feel about posting your own artticles for others to critique?

LPP

Were there enough lectures in this class?

Was Bill a "mentor" or master in the master-apprentice sense? Or was he just another professor?

Did you find that you had, or took, more (or less) control of your own learning?

Are you closer to your professional goal?

Was the journal worthwhile?

Time Constraint

Was time a factor for you, i.e. time constraints or time available or time taken on certain tasks?

Would you take a class like this again?

If you were hired to teach, would you take any ideas from this class?

Donald - Interview - December 16

Background / Context

Was this class different from other classes you have taken? How?

CMC

What was it like using LearnLink?

Did it help your learning in any way?

Did it hamper your learning in any way?

What was it like using the web for class work?

How did you find that the use of LearnLink interacted with your work on the web? Did you notice a change of emphasis from LL to web and back again?

How technologically capable do you consider yourself to be?

Did this affect your participation in the course?

Did you work with others more via LearnLink or other ways, such as in person, over the phone, or via email?

What would help similar students in dealing with learning and using the computer applications in this course?

Collaboration

Did you get much help from other students?

How many others would you say helped you?

How helpful was their assistance?

How useful was the input from others to him?

How did you feel about it? Why bother to share info with weaker, or less helpful, students?

What kind of help were you given?

Did you help others much?

How many others did you help?

How much help would you say you gave them?

How did you feel?

What kind of help did you give?

If you could change ANYTHING about the class, could you think of a change that would make you want to collaborate with ANYONE?

How did you feel about posting critiques on-line?

How did you feel about posting your own articles for others to critique?

LPP

Did Dr. Renwick's note to the SMT list change your mind about anyone ever seeing your article?

Were there enough lectures in this class? Would in-class presentations have been good? In addition to, or instead of on-line presentations?

Was Bill a "mentor" or master in the master-apprentice sense? Or was he just another professor?

Did you find that you had, or took, more (or less) control of your own learning?

Are you closer to your professional goal?

Was the journal worthwhile?

Time Constraint

You mentioned problems keeping up early in November. What was the problem?

Would you take a class like this again?

If you were hired to teach, would you take any ideas from this class?

Karen - Interview - December 17

Background / Context

Was this class different from other classes you have taken? How?

CMC

What was it like using LearnLink?

Did it help your learning in any way?

Did it hamper your learning in any way?

What was it like using the web for class work?

How did you find that the use of LearnLink interacted with your work on the web? Did you notice a change of emphasis from LL to web and back again?

How technologically capable do you consider yourself to be?

Did this affect your participation in the course?

Did you work with others more via LearnLink or other ways, such as in person, over the phone, or via email?

What would help similar students in dealing with learning and using the computer applications in this course?

Collaboration

Did you get much help from other students?

How many others would you say helped you?

How helpful was their assistance?

How useful was the input from others to him?

How did you feel about it? Why bother to share info with weaker, or less helpful, students?

What kind of help were you given?

Did you help others much?

How many others did you help?

How much help would you say you gave them?

How did you feel?

What kind of help did you give?

In your opinion, were there social factors that might have affected collaboration in the class?
How did you feel about posting critiques on-line?

How did you feel about posting your own articles for others to critique?

LPP

Did Dr. Renwick's note to the SMT list change your mind about anyone ever seeing your article?
Were there enough lectures in this class? Would in-class presentations have been good? In addition to, or instead of on-line presentations?
Was Bill a "mentor" or master in the master-apprentice sense? Or was he just another professor?
Did you find that you had, or took, more (or less) control of your own learning?

Are you closer to your professional goal?

Was the journal worthwhile?

Time Constraint

Was time a problem for you in this class?
Would you take a class like this again?
If you were hired to teach, would you take any ideas from this class?

APPENDIX D - PROFESSOR INTERVIEW QUESTIONS

(These are draft questions for a semi-structured interview.)

How do you feel this class went? Were your teaching goals met? If so, how did LearnLink help?

Do you feel that the students collaborated? If so, how? Was this influenced by the course design? Was this influenced by the use of LearnLink?

How does the work of this class compare to past classes? Was any change particular to this group of students? Was any change particular to this subject? Was class size a factor?

What do you feel was the effect of using LearnLink in this class? Did it increase your workload? Did you have more contact with the students?

Were student interactions different on-line from in-class?

Do you perceive a change in the students' experience of learning in this course from previous years? If so, what kind of change?

Do you perceive any benefit to the students from using LearnLink, and if so please describe?

In your opinion, which students did the most collaborating on their articles? Did this favour the better, or worse, students? Were the computer-savvy students dominant? Did technical expertise seem to have an effect on participation?

Did students use graphics and sound effectively in their assignments?

Would another system, such as email, have been as effective as LearnLink in supporting student collaboration?

Were there situations where students were unable or unwilling to use the computer? If so, how were they handled?

What do you feel the students learned in this class?

What would you change before offering this course again?

Appendix E - STUDENT - INFORMED CONSENT FORM

I have been asked to take part in a research study to be conducted by David Walker ("the researcher") as part of his work toward the degree of Doctor of Philosophy at the Ontario Institute for Studies in Education / University of Toronto (OISE/UT). This data from this study is for his thesis, and may also be used as a research project for the course Introduction to Qualitative Inquiry in Curriculum, Teaching, and Learning (CTL 1018H).

I have been informed that the study in which I have been asked to participate is exploring computer-assisted collaborative discourse by the use of FirstClass (LearnLink) as a support for my class. I have also been informed that the researcher will attend our classes to take field notes, will participate in and read notes from our FirstClass database, and will interview me at the end of the semester if I give additional consent at that time. I understand that I will be asked a series of questions about collaborative learning in this class, as well as about learning strategies and the use of FirstClass.

I understand that all data collected will be kept confidential, and the raw data will be kept locked in the researcher's office for a period of five years following this study and then will be destroyed. Although the researcher may write up the results of this study, my name will never be used. I understand that I can withdraw from the study at any time without any problems. That is, if I choose to withdraw, I will be allowed to continue using FirstClass for the duration of the semester, and will incur no academic or personal penalty. I understand that it is the collaboration of the students that is under study, and not my academic or intellectual performance, and that this study will have no effect on my evaluation for this course. Furthermore, I understand that if participating becomes too stressful, or threatens to cause any harm to myself or my fellow students, or if I feel uncomfortable with my participation or its reflection on me, I should withdraw from the study.

I understand that, after the study is finished, the researcher will gladly answer any questions I might have. If I have any questions after that, I should feel free to call:

Dr. Rina Cohen at (416) 923-6641 ext. 2477

I have read this statement and have had all my questions answered. Therefore, I give my written consent to participate in this investigation.

Signature _____ Date _____

_____ Date _____

Signature of person obtaining consent

APPENDIX F - TEACHER - INFORMED CONSENT FORM

I have been asked to take part in a research study to be conducted by David Walker ("the researcher") as part of his work toward the degree of Doctor of Philosophy at the Ontario Institute for Studies in Education / University of Toronto (OISE/UT). This data from this study is for his thesis, and may also be used as a research project for the course Introduction to Qualitative Inquiry in Curriculum, Teaching, and Learning (CTL 1018H).

I have been informed that the study in which I have been asked to participate is exploring computer-assisted collaborative discourse by the use of FirstClass (LearnLink) as a support for teaching my class. I have also been informed that the researcher will attend our classes to take field notes, will participate in and read notes from our FirstClass database, and will interview me at the end of the semester. I understand that I will be asked a series of questions about collaborative learning in this class, as well as about teaching strategies and the use of FirstClass.

I understand that all data collected will be kept confidential, and the raw data will be kept locked in the researcher's office for a period of five years following this study, and then will be destroyed. Although the researcher may write up the results of this study, my name will not be used without my explicit permission, as indicated below; the name of my institution will not be used. I understand that I can withdraw from the study at any time without any problems. That is, if I choose to withdraw, the class will be allowed to continue using FirstClass for the duration of the semester. Furthermore, I understand that if participating becomes too stressful, or threatens to cause any harm to myself or my students, or if I feel uncomfortable with my participation or its reflection on my teaching, I should withdraw from the study.

I understand that, after the study has finished, the researcher will gladly answer any questions I might have. If I have any questions after that, I should feel free to call:

Dr. Rina Cohen at (416) 923-6641 ext. 2477.

I have read this statement and have had all my questions answered. Therefore, I give my written consent to participate in this investigation.

_____ My name may NOT be used in any write-up of this research.

_____ My name MAY be used in any write-up of this research.

Signature _____ Date _____

_____ Date _____

Signature of person obtaining consent