

Modeling Professional Practice in Music Analysis with Computing

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The Problem

There is often a difficult and confusing gap between graduate school and beginning professional practice. After spending years in the culture of schooling, new graduates can find the challenges of the workplace baffling and stressful. University educators have begun to address this, forging links between the classroom and the "real" world. While many of these studies are exploratory in nature, Collins (1992) has pointed out that by sharing the results of such "design experiments" we can begin to found a design science of education.

This study attempts to bridge this gap by providing graduate students with learning tasks that are authentic to their professional goals. Rather than have them complete yet one more school assignment, we wanted them to complete a publishable piece of work. We planned to achieve this by modeling the publication process for an on-line music journal, hoping that this experience would give students skill, knowledge and confidence as they move into the professional world. The students would act both as contributors and as the editorial committee, and their final World Wide Web-based journal would be made available to the world via the Internet. This would be a chance to write for their peers and interested others, and would give them opportunities to act in the various roles involved in journal production, such as layout, editing, and peer reviewers in a more real environment.

Aware that we were increasing demands on already hectic schedules, we hoped that the use of a computer-mediated communication system would allow the students to help one another and to contact the professor between class sessions. This was a particular

concern since the course was centered on Schenkerian analysis, which is very difficult to teach adequately in the single semester that was provided for it (Beach, 1983; Rothstein, 1990b). Finally, while the students were not theory or analysis majors but music criticism students, analysis remains an important skill for music critics in particular as well as for graduate students generally (Gagné, 1994).

Theoretical Framework

The most successful students tend to be self-directed, especially at the university level (Knowles, 1975; Brookfield, 1988). Elizabeth West Marvin (1994) reported in this journal on the "scientific verification for a pedagogical principle that good teachers already know by experience and intuition: students learn better when motivated by their own interest in a subject" (p. 47). As Thomas Benjamin suggested in the same issue, "the bottom line, maybe, is that the less responsibility we as teachers take for the learning, the more the students will, if allowed to" (p. 60). This self-directed motivation is the foundation of recent learning theories such as reciprocal teaching (Brown & Campione, 1994; Brown & Palincsar, 1989), cooperative knowledge-building (Scardamalia & Bereiter, 1999), and legitimate peripheral participation (Lave & Wenger, 1991). These are constructivist theories (Honebein, Duffy, & Fishman, 1993; Jonassen, 1994). Rooted in cognitive science (Norman, 1981), constructivism addresses a learner as the constructor of one's own knowledge, as opposed to a passive vessel into which knowledge is "poured". Within constructivist circles, most of the attention has been paid to concepts of apprenticeship, or more particularly "cognitive apprenticeship" (Collins, Brown, & Newman, 1989). As in traditional trade apprenticeship, cognitive apprentices learn procedures, strategies, and techniques from a master, but these are applied to cognitive goals rather than physical tasks.

Legitimate peripheral participation (Lave & Wenger, 1991) extends the idea of cognitive apprenticeship, and incorporates ideas of situated learning and its social aspects (Brown, Collins, & Duguid, 1989; Brown & Duguid, 2000). Lave and Wenger suggest that learning is situated in "communities of practice." More than collections of individuals learning or working on their own, these communi-

ties influence what is learned, and how it is learned within the social context. They posit that learning happens through legitimate peripheral participation in communities. That is, learners participate in a legitimate way, one that is meaningful and relevant to the learner as well as the other members of the community. This participation is not necessarily leading edge or central to the field, but usually more peripheral. Thus learners “get their feet wet”, but in the real world.

In most cases, graduate students interact with a number of communities, but of greatest importance are their local community and the community of professional practice. The class in which they find themselves, with all of the peer interactions and pressures typical of schooling, is often their local community. There is also a great influence from the community of professional practice, which would include publishing academics, other graduate students, and other members of the professional community. It was our goal to help the students contact the community of professional practice via their journal articles, while participating in a supportive local community.

The Research

For this study, David Walker wanted to discover the students’ perspective on this course directly from them, rather than mediated by how their professor thought they felt. As Lincoln (1995) notes, we have few studies about learning in which the learners are actually asked about their experience, and this is a particularly important voice that should not be silenced. We can not judge the efficacy of teaching by the products that result alone, since outcomes may be influenced by factors of which we are completely ignorant. We wanted to know whether the students felt that they learned things of value, and to compare their perceptions with the final articles as well as Renwick’s perception.

Primary data was gathered via participant-observation (Spradley, 1980). In order to have some access to the students’ experience, Walker observed their classes and on-line discussions, occasionally taking part or answering questions, taking field notes all the while. After each class session, these notes were typed up and subjected to a preliminary analysis to determine major and emer-

gent themes, using the constant comparative method (Glaser & Strauss, 1967) as adapted by Lincoln and Guba (1985). During analysis, the data was entered into a computer database and coded according to themes.

More formally, the participants answered bi-weekly questionnaires which asked such open-ended questions as "What was best about the class this week?" "What was worst about the class this week?" "What most helped your learning this week?" "What most hindered your learning this week?" These answers were then coded and entered into the database. As the semester progressed, and new issues emerged; these turned up in the questionnaires. Finally, at the end of the semester each student took part in a private interview with Walker, who asked questions about computer use, collaboration, and the journal experience, as well as issues that they had raised over the term. At the start of each interview, Walker presented each student with a summary of his findings regarding their experience, and asked for their confirmation or correction. The interview questions were based on their particular experience, and were open-ended to allow the participants to share their most important feelings and issues. This approach allowed for considerable triangulation between data sources as well as providing member checks with each participant (Miles & Huberman, 1994).

Our Roles

Professor Renwick taught this course, and was responsible for the course content and course design. Walker was a researcher studying this class. He assisted Renwick with the course design and provided technical support.

The Class

Analysis is one of five required courses in the Masters in Music Criticism program. As the program has evolved over the years, it has seemed increasingly important to equip students with tangible analytical skills. At the same time, it is increasingly important that students develop credible skills at communicating their ideas. Thus,

we wanted to develop students' abilities to express their ideas through electronic means, where so much current academic activity is being channeled. We wanted to give the students a "real" experience in working with these technologies, something that they could take with them into whatever field of endeavor they might advance.

In reformulating the course, Renwick chose to narrow its scope to analytical techniques for tonal music of the period Bach through Brahms (with one exception, a piece by Palestrina that was intended as a foil to the others). Central to current discourse on this music is the body of music theory and analysis created by the Austrian theorist Heinrich Schenker in the period 1910-1935. Briefly, Schenker posits that the integrity of tonal music resides in its organization around levels of structure, such that certain musical events become primary points of stability or resolution and other events have elaborative functions. At the same time Renwick decided to focus on certain issues within this area, specifically ternary or three-part form.

Our goal was to see if we could help students in this program to form a supportive local community, and to make meaningful contact with the community of practice. The class consisted of eight students. While teaching Schenkerian analysis in a single semester is challenging enough (Beach, 1983; Rothstein, 1990), these students displayed a typically broad spectrum of exposure to analysis, with only two having any experience of Schenkerian analysis before this class.

Computer Conferencing

We planned to use a computer conferencing system to help build a community outside of class time, as well as to host their reviews of each other's the journal articles. This was to be used in support of their regular seminar classes. We hoped that the students would present and discuss their ideas for the next class, so that they would be familiar with each other's ideas before the class began. Only one of the students had formal computing training, and none had used computer-based conferencing for a class before. In fact, none of them had even created web pages. These were serious concerns given that the professor for the course wanted the students to prepare, as a final assignment, publication-quality essays on music analysis.

The Journal

In order to give them a more authentic experience of the community of professional practice, the students were to write a journal article, which would be published at the end of the semester in an on-line journal created by the students. Thus they would not just be writing an article, but learning the process of peer-review and creating a web-based journal. The review process was modeled in the private computer conference, where drafts could be presented and critiqued, with the final articles published in the public web journal.

In order to simulate a “real” experience in academic publishing, we encouraged the students to work out the publishing issues amongst themselves. This began by establishing a list of publication tasks, such as editing and supplying constructive criticism, proofreading, establishing a style-sheet for format and layout, and creating a feasible publication schedule. Two students acted as editors, all students acted as the publication committee—as readers, critics, and proofreaders, and several students took on specialized tasks such as design issues and trouble-shooting. Peer-review encouraged dialogue amongst the students, and was one of the best features of the program. The tight publication schedule was certainly a challenge—just as it often is in the “real” world—as students were expected to have their work completed, written up and on-line by the first week of December, only 12 weeks after the beginning of the course. In the end, the fact that the students took ownership of the time-line was one of the best aspects of the course. The journal was completed on time, and they all succeeded in meeting the expectations.

Benefits

The participants successfully created a supportive local community. Most of the community discussion was carried on on-line in their computer conference, as they were rarely on campus together. All but one of the students felt that they had gained a great deal from this community, and they identified a number of benefits from their interactions. Foremost was the new perspectives that every one felt that they gained from seeing another’s thought processes during

analysis. Students reported that they found their ideas challenged, or reinforced, and that these new ways of considering analysis were exciting to encounter.

Several students mentioned the use of models. Seeing their classmates' postings in the conference gave some students a starting point, with clear parameters for participation. Others found models for improving their own writing style, and as challenges to their thinking.

The use of asynchronous conferencing allowed students to work at their own pace, and on their own schedules. It also enabled the shy students to have more input into discussions. Whereas one or two students dominated most of the class discussion throughout the semester, the other six students were much more dominant on-line, and some of the most influential students contributed mostly on-line.

Perhaps most important for teaching, seven of the eight students felt that the discussions on-line prepared them better for class. These discussions, which the students felt would not have happened without the use of such a conferencing system, allowed the students to present their ideas and have preliminary discussions before class. During the classroom hours, the students found that they had more in-depth discussions because they were already familiar with each other's stances, and had a chance to evaluate their own in the light of the others'. Renwick indicated that he was very pleased with the deeper level of discourse that these students achieved.

A few students felt that they had good quality information shared, but it was somewhat surprising that they felt that this information was mostly about writing style and computer use. There were a few notes about analysis in general, and very few about Schenkerian analysis.

By far the most important experience of the class was the journal. Most students found that it focussed their learning over the entire semester, and gave them a concrete goal towards which to strive. They felt that they had to do their best work because they were presenting themselves to the professional community, and the professor was pleasantly surprised that the majority of the students wrote articles far beyond what he would have judged them capable at the start of the term.

Outcomes

The local community provided support for the students and helped their learning, but it went beyond these and had a profound effect on the actual course content. Conference discussions and presentations contained syntheses of the students' pedagogical and research interests with Schenkerian analysis, and these syntheses formed the basis of the final articles. To accommodate the emerging syntheses, Renwick had to abandon some of his planned material and re-arrange class content "on the fly." Fortunately, he was flexible enough to do this. Also, he valued the combination of Schenkerian approaches with other methods, and encouraged the synthesis of different approaches. For the journal, he stressed analytic integrity and clear communication above all.

The experience of the course affected the participants' plans for their own future teaching. Most plan to use computer conferencing in their classes if at all possible. All plan to use some version of a student journal. This is remarkable because none of them was a proponent of computer conferencing at the start of the semester, and there was a good deal of skepticism about the journal from all of them at first.

In considering what the students took from the course, it is interesting to note what they felt would be valuable for their careers. All of them felt that the computing skills that they learned would be valuable in the future. By contrast, only three felt that Schenkerian analysis might be important to their future work, and none planned to work as analysts.

Reception of the Journal

When the journal was ready, we posted it live and announced it to the Society for Music Theory's email discussion list. Since that time a number of people have looked at the work and we have received some very interesting responses. One, from a Professor in Binghamton, an expert Schenkerian analyst concerned Renwick's interpretation of Schenker's view on musical form. We received permission to post that response as a postscript to the appendix. Another, from Professor Boris Plotnikov in Krasnoyarsk, Russia, sent

to the Society for Music Theory list, vividly demonstrates the potential for this type of work to reach literally around the globe, and specifically from one student body to another:

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.

This sort of [analytic] information is of great use in a 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 [asked] her to read the texts, make her own analyses, define the difference in approach and express her personal opinion on the matter.

Let the good example be followed by others.

Conclusions

The students did form a local community, which all but one felt was a very valuable source of ideas and support. This community was enabled by the computer conferencing system. All of the students were able to make contact with the professional community via the journal, and very favorable feedback has been received from professionals in other countries. The quality of the articles was a pleasant surprise to the professor, the researcher, and the students themselves. This suggests that the journal experiment may have helped the students exceed their teacher's expectations, and at least did not impede them from doing so.

From the vantage point of the instructor, the approach taken here has encouraged a cooperative learning environment for the students. Dialogue has taken place frequently throughout the term, and students have worked on projects together. They have worked together on technical problems and helped each other to formulate their articles. All this has taken place to a much great extent than in my past experience. To Marvin's (1994) excellent advice that we would do well to "make connections to the daily lives of our students" (p. 57), we would only add "no matter what their involve-

ment in music might be." For this course we attempted to connect the students' studies in criticism with the practical aspects of writing journal articles, and to relate analysis as a useful tool for the writing critic.

As a design experiment (Collins, 1992; Brown, 1992) this study gave us much to think about for the future. We did not solve the problem of teaching Schenkerian analysis in a single semester, but we did see the students use of Schenker's techniques arise from engagement with the music itself (cf. Rothstein, 1990a) and integrated with their own interests within critical musicology. We hope that interested colleagues will extend our work and perhaps forge links between their classes to form a larger community of practice.

REFERENCES

- Beach, David W. (1983) Schenker's theories: A pedagogical view. In *Aspects of Schenkerian Theory*, ed. David Beach, 1-38. New Haven: Yale University Press.
- Benjamin, Thomas. (1994). Theory pedagogy: An experiential approach. *Journal of Music Theory Pedagogy* 8: 59-74.
- Brookfield, Stephen. (1988). Developing critically reflective practitioners: A rationale for training educators of adults. In *Training Educators of Adults: The Theory and Practice of Graduate Adult Education*, ed. Stephen Brookfield. New York: Routledge.
- Brown, Ann L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The Journal of the Learning Sciences*, 2(2): 141-178.
- Brown, Ann L. & Campione, Joseph C. (1994). Guided discovery in a community of learners. In *Classroom lessons: Integrating cognitive theory and classroom practice*, ed. Kate McGilly, 229-270. Cambridge, MA: MIT Press/Bradford.
- Brown, Ann L., & Palincsar, A. S. (1989). Guided, cooperative learning and individual knowledge acquisition. In *Knowing, learning, and instruction: Essays in honor of Robert Glaser*, ed. Lauren. B. Resnick, 393-451. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Brown, John Seely, Collins, Allan, and Duguid, Paul. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher* 18.1 (Jan-Feb): 32-42.
- Brown, John Seely, & Duguid, Paul. (2000). *The Social Life of Information*. Boston, MA: Harvard Business School Press.
- Collins, Allan. (1992). Toward a Design Science of Education. In *New Directions in Educational Technology*, ed. Eileen Scanlon and Tim O'Shea. Berlin: SpringerVerlag.
- Collins, Allan, Brown, John Seely, and Newman, S. E. (1989). Cognitive Apprenticeship: Teaching the Crafts of Reading, Writing, and Mathematics. In *Knowing, Learning, and Instruction: Essays in Honor of Robert Glaser*, ed. Lauren B. Resnick. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Gagné, David. (1994). The Place of Schenkerian Analysis in Undergraduate and Graduate Curricula. *Indiana Theory Review* 15/1 (Spring): 21-33.

- Glaser, Barney G., & Strauss, Anselm L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Honebein, Peter C., Duffy, Thomas M., and Fishman, Barry J. (1993). Constructivism and the Design of Learning Environments: Context and Authentic Activities for Learning. In *Designing Environments for Constructive Learning*. ed. Thomas M. Duffy, Joost Lowyck, and David H. Jonassen. Heidelberg: Springer Verlag.
- Jonassen, David H. (1994). Toward a Constructivist Design Model. *Educational Technology* (April): 34-37.
- Knowles, Malcom S. (1975) *Self-Directed Learning: A Guide for Learners and Teachers*. Englewood Cliffs, NJ: Prentice-Hall.
- Lave, Jean & Wenger, Etienne. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Lincoln, Yvonna S. (1995). In search of students' voices. *Theory Into Practice* 34/2 (Spring): .
- Lincoln, Yvonna S., & Guba, Egon G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- Marvin, Elizabeth West. (1994). Intrinsic Motivation: The relation of analysis to performance in undergraduate music theory instruction. *Journal of Music Theory Pedagogy* 8: 47-57.
- Miles, Matthew B., and Huberman, A. Michael. (1994). *Qualitative Data Analysis: An Expanded Sourcebook. Second Edition*. Thousand Oaks, CA: Sage Publications.
- Norman, Donald A. (1981). What is cognitive science? Chap. in *Perspectives on Cognitive Science*. ed. Donald A. Norman. Norwood, NJ: Ablex Publishing.
- Rothstein, William. (1990a). The Americanization of Heinrich Schenker. In *Schenker Studies* ed. Hedi Siegel, 193-203. Cambridge: Cambridge University Press.
- Rothstein, William. (1990b). The Americanization of Schenker Pedagogy? *Journal of Music Theory Pedagogy* 4: 295-299.
- Scardamalia, Marlene, & Bereiter, Carl. (1999). Schools as knowledge building organizations. In *Developmental health and the wealth of nations: social, biological, and educational dynamics*, ed. Daniel P. Keating & Clyde Hertzman. New York: Guilford.
- Spradley, James P. (1980). *Participant Observation*. Toronto: Holt, Rinehart and Winston.