IMPLEMENTATION OF CONSTRUCTIVIST TECHNIQUES INTO AN ONLINE ACTIVITY FOR GRADUATE MUSIC EDUCATION STUDENTS

Dan A. Keast
University of Texas–Permian Basin

The purpose of this descriptive study was to investigate constructivist principles used for online teaching and learning in various fields of education, apply them to an online activity for a graduate music education course, assess how effectively participants achieved the learning objectives, and determine how extensively they used the materials provided online to construct knowledge about the assigned content. Students enrolled in an existing face to face graduate music education course (N = 8) completed an online research assignment culminating in individual presentations. A pre-survey was given to assess students' knowledge of technology planned for use in the Web environment and a post-survey ascertained what technology they used to research and create their presentations. A grading rubric completed by two independent scorers was used to evaluate the students' presentations. All online activity was tracked and logged for pages opened and time spent. Participants' presentations scored higher than required for the assignment; therefore, the activity was moderately successful. Spearman correlations were used to analyze the relationships between scores of presentations and activity gleaned from the tracking logs, but no significant relationships were found. Implications for designing online music education activities and suggestions for further research are provided.

The use of the Internet for educational purposes is rapidly expanding in many fields, yet music is slowly moving to the online platform. Perhaps due to court cases involving music piracy, file sharing, and copyright issues, online music education appears to be lagging behind other disciplines. While some daring music educators have adapted the virtual classroom for our profession's performing aspects, the development of technology continues to redefine the possibilities of music education online. This study was designed to implement some of the technologies readily available to the researcher in order to further the research literature of constructivist techniques used in online music education.

Music educators are slowly moving to online teaching environments, however the research of their teaching is not as published as other fields. The pedagogical approaches, software, hardware, and nature of the assignments and consequent assessments need to be shared by publication. This study extends the published knowledge of these online constructivist teaching practices.

Supporters for and against online music teaching refer to Russell (1999), who found that technology did not affect students' grades or experience positively or negatively. In the literature, this is referred to as "the no significant differences phenomenon." Russell (1999) and Bosheir, Mohapi,

Moulton, Qayyum, Sadowik, and Wilson (1997) cite more than 100 studies comparing traditional, face to face learning to online learning, concluding that there is a noticeable lack of statistical significance in terms of exam scores and course grades, leading researchers to conclude that technology does not elicit improvements in learning. Russell (1999) reviewed a vast amount of literature to arrive at his conclusion, interpreted by Clark (1994) as: "learning is not caused by the technology but by the instructional method embedded in the media. No matter how it is produced, how it is delivered, whether or not it is interactive, low technology or high technology, students learn equally well" (p. 22). Numerous dependent variables have been studied including attitude, motivation, preparation, computer self efficacy, self directedness, gender, learning styles, self assessment tools, and generational differences. Bates (2000) found that institutions with the best practices for implementing technology are ones where the faculty focuses on teaching and learning, not on the technology itself.

The most appropriate role of the computer may be as a tool for investigating course content. Wonacott (2000) proposed a constructivist philosophy in which educators are to think of themselves as "the guide on the side instead of the sage on the stage" (p. 3). Noted educational technology researchers echo this metaphor with more explicit directions for educators. Jonassen (1994) suggested that educators should "take the tools away from the instructional designers and give them to the learners, as tools for knowledge construction rather than media of conveyance and knowledge acquisition" (p. 2). Scarnati and Garcia (2007) echo previous researchers by adding: "[Constructivism] allows a greater degree of engagement, self motivated knowledge construction, and collaborative learning" (p. 2). When educators encourage learners to use technology as a tool to build their own knowledge, the students are empowered to take more ownership in their education. The process of learning should be active, meaningful, and personal for the learner.

Constructivist theory views students as active constructors of their learning instead of passive receptors of knowledge. A student learns by immersion in the subject or culture. Skaalid (1997) argues this method as superior to the lecture-type approach because it "mimics the complexity of real life, where problems are messy, and defining the problem can sometimes be harder than solving it" (p. 1). Oliver (2000) proposed that the problem approach to the authentic activity should include a "real-world, ill-defined problem that presents multiple, conflicting perspectives and/or interdisciplinary connections" (p. 6). Such an application allows the students to interact with learning materials, piques their interest in learning, is more engaging than passive note-taking from lecture, and draws upon a student's prior knowledge while using positive transfer of knowledge from one learning event to another. An online application of these suggestions offers students the ability to simultaneously access materials that are restricted to one user at a time in the face to face classroom.

When planning for an online course, Boshier et al. (1997) recommend planning for the lowest common denominator of technology use, a concept that seems often to be ignored. The technology used by the instructor should be readily available to everyone associated with the course–from the students and faculty to the technical support staff at the university. Limiting the use of the newer programs is not the suggestion; rather, giving the students options to use a variety of programs allows them to choose the most accessible or appropriate to them.

Related Literature

For a clear image of online learning we must not assess the technology, but judge the course by identical means as traditional courses are judged. This idea was presented by Boshier et al. (1997), who studied 127 online courses and concluded the greatest task in developing a course for the Web is conceptual, not technological. He noted: "It is not acceptable to use the Web to emulate the worst face to face courses where power relations are unproblematised and learners constructed as passive recipients of information" (p. 347-48). The technology cannot be viewed as a replacement for content, but rather a tool to enhance learning content.

A model of Web integration is proposed by Brennan, McFadden, and Law (2001). (See Table 1.) The Internet is much more powerful than to be used only as a place to post lecture notes (type I). This is a positive benefit for students, but does not take advantage of the resources available to faculty and students. Type I faculty argue the change is not worth the time spent in developing the online version of their traditional courses. Faculty teaching type III courses express frustration about time commitments and the aggravating instances of technical problems such as server failures and browser compatibility issues. A significant portion of the current literature agrees that type II instructional design is the best model for assisting student learning.

Table 1
Internet use for Content Delivery by Brennan, McFadden, and Law (2001)

Type	Content Delivery
I	Face to face with lecture notes on a Website
II	Blend of face to face and virtual classroom often referred to as "hybrid"
III	Fully virtual classroom

Another theory of the Web's development for use in the classroom was laid out by Siegel (1997) in his description of the third generation Website. He traced the use of the Internet from the first online courses to modern designs. The term "generation" referred not to the human users, time lapses, or browser versions, but rather it referred to the evolution of technological uses for education. Siegel delineated between first, second, and third generation Websites by discussing the technologies and analogies used in the design of the site or course. The second generation Website used a simile approach, while the third generation utilized metaphors. The metaphors can be as simple as a cave with caverns to explore. The cave itself was the course Website and the caverns were various topics within the course. The third generation concept rests on the assumption that the nonlinear metaphor, such as the caverns within a cave, is more inviting, interactive, and appealing to the student than clickable hyperlink text, the basis of second generation Websites. A second generation Website utilized a linear example such as a simile of a book as its primary design with chapters of the book representing the topics of the course. While this resembles a metaphor, Siegel argued it was a simile for a communication device and therefore labeled it as a linear example.

Literature related to music teaching online using Siegel's suggestions is not available. The practice of teaching music online or incorporating online activities into music education classes *is* occurring in the field of music education. However, the publication of data is lagging behind practice. It is important that students' and instructors' experiences be shared to help guide future attempts of music educators to venture into online learning.

MacKenzie (1998) discussed how the technology had advanced enough to allow virtual private lessons. "Any adequate recreation of a private instrumental lesson must employ interactive, real-time video and audio. While the video component may vary in quality, it is crucial that the highest audio clarity in reproduction be achieved." (p. 4). He continued: ". . . the demand for perfect audio is the key to success when attempting a private instrumental music lesson. Artificial noise interference, signal breakup or bad tonal characteristics automatically defeat any successful attempt." (p. 5). A current example of virtual private lessons is located at the "studio" of Jeff Purtle, http://www.purtle.com.

The advancements in technology such as the wide spread availability of Internet 2, Gigabyte LAN's, audio/video compression, and streaming technologies have increased the speed of communication among computers since MacKenzie researched the topic. This has allowed for larger file sizes and faster communication of audio and video files or video conferencing. Larger sized files might include the embedding of expert video clips as suggested by Hmelo-Silver, Duncan, and Chinn (2007). Other adaptations might in-

clude Macromedia Breeze, introduced in 2003 to the Web-conference market, which allows for multimedia presentations synchronously or asynchronously. Used in combination with mp3 technology, which compresses sound file sizes up to twelve times the original size, and MPEG4 (AAC compression), the media for music teaching via the Internet is fast becoming a possibility rather than a science fiction dream.

Method and Procedure

The purpose of this study was to apply constructivist-style scaffolding tools to an online activity for a graduate music education course, and to assess how effectively participants achieved the learning objectives. Two research questions were used to guide the study:

1. How successful would participants be at demonstrating the course objectives through this activity?
2. To what extent would students use the scaffolding provided online to construct knowledge about the assigned content?

The first research question related to the level of success with which the students would demonstrate they had achieved the objectives of the unit. The participants' final presentations were evaluated using a holistic rubric completed by the researcher and the course instructor during the presentations. The rubric was constructed using the guiding questions for the content of the presentations and by the guidelines for the delivery of the presentation. The guiding questions and components of the presentation were assigned three levels of attainment: exceeds expectations, meets expectations, and below expectations.

The second research question addressed to what extent the students would use the scaffolding that was provided online to construct knowledge about the assigned content. To answer this question the researcher analyzed the logged activity reported in Microsoft Excel files. Each line in the log was considered an event, and every event was logged as a "hit" on a Webpage. The time was seconds spent per page by calculating the difference in time between the first event to the next. Spearman correlations were calculated to check for significant relationships.

A course being offered at a large Midwestern university during the time frame for this research was selected as the setting for implementing the online assignment to be studied. The course was a masters and doctorate level music education course, titled Foundations of Music Education, which met face to face for one three-hour session per week.

The curriculum of the graduate music education course included a unit studying early American tune books. During the class session immediately prior to this starting activity, the class discussed colonial period tune books originating in Europe and brought to the colonies during the 16th, 17th, and 18th centuries by colonists and immigrants. Immediately prior to the start

of this online activity, a letter of informed consent was e-mailed to each student by the researcher. The e-mail was given the subject line of "SAVE THIS E-MAIL," to provide students with continuous access to their informed consent letter and to provide a direct hyperlink to log in to the unit Website.

Creation of the Web *Environment*

Siegel's (1997) concept of a third generation Website using nonlinear metaphors served as an example for this project in which the researcher adopted a classroom as the metaphor for this activity. The researcher took pictures of the students, around the classroom, and building. Pictures then were arranged into a collage and hyperlinked to specific actions or tools for the learners to use during the activity(Table 2). Each picture in the collage was a metaphor for a tool provided to the students. This page served as a graphic, interactive organizer as it contained scaffolding that participants used to complete the overall unit.

Table 2
Collage Images Used in Metaphor Page of Classroom

Collage Images	Corresponding Hyperlink
Clock	Beginning and ending dates of the research project
Exit door	Log out page
Empty bookshelf	Online library
Full bookshelf	Campus libraries and other offline content
Water cooler	TUNBOOKS-L listserv mail message
Piano	Virtual keyboard
Overhead projector	Form to order overheads and copies for presentations
TV/VCR	Alert Box: announcing that a TV/VCR is available for their presentation
Computer	Alert Box: announcing that a Smart Board is available for their presentation
Stereo	Page to direct them to sound recordings online or offline yet on campus
Whiteboard	Step by step explanation of the tune book unit
Printer	Alert Box: announcing the cost of printing
Filing cabinet	Page to view any or all readings, tune books, or other documents such as articles available online
Visual arts	Gallery of visual art inspired by depicting tune books
University logo	Hyperlink to the university's homepage
IAT Services logo	Hyperlink to the university's Information and Access Technology Services help desk
Adobe Reader logo	Hyperlink to download a free Adobe 6.0 Reader
Real One logo	Hyperlink to download a free RealPlayer
All individuals	E-mail link to that individual

The Website utilized a JavaScript tracking function which logged each participant's activity on the Website. The data generated were entered by the researcher into a Microsoft Excel file for easy viewing and sorting. Every page viewed was logged into the participant's personal log file. By tracking the participant's next action, the amount of time the participants spent viewing each page was measured. The times then could be charted as total time spent on each page, as well as the total number of times each page was accessed.

The first part of the activity for participants was to log in and explore the site. Once familiar with the site, they were asked to read an article authored by the researcher about the tune books, the composers, the shape note systems, the variety of books and their importance, and how the books were used. Then they could choose one of three scanned book chapters loaded into the site for reading. The readings were similar in length and content, and the choice was given as a technique to develop ownership in the activity by allowing for choices. Upon completing these readings, participants began to access the primary sources supplied. Once they had read the documents and interacted with a few of the primary sources, participants were asked to claim a focus group.

There were 43 tune books included in the activity. Books were included based on availability through the researcher's collection, the university library stacks, interlibrary loan, the University's microforms collections, and the special collections division of the library. The labels for the tune books were derived mainly from the general nature of the book. Shape note notation was grouped into either Shape Note Focus Group #1 or Shape Note Focus Group #2. Because there were a large number of books using shape notes, the group was divided, and the tune books were arbitrarily assigned to one or the other. Additional groups included a focus on key individuals of the time period, such as Charles Whiting and Lowell Mason. See Table 3 for a full description of tune book groups.

The tune books were scanned in to Adobe pdf files. Not every page was scanned, due to file size limitations. Instead, all books were scanned at least to page 20, including all prefaces, introductory material, and indexes. Additional pages were included if they referred to the teaching of music or training of the voice. The amount of each book scanned was based on copyright laws which prohibit the use of electronic access to large sections of a book for courses.

Sound files were converted to mp3 file formats for 44 recordings. The mp3 format is the most popular used because it compresses files to about one-twelfth their normal size. This ability makes mp3 format the easiest to download while maintaining a high quality in sound production (Sanders, 2001). Whole-song recordings were not provided due to copyright, but rather 30-second samples which assisted in keeping file sizes reasonable for most students.

Setting the parameters for the participants' final presentations was particularly challenging. Given the constructivist approach being implemented,

Table 3
Tune Book Focus Groups

Focus Group	Tune Books Included in Group
Charles Whiting	Public School Music Course, 2nd Reader (1896)
	Public School Music Course, 5th Reader (1893)
Lowell Mason	Boston School Songbook (1841)
	Song-Book of the School-Room (1853)
	Normal Singer (1856)
	Song Garden (1864)
	Public School Singing Book (1848)
Normal Music Course	Normal Music Course: 1st through 3rd Readers (1897)
	Normal Music Course: High School Collection (1887)
Religious Collection	Tune Book Proposed for the Congregation of the Protestant
	Episcopal Church (1859)
	Choral-Buch (1784)
	Shaker Manuscript hymnals (1967)
	Bristol Tune-Book: A Manual of Tunes and Chants (1891)
Scripted Courses	Normal Musical Hand-Book (1872)
	National Music Course: 1st Reader (1889)
	National Music Course: 2nd Reader (1890)
	Progressive Music Lessons: 4th Reader (1885)
Shape Note #1	Southern Harmony (1987)
	Colored Sacred Harp (1931)
	Christian Harmony (1873)
	Sacred Harp (1859)
Shape Note #2	Continental Harmony (1961)
	Christian Minstrel (1846)
	Social Harp (1973)
	Missouri Harmony (1846)
	New Harp of Zion (1872)
Colonial Tune Books	Whole Book of Psalmes: Collected into English Meter (1598)
	Book of Psalms in Metre: Close and Proper to Hebrew (1644)
	Urania (1761)
	Easy Instructor (1798)
	Ainsworth Psalter (1644)
	An Introduction to the Singing of Pslam-Tunes in a Plain and
	Easy Method (1736)
	An Introduction to the Skill of Musick (1674)
20th Century Courses	Natural Music Primer (1895)
	Universal School Music (1929)
	Progressive Music Series: Books 1 through 4 (1915)

the knowledge the participants constructed would be varied. Therefore, flexibility was required for their presentations or demonstrations. The parameters dealt with two broad areas: content (Table 4) and delivery (Table 5).

Table 4
Guiding Questions for Your Research

Question

1. Who wrote the books? Why were they written? When were they published?
2. What is the purpose of the books? Of what value do you see in them?
3. Why is the book important? What innovations did it introduce to music education?
4. Who used the books and for what purpose? When were they used (time period or events)?
5. How are the books different from others tune books before or after them?
6. How are the books organized? Are the fundamentals or rudiments of music taught or are the books primarily a collection of tunes?
7. Is there music printed in the books? If so, describe the nature of the music to include the notation system used, the number of parts included, variety of styles or forms, range requirements, and the scope of the lyrical topics.
8. What indexes, if any, are provided in the books?
9. What educational implications or value can you surmise from these books?
10. What National Standards do the books address?
11. How would you use this in your classroom? Is there a lesson you could use in your current classrooms? Pick at least one aspect of the books and incorporate it into your teaching. An example of a lesson might be to have students create a modern tune book with modern tunes and music lessons.

Results and Discussion

Research Question 1: How successful would participants be at demonstrating the course objectives through this activity?

The graders understood the scoring rubric as "not present" (1 point), "present" (2 points), and "beyond expectation" (3 points). The scores for both the guiding questions and general comments were combined to create a presentation score, with a maximum score of 60 points and a minimum of 20 points. The mid-range "Meets the Standard" level, which was the level that the students were told to attain, equaled 40 points.

The course instructor's ratings ranged from 31 to 51 with a mean of 42.13 and a SD of 7.27. The researcher's ratings ranged from 29 to 53 with a mean of 40.00 and a SD of 6.82. The result of a Spearman correlation comparing the course instructor's scores with the researcher's scores was

Table 5
Guidelines for Your Presentations

Guidelines

1. Time Frame: each class member is allotted 15 minutes.
2. A handout for each of your peers is expected and appreciated.
3. Use of visual aids or other technology is necessary.
4. The audience, i.e. your classmates, must be engaged in an active, meaningful, and musical way.
5. A recording or live musical performance from the books is essential.
6. The final 2-3 minutes of your 15 minutes should be reserved for questions or discussion of the books
7. Draw upon your professional training and experience to critique the books or their contents.
8. Strive for a creative, artistic, and meaningful presentation that is useful for the other class members.
9. Provide a list of citations and resources as appropriate.

high and positive, $r(7) = .843, p < .009$, indicating good inter-rater reliability. The graders' scores' were averaged for each participant. These scores ranged from 30 to 52 with a mean of 41 and a *SD* of 6.58. Table 6 displays the scores assigned by both graders and the resulting average score.

Table 6
Presentation Scores by Course Instructor and Researcher in Order from Lowest to Highest Scores Received

Participant	Course Instructor	Researcher	Average
Participant 1	31	29	30
Participant 2	36	37	36.5
Participant 3	37	40	38.5
Participant 4	39	39	39
Participant 5	47	40	43.5
Participant 8	47	41	44
Participant 7	49	41	45
Participant 6	51	53	52

The log files of the individual students were analyzed for total time logged into the Website in order to be compared to the averaged presentation scores. A negligible correlation existed in this study, $r(7) = .076$, $p = .858$, suggesting the time participants spent logged into the Website did not appear to influence their presentation scores. Of course, students may have worked on their presentations without being logged into the Website.

The data were analyzed to determine whether the number of pages visited or time spent on certain pages was correlated to higher presentation scores. The total number of hits was compared to the mean presentation score to examine whether students who viewed more material (breadth) would receive higher scores. The result was negligible, $r(7) = -.053$, $p = .902$.

A negligible correlation existed between time spent gathering information and the class presentation score average. Why the student's time spent gathering information from the Website did little to affect their presentation mean score is unclear. Perhaps this is an effect of Joinson and Buchanan's (2000) "print and run" phenomenon (students' tendency to print Web material for later reading off line) or because students did not log in to the Web environment each time they did research for this project.

The handout was another aspect of the presentations that yielded data. In an effort to explore the relationship with the presentation score, the researcher found that the number of pages in the presenter's handout had a significant, positive relationship to the presentation score, $r(7) = .826$, $p = .012$. This was the only variable with a high correlation to the presentation grade.

However, the number of pages in the handout had a negative, negligible correlation to the time spent gathering information, $r(7) = -.171$, $p = .721$. The correlation between the handout pages and total time spent viewing the primary sources was also negligible, $r(7) = .112$, $p = .791$. The students with the longer handouts may have done a large amount of work by printing the pages from the Web.

The data from the scoring rubric were studied using an item analysis in search for commonalities among the presenters' scores. One indication of student success is the number of participants scoring at or above the standard (score of 2 or 3) on each criteria. In order to receive "beyond expectations" (3), a participant had to excel in the criterion by providing more information than required. Nine criteria were met by all the students in the study, criterion 1, 4, 6, 7, 9, 14, 15, and 19 (Tables 4 and 5). The criteria are concrete in nature with short answers found by investigating the tune books. Six participants met the standard for the remaining, criterion 2, 3, 5, 8, 12, 13, 16, 17, and 18. The criteria receiving the two lowest scores related to National Standards, and use of the tune books into their classroom teaching (criteria 10 and 11). These items require higher levels of scholarship and transfer, as Bloom (1956) defines higher order thinking, than most of the other criteria in this study.

Five students did not meet the standard for the inclusion of a reference list (criterion 20). Perhaps the students did not understand the need to, or how to, reference Web based material. Explicit instruction was not provided, but may have been beneficial for these students.

Research Question 2: To what extent would students use the scaffolding provided online to construct knowledge about the assigned content?

The data to assess this question were the individual log files created by the tracking of the participants. The total time logged on the activity's Website was 27.94 hours (100,584 seconds). The average time per participant was 3.49 hours, with a *SD* of 2.16 hours, a minimum of 1.14 hours, and a maximum of 7.05 hours.

The eight participants logged in a total of 30 times to visit a total of 482 pages on the created Website. The mean number of logins per participant was 3.75 with a minimum of 2 and maximum of 7 (*SD* = 1.488). The mean number of pages visited was 60.25 with a minimum of 25 and a maximum of 127 (*SD* = 33.763).

Specific Log File Analysis. The participants' mean time spent per page was extremely varied, ranging from 61 seconds to 810 seconds with an average of 295 seconds (*SD* = 266). The large *SD* indicates extreme variance among the participants in the amount of time they averaged on each page.

The tracking logs prompted the researcher to examine the students' approach to the research process. After logging in and choosing a focus group, many of the participants began using search engines such as Google or ERIC, before even viewing their chosen tune books. One question that arises is how they could research a set of materials without having much of an idea about their specific research topic. Perhaps locking certain functions of the Website until a prior step was completed would have held students more accountable for viewing the more general required readings, and their selected tune books, prior to spending time searching the Web. However, the option to lock participants into a structured research routine was considered too restrictive for the constructivist nature of this activity.

Several students who began the project without reading the assigned articles never accessed some of the readings. Another student chose a specific focus group which contained five books to analyze and present. Her log shows she only viewed one of the books and never the other four. Only two of the four remaining books were owned by the library. One was checked out to the course instructor and the other to the researcher of this study. Thus, the student most likely never viewed the other four primary source documents during the time frame of this activity.

Implications and Suggestions for Future Web Activities

Adapting the unit of early American tune books for online learning was an appropriate use of technology. Participants could access the documents

24 hours a day and seven days a week without the need to physically visit a library and check out the materials. The students could review privately owned materials that might not otherwise be available to them. Also, several students could simultaneously view the same tune book in the Web environment, whereas in a library reserve, the book would only be available to one student at a time. The use of online teaching allowed the instructor to preserve the old and delicate tune books, while also allowing each student unlimited continuous access to them. The use of pdf files, when properly referenced and with appropriate permission obtained, provided students with temporary access to these rare primary sources.

This activity had the learners construct their own knowledge based on interacting with the primary sources online and utilizing search engines to conduct their research instead of relying on an educator to deliver course content through lecture or direct instruction. This is an important step in transforming the students into lifelong learners as suggested by Joinson and Buchanan (2000), Ryan (1998), and Boshier et al. (1997).

Alternatives to the type of presentation required for this study are possible. One approach may be for the students to provide a final display of knowledge in the form of lesson plans developed for undergraduate music education majors studying the history of music education in the U.S. This should include music making (addressing National Standard 1 and/or 2), music reading (Standard 5), studying how and why the music was performed (Standard 9), and how the music was depicted in the other arts such as dance or visual art (Standard 8). Another representation could be the composition of a musical work that teaches about the tune book, the culture from which it developed, or the techniques used to produce or use the book (Standard 4). A third idea for representing students' knowledge might be the creation of a recital or scripted recording of music performed from the tune book, accompanied by an explanation of the work (Standard 6). This could also include a quick time video streamed online with scans of the tune synchronized with a performance, and an explanation of the performance. The musical performance should use period specific instruments and vocal techniques with appropriate recital program notes including a critical and/or theoretical analysis of the works performed. The program should include scans of the important vocal and instrumental techniques unique to the tune book. It might also integrate with the visual arts or descriptions of the dance steps often performed with the music (Standards 1, 2, 5, 7, and 8).

A final suggestion concerning the presentations is to stress the aspect of transfer to elementary or secondary classroom instruction. Conversation with the participants during breaks or outside class time yielded questions concerning how to transfer the material. As described previously, the participants obviously struggled with this presentation guideline. Regardless of the difficulty of the task, the material needs to be connected to the participants' lives in order for the activity to be meaningful and useful in their actual teaching. While this may pose a challenge, it was potentially a valu-

able experience for the presenter and audience members, since it required them to look at historical material from a new perspective.

Further research is needed to corroborate the findings described in this research project, given its exploratory nature and limited sample size. The results indicate several avenues for researchers to follow in more focused and directed research.

One item for further research is the value of supplying audio examples for online assignments. Of the nine focus groups in this project, listening examples were provided for only two. These were provided because they were available to the researcher, not as a variable to study in the research. Nonetheless, two participants did comment, during the introduction to the activity, on the "fairness" of such aids presented for some and not for others. According to the data, however, the sound clips were used little by the students who had them. Of the two students who had listening examples available, only 0.97% (288 seconds) of their total logged time was spent utilizing them. Ironically, the audio examples were used more by a student who was not researching material directly connected to the examples, but most likely out of curiosity or interest in transfer to their focus group of tune books.

Finding audio examples is time consuming, yet the value of listening to music being studied makes intuitive sense. Studying the effects of the availability and use of audio examples on student knowledge, presentations, and attitudes might help determine whether this is the case or if providing these examples online is worth the effort.

An interesting research topic for hybrid courses (with both face to face and online components) might be comparing the participation of students in class versus online. It appeared that the online activity of the participants was different than what the researcher perceived as their level of participation in the face to face classroom. It was interesting to observe that for this project, the students perceived as having limited comments in face to face classes had an extensive amount of activity online, as compared with those who are more outgoing in the classroom. This phenomenon was also noted by Keast (2004) in an online teaching venture for undergraduate elementary education students. Perhaps hybrid classes allow students with varied learning and interaction styles to be accommodated better than either face to face or online courses alone, and further research on this issue seems warranted. While there are numerous studies comparing online and face to face courses (Joinson, 1999), little research has investigated hybrid course structures.

Conclusion

The results of the study suggest that this method of delivery was moderately effective in accomplishing the specified learning objectives related to the topic of early American tune books, as indicated by the assessment of the students' presentations. Another result of this study was the adoption of scaffolding in the Web environment. Constructivist learning can be pos-

sible and effective in online graduate music education courses, much the same as it is in other fields.

The profession has a large body of literature on face to face music teaching and learning, but research in the area of online music education is almost nonexistent. Interest in, or the need for, online innovation in music education is becoming more prevalent. It is imperative for music educators to investigate and become familiar with strategies to help their students have successful learning experiences, regardless of the format of assignments and classes.

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