

A Comparison of University Student Perceptions and Success Learning Music Online and Face-to-face

Agi Horspool

School of Behavioral and Organizational Sciences
Claremont Graduate University
Claremont, CA 91711 USA
agnes.horspool@cgu.edu

Sandra S. Yang

Assistant Professor, Music History
Cedarville University
Cedarville, OH 45314 USA
syang@cedarville.edu

Abstract

This study compares two sections of the same Introduction to Music course taught at a public university in winter 2008 across face-to-face and online formats. Data collected from student surveys regarding their own perceptions of success revealed some significant differences, such as in the areas of performing musical scales or simple pieces on a keyboard. The authors found no significant differences in success learning music online vs. face-to-face as measured by final grades. This study contributes uniquely to the literature by examining differences in a performance-based course. A blended approach to teaching music may be an effective solution that addresses the feedback component essential in performance-based courses, while retaining the benefits of an online-learning approach.

Keywords: Online learning, distance education, student perceptions, student success, music education, music fundamentals, higher education, face-to-face learning

Introduction

Online education continues to grow with no signs of slowing. According to Sloan Consortium research, “over 3.9 million students were taking at least one online course during the fall 2007 term” which turns out to be a 12% increase from last year (Allen & Seaman, 2008, p. 1). According to this same report, programs in the liberal arts and humanities showed increased proportions of online program offerings last year. Despite these statistics, little research has yet been done that compares learning music across different delivery formats in higher education. For example, when the authors searched on the keywords “music” and “online” within ERIC’s online database, their query yielded only 45 articles containing these subject descriptors. Narrowing the topic to “music education” limited the number of articles further to only 12. From these 12, none addressed critical differences between online and face-to-face (FtF) music learners or compared student perceptions across these learning formats in music specifically. In some cases, the articles touched upon how little music education has changed to adopt online learning practices in the last decade, with most instruction in this discipline still occurring FtF (Bond, 2002; Sherbon & Kish, 2005). Searching in the “Academic Search Premier” database yielded similar results, with only 51 articles containing the subject descriptors “music” and “online” within academic journals.

Not only are enrollment numbers in online courses growing, but attitudes toward online learning continue to change in a positive direction as well. Just over a decade ago, it was more common to hear telling remarks from instructors such as, “I was told to shut down my online courses (in 1994) because online is not ‘academically sound’” (Fowler, 2005). In previous decades, others have reported similar perceptions of online learning including, “Many educators and trainers do not support online instruction because they do not believe it actually solves difficult teaching and learning problems” (Conlon, 1997, as cited in Johnson, Aragon, Shaik, and Palma-Rivas, 1999). As the number of online courses, degree programs, and even entire virtual universities continues to grow, research on student perceptions and success will

enhance learning in the online format as it is embraced by traditionally FtF disciplines such as music education.

The present study compares two sections of the same undergraduate course, Introduction to Music, taught during winter 2008 quarter by the same professor (one of the study authors) at a four-year state university. The professor taught both online and FtF sections of this course, and implemented a similar course description, learning outcomes, and activities across formats. The authors conducted a comparative study of student perceptions and success across these two environments to understand more about student experiences learning music online. The authors sought to answer the question, "In what ways do student perceptions and success differ across online and FtF formats when learning music at an introductory level?"

Students must master a range of learning outcomes targeting a variety of music skills as part of this introductory course. In addition to the cognitive skills of learning to read and write musical notation, students must successfully perform musical scales and play simple melodies on a keyboard, beat out rhythms, and sing. This variety, especially in the area of performance, presents challenges to teaching the course in an online format. Because performance skills must be successfully demonstrated in both course environments, the instructor included optional FtF practice sessions, and a mandatory FtF performance assessment in the online course. The course was categorized as "online" in the class schedule, meaning that learning activities occur online but that the course could include an initial FtF meeting. The instructor's discretion decides whether assessments, such as midterms or final exams occur either online or FtF (<http://www.csupomona.edu/~elearning/standards.shtml>).

In an age where more courses are being offered online, studies are needed that help instructors understand student experiences learning hands-on skills in online environments. Although prior studies comparing online and FtF learning have determined that teaching and learning outcomes remain essentially the same across formats, few of these articles have focused on learning hands-on skills such as music performance. This study adds to the body of literature comparing FtF and online learning by exploring student perceptions and success in a field traditionally taught FtF that also requires successful demonstration of performance skills.

Review of Literature: Online vs. FtF Learning

Comparisons of online and FtF learning typically fall into two categories: understanding student perceptions or experiences as part of end-of-course evaluations or surveys, and studies comparing student achievement by examining grade measures or other outcomes (Boyd, 2008; Coates, Humphreys, Kane, & Vachris, 2004; Daugherty & Funke, 1998; Johnson et al., 1999; O'Malley, 1999; Rovai, Ponton, Derrick, & Davis, 2005; Swan & Jackman, 2000; Topper, 2007; Young & Norgard, 2006). Prior studies discuss student perceptions in online learning environments, but do not often address music learning online, nor compare music taught FtF with distance formats. This review explores the currently limited literature related to online music learning. It additionally focuses on student perceptions of learning online and comparative studies of student experiences and success across online and FtF formats.

In the field of music particularly, the authors found little published work exploring how music can be taught online in higher education, or comparing online music learning with FtF. In a few cases, articles addressed online music learning generally, such as by surveying existing cases or encouraging music teachers to participate in distance education (McLain, 2003; Sherbon & Kish, 2005). From a general survey of college courses currently on the Internet, McLain (2003) identified 115 colleges and universities offering a total of 155 music courses. A Web search revealed online music courses at 108 schools, with only Boston University offering a completely online music degree program at the time of the search (Distance Learning Profiles; World Wide Learn). The authors did not find information about when this content had been last updated. Neither list can be considered completely current, since the university involved in this present study had not been found on either list (Distance Learning Profiles; McLain, 2003).

The authors found only a few studies regarding perceptions related to distance music education (Bond, 2002; Flohr, 2002; Taylor & Deal, 1997). A survey of institutional administrators revealed positive attitudes toward internet-based music instruction, but also a perception that music performance would be least adaptable to an online format (Taylor & Deal, 1997). In one case, a newly-developed online music program intended to reach isolated students reported difficulty recruiting participants, even with an emphasis on including peer-based support in the learning design (Bond, 2002). In this instance, Bond (2002) concluded that distance-based groups performed music less effectively than locally-based groups,

but with the caveat that a lack of access to and comfort with technology may play a role in these outcomes. In another study, a small sample of graduate music education students who were mostly new teachers reported difficulty working with online Blackboard courseware (Flohr, 2002). Lack of Internet experience in this case possibly caused some frustration with the online portion of the course. While these findings contradict other work comparing student outcomes across online and FtF formats that found no differences between groups (Johnson, S. et al. 1999; Swan & Jackman, 2000), prior studies have not largely explored internet-based education for disciplines requiring performance-based skills.

In comparative studies of student perceptions online and FtF where music is not necessarily the area of focus, students report some advantages to learning in an online format. Some of these include the convenience of being able to access information at a time determined by the student, the convenience of not having to drive to a physical campus location, the ability to pace and organize one's learning, and the flexibility of being able to review material repeatedly when needed (Daugherty & Funke, 1998; Mullen & Tallent-Runnels, 2006; O'Malley 1999; Wuensch, Aziz, Ozan, Kishore, & Tabrizi, 2008; Young & Norgard, 2006). Other studies compare differences in outcomes across online and FtF environments in non-music fields. Some of the measured outcomes address final course grades, GPA, or project performance, and largely reveal non-significant differences between groups (Johnson et al., 1999; Swan & Jackman, 2000; Topper, 2007). In at least one case, online students performed below FtF students on subject-specific knowledge tests, with caution urged for using the Internet to teach underclassmen (Coates et al., 2004).

Studies that do not emphasize outcomes when comparing the two learning formats focus on a wide spectrum of constructs ranging from student perceptions to preferences, experiences, expectations, satisfaction, instructional quality, and course characteristics (Goodyear, Jones, Asensio, Hodgson & Steeples, 2005; Kitsantas & Chow, 2007; Ocker & Yaverbaum, 1999; Sharpe & Benfield, 2005; Young & Norgard, 2006; Wuensch et al., 2008). This study contributes new information to the body of literature comparing online and FtF learning by exploring student perceptions and outcomes across these environments specifically in music, a field that has traditionally emphasized FtF instruction for performance skills.

The Study

Online course offerings at the university in this study began in the late 1990s, with music included in the first group of online courses. No course management system existed at this time so interested professors received "html" training to develop course websites. Beginning in 1998, the university offered online courses in music and other subjects for three consecutive summers, but not yet during regular academic sessions. In the late 1990's, administrators held reservations about the effectiveness of online courses in achieving learning outcomes. The online summer courses were successful enough that interest among administrators grew. In 2002, a MERLOT-sponsored summer program, "Swim with the Sharks," introduced faculty to the growing repository of online resources at MERLOT's website. Since then, online learning continues to evolve at this university, with more intensive, year-long professional development programs being offered (for example: <http://www.csupomona.edu/~dolce/about.shtml>). As a result, a range of blended and fully online courses have been gradually introduced to regular session course offerings (Grasmick, 2008).

This study continues the history of online learning at this university, but it also takes an additional step in assessing the effectiveness of learning by measuring student perceptions and success across learning formats. This research investigates the following question relevant to learning music at an introductory-level:

In what ways do student perceptions and success differ across online and FtF formats when learning music in an introductory-level, undergraduate course?

To explore this research question, the authors surveyed students about their perceived success on course learning outcomes, success as measured by student grades, and perceptions of course experiences and materials (see Appendix A). The authors held different roles during the course of the study. Where it is important to distinguish, the author most involved with developing and administering the survey, and analyzing collected data, will hereafter be referred to as the "researcher." The author who taught both online and FtF sections will be referred to as the "course professor."

During the final week of classes the "course professor" held both class sessions in the early evening, at 4pm and 6pm respectively, making time of day comparable across learning formats, at least for the final

FtF performance session in which students completed the survey. Students in the online section received the same information about the research study and survey procedure as FtF students. The course professor introduced the purpose of the research and left the room, emphasizing the voluntary nature of participation. Filling out the survey did not affect student grades in any way, and they were encouraged to answer questions as honestly as possible. The course professor did not have access to responses until after final course grades were posted. Only after the researcher collected surveys did the course professor return to class. After final grades were posted, the researcher shared aggregate data with the course professor. Out of 40 students registered in the online section, 34 completed a voluntary paper-and-pencil survey (85% response rate). Out of 37 students in the FtF section, 32 completed the same survey (86.5%).

The survey included a mix of primarily four-point Likert-scale items, open-ended response options, and fill-in-the-blank questions. Questions targeted student perceptions of having achieved course learning outcomes stated in the syllabus, perceived usefulness of course resources, interaction with students and the instructor, and open-ended course feedback. The four-point scale ranged from “strongly disagree” to “strongly agree” where “1” represents lower levels of agreement and “4” indicates higher. The authors omitted a neutral option so students would have to choose a response from one side of the scale or the other. In only a few cases, students could select a “not applicable” option to ensure they did not “disagree” with a selection, such as “finding office hours useful” when they may not ever have attended them. Because most students had no prior reference point from which to gauge their achievement of stated learning outcomes, their answers were necessarily subjective. Comparing final grades lends some objectivity to these subjective student perceptions.

The course professor organized the structure of both sections similarly, making them comparable across learning environments, keeping the “course description” and “learning outcomes” in the syllabi identical for both sections (See Appendix B). The learning formats differed in minor ways for attendance and participation as part of “course requirements” (See Appendix C). Students in both online and FtF sections completed quizzes following each textbook chapter based on vocabulary and homework. In the online section, these quizzes could be taken at any time within a seven-day period. In the FtF section, students took quizzes during designated class periods. Students had to complete homework assignments independently in both sections, as well as attend a concert of their choice and prepare a report about the experience. Both online and FtF students demonstrated musical competence by performing musical skills, preparing a listening guide that involved selecting music, and by writing a report on a particular aspect of the chosen music.

The instructor made FtF office hours and performance labs available in the online section, although students did not meet regularly FtF as a class. In these sessions, online students could practice performing music and receive feedback from the instructor. Performance requirements were done “in person” for both sections, while assignments such as the listening guide or concert report could be submitted either online or FtF. Time allocated for instructor guidance of performance skills differed between course formats. Online students could attend two optional FtF performance labs for a total of three hours and forty minutes. FtF students had eight weeks of mandatory twenty-minute instruction sessions for a total of two hours and forty minutes. Both courses could equally access a demonstration video showing how to perform required scales on a keyboard (please see: <http://video.csupomona.edu/SandraYang/MusicScales-245.aspx> for access to a mid-bandwidth video, or <http://video.csupomona.edu/SandraYang/MusicScales-035.aspx> for a low-bandwidth version).

Results

The authors explored differences in students’ self perceptions of having achieved each of the stated learning outcomes in the syllabus by conducting t-tests to understand where statistically significant mean differences exist between online and FtF groups (see Table 2). Students reported significantly different levels of agreement about their ability to read music in standard musical notation across learning environments, with more students on average in the FtF section than online “agreeing” or “strongly agreeing” they could successfully read music after taking this course. When asked about being able to identify the basic structure of music including different types of notes or the clef, FtF students reported statistically higher levels of agreement than online students at being able perform this skill. Although students in both groups largely “agreed” they could identify the basic structure of music, FtF students “strongly agreed” in greater proportion than online students. For more technical and difficult aspects of learning music, such as being able to compose their own music, FtF students on average were not any more likely to “agree” they could perform this skill than online students. Students in the FtF course were

more likely to agree they could play chords to accompany a melody. Interestingly, statistically significant mean differences did not exist across sections regarding student perceptions of being able to successfully learn music in an online environment.

For the survey questions addressing course learning outcomes, “2” represented “disagree,” and “3” indicated agreement on a four-point Likert scale. In only a few cases did students respond that a question was “not applicable” to them and these students were removed from the sample prior to analysis. The authors provided a “not applicable” option in survey questions asking about student achievement of learning outcomes because it could have been possible that students had the skill in question prior to taking the course, or obtained the skill through some other means such as private instruction or tutoring.

Table 1. Student Perceptions of Having Achieved Stated Course Learning Outcomes

Learning outcomes	Face-to-face (n = 27)		Online (n = 29)		t
	M	SD	M	SD	
Successfully read music	3.44	.506	2.79	.726	-3.87**
Use musical terminology	3.30	.542	3.00	.655	-1.84
Recognize basic instruments	3.15	.662	3.03	.731	-.608
Recognize voice categories	2.74	.712	2.66	.721	-.447
Identify structure of music	3.56	.506	3.07	.704	-2.95*
Play chords	2.70	.823	2.17	.658	-2.68*
Compose music	2.37	.839	2.14	.875	-1.02
Successfully learn music online	2.54	.859	2.62	.728	.384

* $p < .05$ ** $p < .001$

When the authors asked online students to explain their reasons for taking the course in an online format as opposed to FtF, the largest proportion of responses dealt with scheduling issues (45.2%, 14 out of 31). Second to this response included a desire by students to reduce their commute to campus (25.8%, 8 out of 31). For this question, students were able to select any option which applied to them, meaning each participant could select one or more of the available responses. In four cases where students selected “other” (12.9%), they indicated they did not initially know the course was being offered in an online format. In the two remaining instances where students chose the “other” option (6.5%), they mentioned wanting to “see what the course was like,” and the ability to do assignments on a flexible schedule throughout the week.

We did not find statistically significant differences between online and FtF students on their overall ratings of course effectiveness ($t(53) = .201$, $p = .841$). Respondents on average reported each format as “equivalent to” the other in effectiveness. For this question, students selected one option on a five-point Likert scale ranging from “much worse than” (1) to “much better than” (5) with lower numbers representing lower levels of course effectiveness. Table 2 shows that students largely found course resources and assignments to be useful for learning course content. Statistically significant differences between groups existed only for chapter quizzes, with online students disagreeing in greater proportion that they found this resource useful for their learning. Although no comparison group exists for the item, “in-person performance labs,” almost a third of respondents reported this option did not apply to them, indicating a fairly large group of students did not attend these optional practice sessions. The survey results confirm this finding, with 58.8% of online students ($n = 20$) reporting they never attended optional in-person performance labs. An additional 20.6% ($n = 7$) only attended performance labs once.

Grades in both music sections were negatively skewed. To test whether the assumption of equal variances necessary to run a t-test was met, the authors reviewed the results of Levene’s test which indicated this assumption had not been violated (Leech, Barrett, & Morgan, 2004). The authors found no statistically significant mean differences in grades between FtF ($M = 89.5$, $SD = 6.35$) and online ($M = 87.1$, $SD = 11.91$) sections of this introductory music course ($t(59) = -.974$, $p = .334$). Transforming grade data by reflecting and taking its natural log yielded more normally distributed grade curves, but transformed t-test results did not exhibit statistically significant differences between groups.

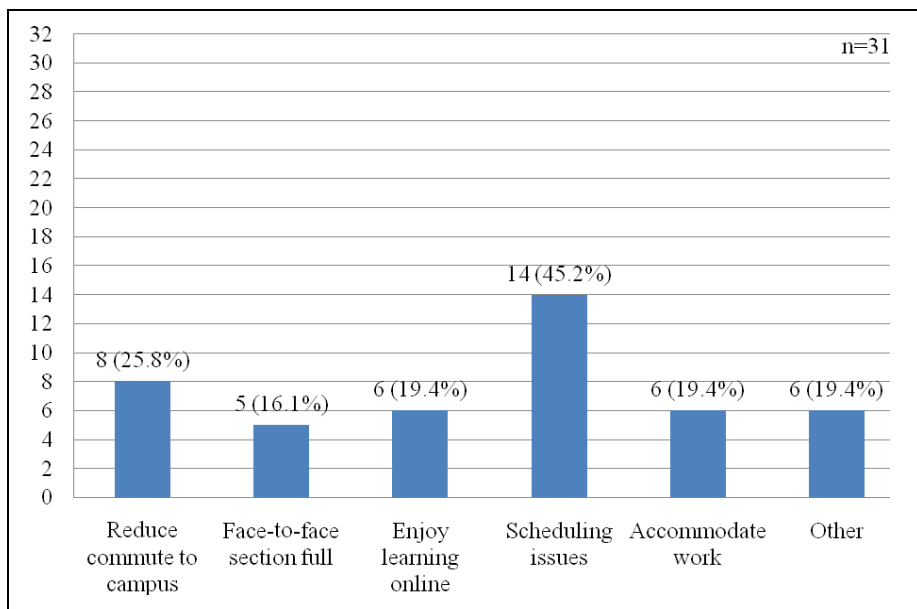


Figure 1. Reasons for taking this course online

All students held positive perceptions about how quickly the instructor responded to questions, either “agreeing” or “strongly agreeing” the professor answered questions promptly. Regarding interaction within the online environment, the majority of students (75.9%) reported the professor typically responded within one day. However, when asked whether they had sufficient interaction with the instructor, online students revealed statistically different levels of agreement than those FtF ($t(64) = -4.136, p < .001$) with a higher proportion reporting they “disagreed” or “strongly disagreed.”

Discussion

This study both supports findings in the literature comparing online and FtF learning as well as expanding existing research by focusing on performance-based music learning, which has not been extensively explored up to this point in distance research. Findings that confirm existing literature address the advantages of convenience and flexibility in online learning (Daugherty & Funke, 1998; Mullen & Tallent-Runnels, 2006; O'Malley 1999; Wuensch et al., 2008; Young & Norgard, 2006). When the authors asked online students to explain their reasons for taking the course in this format they reported scheduling issues, a desire to reduce their commute to campus, and a need to accommodate work demands. No significant differences in final grades existed between online and FtF groups, further supporting literature where outcomes did not differ across learning formats (Johnson et al., 1999; Swan & Jackman, 2000; Topper, 2007).

In this study, the unique performance component involved with learning music adds to the discussion of differences between online and FtF learning. Our research did not reproduce prior results where distance-based groups learning music performed less effectively than locally-based ones (Bond, 2002), providing new insight into understanding music learning online. Inexperience and limitations with technology played a role in Bond's (2002) outcomes, and was not duplicated here.

Online students who indicated they “could successfully learn music in an online environment” may have had prior online learning experience, making them more comfortable with this format, and bolstering their perceptions of being able to learn successfully within it. Likewise, FtF students may not have had prior experience learning online upon which to base their self-assessment in this area. Online students received less FtF feedback regarding their performance skills than FtF students, even though the course professor made opportunities for such experiences available to them. FtF students received more feedback that highlighted both their accomplishments and areas for improvement, so students could identify errors and make corrections. For online students, the electronic course management system provided only one response, praise for a job well done. This may have further reinforced a feeling of

success. Without taking advantage of opportunities for constructive feedback, online students may have overestimated their ability to successfully perform music after learning online.

Table 2. Student Perceptions of Useful Resources or Assignments for Learning Course Content

	Scale	Face-to-face (n = 32)	Online (n = 34)
Textbook	Strongly disagree	0%	2.9%
	Disagree	9.4%	5.9%
	Agree	46.9%	58.8%
	Strongly Agree	43.8%	32.4%
Office hours	Strongly disagree	0%	0%
	Disagree	18.8%	5.9%
	Agree	50%	55.9%
	Strongly Agree	18.8%	11.8%
	N/A	12.5%	26.5%
Chapter quizzes	Strongly disagree	0%	2.9%
	Disagree	3.1%	20.6%
	Agree	59.4%	67.6%
	Strongly Agree	37.5%	8.8%
Concert attendance	Strongly disagree	3.1%	2.9%
	Disagree	31.2%	29.4%
	Agree	59.4%	61.8%
	Strongly Agree	6.2%	5.9%
Homework (FtF) (Online assignments in online section)	Strongly disagree	0%	2.9%
	Disagree	21.9%	11.8%
	Agree	68.8%	76.5%
	Strongly Agree	9.4%	8.8%
Recital (FtF) (Musical performance test in online section)	Strongly disagree	6.2%	(n = 33) 9.1%
	Disagree	18.8%	6.1%
	Agree	62.5%	69.7%
	Strongly Agree	12.5%	15.2%
In-person performance labs (Online only)	Strongly disagree		0%
	Disagree		8.8%
	Agree		52.9%
	Strongly Agree		8.8%
	N/A		29.4%
Final project (FtF only)	Strongly disagree	0%	
	Disagree	9.4%	
	Agree	71.9%	
	Strongly Agree	18.8%	

Student perceptions of having met course learning outcomes may be influenced by factors outside the course itself. Although the authors included a “not applicable” survey response option to capture students

who may have had prior musical training and would not be able to attribute learning outcomes solely to taking the course, only a few students selected this choice. Students with prior music experience may have enrolled to fulfill a General Education requirement by taking an “easy course” for an “easy A.” Their responses may reflect either more positively or more negatively than students without prior experience. Experienced students may disagree they are now more successful in certain musical skills after taking this course because they perceive the course has not added new knowledge to what they already know. Conversely, experienced students may agree they are successful in musical skills, but only because they had these skills prior to enrolling in the course. The survey did not distinguish between students who had prior musical training and those who had none. This could be a worthwhile area to explore in future research.

When asked about their ability to read music in standard notation, FtF students reported more agreement. Students in the FtF course had a wider variety of opportunities to practice those skills, which may account for some of the differences. FtF students read notation in the textbook, on “overhead” materials, and on a white board, and the course professor invited questions any time students felt unclear about notation. These students were able to respond orally to questions about notation as well as listen to other students’ answers. FtF students read music during both small group and whole class discussions, and had more opportunities to connect standard musical notation with actual notes by playing on a keyboard or interpreting notation rhythmically or melodically by clapping or singing. The opportunity to connect in multiple ways with reading music may have given FtF students a greater sense of success about their abilities to read music.

FtF students also had opportunities to write music in notation, whereas online students did not. The cognitive aspect of connecting the creation, or writing of language symbols, with reading of the same may be important to consider. Online students could use a computer keyboard and mouse to click on areas of a musical staff to indicate the placement of notes on their screen, but they did not actually write them out as part of coursework. Using a drawing program or writing instrument such as a Wacom tablet to replicate the skill of writing and reading musical notation with online students may mitigate some of the skill differences found in this area. Student perceptions of their ability to learn terminology describing aspects of music they listen to did not differ significantly across groups. Students’ ability to read with common alphabet characters may transfer to the skill of reading musical notation.

Students in the FtF course reported being more likely to agree they could play chords to accompany a melody. Optional piano labs were offered to online students twice during the latter part of the quarter. In contrast, FtF students attended eight mandatory weekly piano labs. Although the total time for FtF labs was less than that made available for online students, the mandatory nature of these labs, in conjunction with eight regular sessions involving direct feedback and instruction, may have been more effective at influencing student success. In each FtF lab, the course professor endeavored to spend one-on-one time with each student, which may have helped students overcome any obstacles to learning chords.

The survey was designed to assess student perceptions of success in achieving course learning outcomes. Although in many cases, FtF and online students answered questions with equal perceptions of success, the course professor perceived that FtF students mastered performance skills more easily than online students. While the two groups did not show differences in outcomes as measured by final course grade, the process of reaching success may have been more difficult for online students. Although students in the online course had more time available for FtF instructor guidance, its optional nature may have reduced the positive impact of that guidance. Having some regular, required, FtF performance practice, even in a course where most other activities occur online, may provide valuable instructor-student feedback missing in a solely online environment.

The survey also examined the usefulness of course resources, including the textbook, office hours, chapter quizzes, musical performance, and concert attendance. The professor noted certain behaviors that could not have been determined by individual students completing the survey. For example, online students sent queries via e-mail to a greater degree than they attended office hours. FtF students tended to stop by the office shortly before or after class with questions more often than they asked questions via e-mail. To what extent these communication styles relate to learning could be further explored.

Conclusion

This study both supports existing online learning literature as well as adds significantly to new understanding about learning music online specifically, which may provide valuable insight for others teaching performance-based courses. The authors found a surprising lack of studies investigating music

learning online, and virtually none connecting student perceptions of success with actual grades. The present study offers the additional advantage of comparing the same course in both FtF and online formats offered concurrently by the same university with the same course professor, and with a similar student enrollment profile. The courses had the same learning outcomes and course requirements, and were organized and conducted as equally as possible. Because of these similarities, the study offers a unique opportunity to compare student perceptions and success with learning performance-based content. Further research can extend this focus, especially concerning performance-oriented subject matter using newly emerging technologies, such as those under the Web 2.0 umbrella.

From the currently limited online music learning literature, teaching musical skills remotely has not yet proven to be as effective as FtF instruction (Bond, 2002). Although student outcomes in the form of grades did not differ significantly between online and FtF groups in this study, the authors propose that a blended, or hybrid approach to teaching musical performance skills may be more effective in providing students with essential feedback. In the current version of the course, students in both learning environments must demonstrate successful performance of musical skills. The online designation indicates that learning activities occur online, but that the course can include an initial FtF meeting, with assessment activities such as exams occurring FtF or online at the professor's discretion.

The course professor plans to use data gathered as part of this study to develop a hybrid course that emphasizes the strengths of both online and FtF environments. The hybrid course might, for example, accommodate more FtF tutoring in performance skills, while maintaining the online advantages for other portions of the course. Universal Design for Learning (UDL) involves one approach that emphasizes the importance of representing content in multiple ways, with the goal of better engaging students by using different learning modalities (<http://pachyderm.cdl.edu/elixr-stories/udl-music/>). Activities currently included in the FtF course, such as having students physically place coins on a mock keyboard to recognize musical intervals, or clap out rhythms in groups could transfer to a hybrid version of the course. The course professor may also more explicitly connect the reading and writing skills involved in learning musical notation to reinforce student competency in this area.

Scholars may need to rethink the idea that online and FtF courses can be compared as equal counterparts. Rather than exploring whether online learning can be as effective as traditional formats, the burden of proof may soon shift to FtF courses (Fowler, 2005). The current study reveals that in certain aspects, online courses can deliver equally-effective outcomes. From existing literature, online courses may even provide advantages such as allowing more opportunities for students to review and access course materials at their convenience. On the other hand, performance-based practice may require more opportunities for FtF instructor-student interaction, which did not occur as often for online students in this study even though it was readily available to them. More research is needed that investigates performance-based learning in hybrid formats.

The frontier of online education has exploded into the twenty-first century. From reports in the 1990s unclear about the future of online education to recent suggestions that "technology can contribute significantly to teaching and learning" (Kitsantas & Chow, 2007), a greater understanding of the effectiveness of performance-based online learning is imperative. The Internet now plays an established role in distance education for an ever growing number of universities. The present study supports scholarship in the field showing little or no significant difference between FtF and online learning outcomes, while at the same time adding new understanding to the field by focusing on students learning performance-based skills. The future yet to be explored deals with the role of Web 2.0 and other interactive social technologies that may further change the distance learning landscape. Greater numbers of instructors are incorporating these tools into their teaching, creating interactive opportunities for students at a distance. Social technologies may play a role in changing the way students learn and interact online, and should be explored in performance-based skills courses, such as music.

Acknowledgments

The authors wish to thank Cal Poly Pomona's Faculty Center for Professional Development, I&IT Learning, and the Music Department for encouraging our collaborative inquiry into online learning.

References

- Allen, I. E., & Seaman, J. (2008). Staying the course: Online education in the United States, 2008. Retrieved November 11, 2008, from http://www.sloan-c.org/publications/survey/pdf/staying_the_course.pdf
- Bond, A. (2002). *Learning Music Online: An Accessible Learning Program for Isolated Students*. Kensington Park, Australia: National Center for Vocational Education Research.
- Boyd, P. (2008). Analyzing students' perceptions of their learning in online and hybrid first-year composition courses. *Computers and Composition*, 25, 224-243.
- Coates, D., Humphreys, B. R., Kane, J., & Vachris, M. A. (2004). "No significant distance" between face-to-face and online instruction: Evidence from principles of economics. *Economics of Education Review*, 23, 533-546.
- Daugherty, M., & Funke, B. L. (1998). University faculty and student perceptions of web-based instruction. *The Journal of Distance Education*, 13(1), 21-39.
- Distance Learning Profiles*. Retrieved November 6, 2008 from <http://www.distancelearningprofiles.com>.
- Flohr, J. (2002). Relationships among attitude, motivation, and interface design during a college online course. Proceedings, Ninth International Technological Directions in Music Learning Conference. Retrieved October 15, 2008, from <http://music.utsa.edu:16080/tdml/conf-IX/IX-Flohr.html>.
- Fowler, D. (2005). *Are on-site courses as effective as online?* Online CI@ssroom: Ideas for Effective Online Instruction. Retrieved November 11, 2008, from http://www.magnapubs.com/issues/magnapubs_oc/5_3/.
- Goodyear, P., Jones, C., Asensio, M., Hodgson, V., & Steeples, C. (2005). Networked learning in higher education: Students' expectations and experiences. *Higher Education*, 50, 473-508.
- Grasmick, D. (2008). E-mail communication with course professor, November 5, 2008.
- Grasmick, D. (2008). Personal interview with course professor, November 10, 2008.
- Johnson, S., Aragon, S., Shaik, N., & Palma-Rivas, N. (1999). Comparative analysis of online vs. face-to-face instruction. Proceedings, WebNet 99 World Conference on the WWW and Internet, 2-7.
- Kassop, M. (2003). Ten ways online education matches, or surpasses, face-to-face learning. The Technology Source Archives at the University of North Carolina. Retrieved November 25, 2008, from <http://technologysource.org/>
- Kitsantas, A., & Chow, A. (2007). College students' perceived threat and preference for seeking help in traditional, distributed, and distance learning environments. *Computers and Education*, 48, 383-395.
- Leech, N. L., Barrett, C. K., & Morgan, G. A. (2004). *SPSS for Intermediate Statistics*, 2nd Edition. Lawrence Erlbaum.
- McLain, B. (2003). From a distance: College music courses on the Internet. Proceedings, Tenth International Technological Directions in Music Learning Conference. Retrieved October 12, 2008, from <http://music.utsa.edu:16080/tdml/articles/distancemusic/>
- Mullen, G., & Tallent-Runnels, M. (2006). Student outcomes and perceptions of instructors' demands and support in online and traditional classrooms. *Internet and Higher Education*, 9, 257-266.
- Ocker, R., & Yaverbaum, G. (1999). Asynchronous computer-mediated communication versus face-to-face collaboration: Results on student learning, quality, and satisfaction. *Group Decision and Negotiation*, 8, 427-440.
- O'Malley, J. (1999). Students perceptions of distance learning, online learning, and the traditional classroom. *Online Journal of Distance Learning Administration*, 2(4), 1-9.
- Rovai, A., Ponton, M., Derrick, M., & Davis, J. (2005). Student evaluations of teaching in the virtual and traditional classrooms: A comparative analysis. *Internet and Higher Education*, 9, 23-35.
- Sharpe, R., & Benfield, G. (2005). The student experience of e-learning in higher education: A review of the literature. *Brookes eJournal of Learning and Teaching*, 1, 1-9.

- Sherbon, J., & Kish, D. (2005). Distance learning and the music teacher. *Music Educators Journal*, 92, 36-41.
- Swan, M., & Jackman, D. (2000). Comparing the success of students enrolled in distance education courses vs. face-to-face classrooms. *Journal of Technological Studies*, 26, 58-63.
- Taylor, J., & Deal, J. (1997). Distance learning in music: A survey of practice and plan. Proceedings, Fourth International Technological Directions in Music Learning Conference.
- Topper, A. (2007). Are they the same? Comparing the instructional quality of online and face-to-face graduate education courses. *Assessment and Evaluation in Higher Education*, 32, 681-691.
- World Wide Learn: The World's Leading Online Directory of Education. Retrieved November 6, 2008 from <http://www.worldwidelearn.com>.
- Wuensch, K., Aziz, S., Ozan, E., Kishore, M., & Tabrizi, M. (2008). Pedagogical characteristics of online and face-to-face classes. *International Journal on E-Learning*, 7, 523-532.
- Young, A., & Norgard, C. (2006). Assessing the quality of online courses from the students' perspective. *Internet and Higher Education*, 9, 107-115.

Appendix A: Introduction to Music: Final Course Survey

1. After taking this course, I can successfully read music in standard musical notation
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strongly Disagree | Disagree | Agree | Strongly Agree | Not Applicable |
2. After taking this course, I can use musical terminology (such as melody, harmony, etc.) to describe the music I listen to
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strongly Disagree | Disagree | Agree | Strongly Agree | Not Applicable |
3. After taking this course, I can recognize the basic instrument families (such as string, brass, etc.) in music I listen to
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strongly Disagree | Disagree | Agree | Strongly Agree | Not Applicable |
4. After taking this course, I can recognize the basic voice categories (such as tenor, alto, etc.) in music I listen to
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strongly Disagree | Disagree | Agree | Strongly Agree | Not Applicable |
5. From this course, I can now identify the basic structure of music (such as different types of notes, the clef, etc.)
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strongly Disagree | Disagree | Agree | Strongly Agree | Not Applicable |
6. From this course, I can now play chords to accompany a melody I hear
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strongly Disagree | Disagree | Agree | Strongly Agree | Not Applicable |

7. I can compose my own music after taking this course

Strongly Disagree
 Disagree
 Agree
 Strongly Agree
 Not Applicable

8. I could successfully learn music in an online environment

Strongly Disagree
 Disagree
 Agree
 Strongly Agree

Q9 only for online students:

9. Which of the following explain your reasons for taking this course in an online format as opposed to a face-to-face format? Please select all that apply

- To reduce my commute to campus
- The face-to-face section was full
- I enjoy learning online
- Issues with scheduling
- To accommodate work demands
- Other, please specify _____

10. I found the following resources or assignments useful for learning course content:

a. Textbook:

Strongly Disagree
 Disagree
 Agree
 Strongly Agree

b. Office Hours:

Strongly Disagree
 Disagree
 Agree
 Strongly Agree
 N/A

c. Chapter Quizzes:

Strongly Disagree
 Disagree
 Agree
 Strongly Agree

d. Musical Performance Test:

Strongly Disagree
 Disagree
 Agree
 Strongly Agree

e. Concert Attendance:

Strongly Disagree
 Disagree
 Agree
 Strongly Agree

Options "f" and "g" only for online students:

f. Online Assignments:

Strongly Disagree
 Disagree
 Agree
 Strongly Agree

g. In-person Performance Labs:

Strongly Disagree
 Disagree
 Agree
 Strongly Agree
 N/A

11. I felt comfortable enough to ask questions in this course when I did not understand some of the course material

Strongly Disagree

Disagree

Agree

Strongly Agree

12. On average, I asked approximately _____ questions within the course on a weekly basis to clarify my understanding of the course material (please specify "0" if you did not ask any questions)

13. On average, I attended the professor's office hours approximately _____ times during the quarter to help clarify my understanding of the course material (please specify "0" if you did not attend office hours)

Q14 only for online students:

14. On average, I attended available performance labs approximately _____ times during the quarter (please specify "0" if you did not attend any performance labs)

Q15 only for online students:

15. I spent more time reviewing course materials in this online course compared to other face-to-face classes I have taken

Strongly Disagree

Disagree

Agree

Strongly Agree

16. I spent approximately _____ hours per week studying materials for this course

17. Please rate the overall effectiveness of this course as compared to other courses you have taken. This course was _____ my experiences with other courses I have taken.

Much better than

Better than

Equivalent to

Worse than

Much worse than

Please explain:

18. My instructor responded promptly to any questions I had

Strongly Disagree

Disagree

Agree

Strongly Agree

Q19 only for online students:

19. Typically, my instructor responded to any questions I had in the online environment within: [Students can select from the following drop-down options:]

1 day

2 days

3 days

4 days

> 4 days

20. I had sufficient interaction with my instructor

Strongly Disagree

Disagree

Agree

Strongly Agree

21. After taking this course, I would like to learn more about:

22. If I could improve one aspect of this course, I would:

Appendix B: Introduction to Music: Course Description and Learning Outcomes

Course description:

Music 100 is an introduction to the fundamental elements of music such as pitch, melody, harmony, rhythm, and meter. Using examples of music from different cultures, the student will identify these elements and understand how they contribute to the value, structure, and function of music. Students will learn to talk about the musical experience, to read and write basic music notation, and to perform scales, simple rhythms, and simple melodies both on the keyboard and vocally.

Learning Outcomes:

At the end of this course you should be able to

1. Read music in standard musical notation
 2. Read, talk, and write about music with terminology that describes the elements of music
 3. Know the basic instrument families and voice categories and recognize them in music
 4. Identify the basic structure of music
 5. Transpose simple melodies
 6. Provide a simple chordal accompaniment to a melody
 7. Compose your own music
-

Appendix C: Introduction to Music: Course Requirements**Course requirements (FtF):**

Attendance and participation	20%
Chapter quizzes	30%
Performance	20%
Final Project/Listening Guide	20%
Concert attendance w/ report	10%

Course requirements (Online):

Online Assignments	20%
Chapter quizzes	30%
Performance	20%
Final Project/Listening Guide	20%
Concert Attendance w/ report	10%

Chapter quizzes will follow each chapter and will be based entirely on the material and exercises in those chapters. You will also be responsible for the vocabulary introduced in each chapter

Performance of scales, melody, singing, and rhythm will require that you play 2 major scales and 2 minor scales. In addition, you will perform an assigned melody both on the piano and by singing, and beat or speak an assigned rhythm.

The **final project** will consist of a short presentation on music from a culture or time period different from your own. You will give a 5-minute presentation to be scheduled toward the end of the quarter with the following components:

- A short introduction of the general music styles of your choice along with specifics about your chosen piece
- A detailed listening guide of at least 3 minutes of your selected music (you will learn how to do this)
- A playing of the CD, tape, video, or DVD to accompany the listening guide.

Materials that you will turn in are:

- **Listening guide**
- **2-page description of the characteristics styles of your chosen music**
- **CD of the music**

The **concert attendance** is any of your choice, but you must have attended it AFTER Jan 7, 2008. You must write a 500-word report (1 ½ pages double-spaced) on your experience, focusing on your perception and understanding of the elements and function of the music. You should use music vocabulary learned during this course. Attach a ticket stub, a program, or some other proof of attendance.

Manuscript received 27 Aug 2009; revision received 8 Feb 2010.



This work is published under a Creative Commons Attribution-Non-Commercial-Share-Alike License

For details please go to: <http://creativecommons.org/licenses/by-nc-sa/3.0/us/>