The Reliability of Online Music Instruction

A document submitted to the graduate school

in partial-fulfillment of the requirements

for the degree

Masters of Music in Music Technology

by

Daniel James Morrow

Valley Forge Christian College

Phoenixville, Pennsylvania

May 2014

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APPROVED BY

SUPERVISING COMMITTEE:

_____ _____

Supervisor: C. Floyd Richmond Date

_____ _____

Committee Member: William F. DeSanto Date

_____ _____

Committee Member: Kent M. Smith Date

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Daniel James Morrow

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Abstract

There is much debate over the reliability of online education. Over the past decade online education has grown by leaps and bounds. Each year the number of students enrolled in online schools, whether at the K-12 or collegiate level, has grown. One of the problems with online education is how we measure its success. The area of online education that this study will explore is that of online private music instruction. The goal will be to determine if online music instruction can be a reliable and successful means of learning. Can this method of instruction become more relevant in the educational landscape? The purpose of this study will be to use quantitative research to determine the validity and reliability of online music instruction.

For My Wife and Children

Table of Contents

Chapter 1 – Introduction

Purpose

With the increasing interest and availability of online distance learning, music teachers are beginning to explore the possibility of music lessons by distance. Online communication programs, such as Skype, have caught the attention of students and teachers as a means to conduct applied music lessons (Kruse, Harlos, Callahan, and Herring 2013). There is a need to establish the validity of online music instruction for a number of reasons. These often fall into one of several categories:

(1) to eliminate constraints previously imposed by geography
(2) to provide access to master teachers
(3) to eliminate schedule conflicts
(4) to make music instruction more academically effective.
(5) to provide a more cost-effective solution for applied music instruction
(6) to provide for an expanded curriculum

Geography

First, there is an opportunity that didn't exist in the past in that musicians, from all ages and ability levels, can now communicate and collaborate even if they are hundreds or thousands of miles away from each other (Riley 2013). Imagine taking piano lessons from a reputable piano instructor in London via the Internet.

Access to Master Teachers

Furthermore, online music instruction opens opportunities for students to develop skills from master teachers they would never have had the opportunity to study with in a traditional setting. This would allow students to reach their full potential by having the ability to learn from the best instructors available.

More Convenient Schedule

This research will also be beneficial to adult learners, who may want to take applied music lessons, perhaps at the graduate level, but their work and family schedule, as well as distance, do not permit for timely face-to-face meetings with instructors (Hebert 2007). It is often difficult for working adults to find the time to take on musical pursuits, but online learning may help with this problem.

Academic Effectiveness

One of the concerns with online learning is that it does not produce the same level of academic achievement as face-to-face instruction. In order for this mode of instruction to be taken seriously, it will be important for teachers in the field of music education to see that students are able to learn just as well as they would in face-to-face classroom situations. This study will hope to validate the academic effectiveness of online applied music lessons.

Cost Effectiveness

There has been a sharp rise in K-12 cyber schools and online learning in higher education. With many colleges and universities around the nation looking at ways to reduce expenses and become more economically efficient, online learning can provide a more economical solution when compared to a traditional seated delivery system. (Bowen, Chingos, Lack and Thomas 2013).

Expanded Curriculum

More research needs to be done in the area of the effectiveness of different disciplines, such as applied music lessons, in an online environment. Although online education may be more cost-effective, it must also be rigorous and produce results. It is also important that applied music

lessons, as a discipline, be considered when an institution incorporates online learning. If an institution is looking to incorporate online courses, it is important that numerous disciplines be considered (Michael 2012). Music should not be omitted from the course offerings.

Hypothesis

This study will examine whether online music instruction, through a medium such as Skype, can be valid and reliable and can produce valuable teaching and learning experiences. This study will also explore whether both teachers and students find that the overall experience of teaching vocal and instrumental lessons online compare favorably or negatively with face to face instruction, and whether in some aspects one form of instruction may be a better option than the other. The null hypothesis is that online synchronous instruction through Skype or similar technologies, produces a similar result to face-to-face instruction in terms of attitudes and achievement. Note that synchronous online learning involves teachers and students meeting live in a virtual classroom environment, while asynchronous online learning involves the student working on their own at their own pace and not in a live virtual environment with the teacher.

Long-Range Consequences

This study could have an impact on how online music instruction is viewed and carried out in the future, not just at the college level, but at the K-12 level as well. As it becomes apparent that there is a need for this type of instruction, marketing online music lessons will become easier (Crappell 2010).

Since the research in this area is limited, educators in the field will be looking for viable research when considering online music instruction programs. The findings could be used to

confirm whether or not online music instruction works and can produce successful teaching and learning experiences.

Chapter 2 - Review of Related Literature

In *An Investigation of Reinforcements, Time Use, and Student Attentiveness in Piano Lessons,* Marilyn J. Kostka found that the majority of lesson time was used for student performance and teacher instruction. She found that only small amounts of time during lessons were interrupted for various reasons such as social feedback and correction. In an online teaching environment, there may be interruptions other than social feedback and correction, such as technical difficulties. This study will attempt to see if technical difficulties were a factor in causing interruption in the lesson time.

Also, according to a research article by William E. Frederickson titled *Music Majors' Attitudes Toward Private Lesson Teaching After Graduation,* colleges and universities put little emphasis on the pedagogy of private teaching. There is also little to no emphasis on the pedagogy of online music instruction. As a participant in this study, it was observed that learning the pedagogy of teaching online applied lessons is very important to its effectiveness.

Some opponents to online music instruction may state that through this medium, group lessons are not an option. Although group lessons are possible through the online model, there is no evidence to suggest that group instruction is more beneficial than individual instruction (Floyd, Jr. 1978).

One thing to keep in mind is that the core of effective instruction does not change whether it is done face-to-face or online. In the research study *Influences on Instrumental Music Teaching,* William I. Bauer and Margaret H. Berg state that teacher knowledge can be categorized into

seven types, including content, general pedagogical, curriculum, pedagogical content, knowledge of learners, knowledge of educational contexts, knowledge of educational purposes and their philosophical and historical grounds. This knowledge is at the core of effective music instruction and can be translated when teaching at a distance.

Teaching music at a distance has been attempted in the past. In an article entitled *Interactive Television and Distance Learning* by Fred J. Rees and Dennis A. Downs, the ICN (Iowa Communications Network) model was reviewed. The ICN model was a two-way audio-visual television system that connected students with musicians and teachers from a distance. This enabled students to learn from master teachers they otherwise would not have had the opportunity to study with in a traditional face-to-face lesson environment. Through this system, students were able to see and be seen by the instructors and interact with them, much like in a traditional setting. This type of instruction was also aided by student access to computer bulletin boards and electronic mail networks (email). The article presents the positive and negative aspects of this format, but offers that the opportunity to students is a great one in that distance would no longer be a barrier to receiving superior music instruction. This article was written in 1995, but shows that distance learning was being considered a viable option before the development of the internet.

Other Considerations

Other opportunities that exist include teachers providing recorded videos of themselves and accompaniments for their students so that the student can access them at any time, not just in the 30-minute lesson window. Modern technology can allow students to better prepare for their face-to-face or online lessons (Keast 2009). Creating this type of environment would require that the teacher have abilities in the area of instructional design (Brigance 2011). Most

teachers can re-create what they would do in a face-to-face lesson through Skype, but it would take some experience in online course design in order to successfully implement asynchronous learning modules. This study, however, focuses on the synchronous component of music lesson delivery through Skype.

There is the potential for difficulty and even failure in teaching online. At the writing of this paper, there are technological limitations. For example, singing or even playing as a group through a program like Skype is not feasible due to individual internet connection speeds. Also, sound quality is not always optimal because of distortion in the microphones (Tulk 2012). However, if best practices on sound quality are explored and communicated to the students, some of these issues can be avoided. A research study was also conducted that found that although a student can improve their playing ability through taking lessons via Skype, supplemental face-to-face lessons were needed to complete the overall experience (Dammers 2009). This was due to video delay and a few other technological limitations. However, with each passing year, the quality of the technology is improving therefore providing for more authentic teaching and learning experiences.

In his research article entitled *A Framework for Understanding Teaching with the Internet*, Raven McCrory Wallace sites reasons for difficulty in achieving success with online teaching. These reasons include lack of teacher training or commitment, inadequate technology or technical support, structural barriers in school schedules and policies, and lack of administrative support. Of these reasons, teacher training and inadequate technology could be the most troublesome. It can be very frustrating to both the teacher and student attempting to have a successful online music lesson if the teacher is unsure of how to best use the technology, and if the technology itself has not be set up properly and tested beforehand. To ensure success, the teacher and student should become as familiar with the programs they will be working with as

possible (Sherbon and Kish 2005). In this study the subjects have been provided with detailed instructions on what equipment is essential for the lessons and how to properly use the Skype software. The subjects from Valley Forge Christian College also have access to the technical support team at the college, should issues arise with the technology.

It has also been found that students who have prior experience with technology are more likely to succeed learning in an online environment due to their prior knowledge. If they have this prior knowledge and experience, they also tend to be more motivated (Wang, Shannon and Ross 2013). Therefore, it is imperative that teachers create the most user-friendly online environments as possible and be as specific as they can in terms of the instructions for using the technology. However, more and more students have grown up using technology, so this research may prove to not be as reliable in the future.

Furthermore, research shows success in other disciplines when it comes to online learning, specifically using Skype. In a study by Kimberly Charron and Robyn Raschke entitled *Student Perceptions and Experiences Using Jing and Skype in an Accounting Information Systems Class,* it was shown that students who used the technology support tools experienced higher levels of perceived satisfaction than those who didn't, while earning equivalent grades. Skype has also been used to facilitate a successful virtual coaching model that helps developing teachers connect with experienced teachers to learn classroom management strategies (Rock, Schoenfeld, Zigmond, Gable, Gregg, Ploessi, and Salter 2013). More and more, Skype is becoming a viable option for a myriad of disciplines. This study hopes to give further insight into how it can successfully facilitate online music instruction.

Chapter 3 – Design

This study will attempt to discover the pros and cons of online music instruction using online communication through the program Skype. The study will explore what teaching professionals and their students think of online music instruction. Through Skype, applied teachers from Valley Forge Christian College will instruct selected students over a series of four online lessons. Before the lessons begin, the instructors and students will both be given surveys so that some 'before' information can be gathered, such as how they feel about their current instruction/learning experience, and how they feel about teaching/learning online. After the series of lessons over Skype are completed, the instructors and students will be given another survey in which they will answer similar questions in regards to their teaching/learning experience online. For examples of these surveys, please see the appendix.

The first question on the survey attempted to determine the confidence level of both teacher and student in delivering/taking applied music lessons face-to-face. This question was important as it showed that those involved in the study were experienced in traditional methods of teaching. The remaining questions on the survey attempted to determine negative attitudes, fears, and positive attitudes in regards to online music instruction.

Each question on the survey was put into either a minus or plus category. The following questions from both the before and after surveys were put into the 'minus' category:

Minus Category	Question
Concerns favoring face-to-face instruction.	Teacher: The only reliable method of delivering applied music lessons is in-person. Student: The only reliable method of delivering applied music lessons is in-person.
Concerns about potential obstacles.	Teacher: Teaching applied lessons live over the internet presents too many obstacles and problems. Student: Taking applied lessons live over the internet presents too many obstacles and problems.
Concerns over video and audio quality.	Teacher: In teaching over the internet, technology is limited as far as the audio and video capabilities needed to deliver quality instruction. Student: In learning over the internet, technology is limited as far as the audio and video capabilities needed to have a quality lesson.
Concerns over achievement levels.	Teacher: My students would not be as successful learning over the internet. Student: I would not be as successful learning over the internet.
Concerns over technical abilities to teach/learn over the internet.	Teacher: I have the technical abilities to teach an applied music lesson online. Student: I have the technical abilities to take an applied music lesson online.

The following questions from both the before and after surveys were put into the 'plus' category:

Plus Category	Question
Confidence in face-to-face teaching/learning skills.	Teacher: I am confident in my ability to deliver quality applied music lessons face-to-face. Student: I am confident with the skills I have gained from face-to-face applied music lessons.
Perception of Benefits of online learning.	Teacher: I can see the benefits of teaching applied music lessons online. Student: I can see the benefits of taking applied music lessons online.

Chapter 4 - Results

For each question on the teacher and student surveys (before and after), each response was a numerical value.

Strongly Agree 6	*Agree* 5	*Somewhat Agree* 4	*Somewhat Disagree* 3	*Disagree* 2	*Strongly Disagree* 1

Below are the averages of the responses for the *before* survey in the *minus* category of questions.

Table 1: Minus Category - Before

Minus Category	Teachers	Students
Concerns favoring face-to-face instruction.	4.5	4
Concerns about potential obstacles.	3.5	3.5
Concerns over video and audio quality.	4.5	4
Concerns over achievement levels.	2.5	3.5

There is a notable difference between the students and teachers in their concerns over achievement levels. It seems students were more concerned about how well they would learn over the Internet before the study began.

Below are the averages of the responses for the before survey in the *plus* category of questions.

Table 2: Plus Category - Before

Plus Category	Teachers	Students
Confidence in face-to-face teaching/learning skills.	6	5.5
Perception of Benefits of online learning.	5.5	4.5

Students were less positive about the potential benefits of online learning before the study.

Below are the averages of the responses for the *after* survey in the *minus* category of questions.

Table 3: Minus Category - After

Minus Category	Teachers	Students
Concerns favoring face-to-face instruction.	4.5	3.5
Concerns about potential obstacles.	3	3.5
Concerns over video and audio quality.	4.5	4.5
Concerns over achievement levels.	2.5	5.5

Below are the averages of the responses for the *after* survey in the *plus* category of questions.

Table 4: Plus Category - After

Plus Category	Teachers	Students
Confidence in face-to-face teaching/learning skills.	6	5.5
Perception of Benefits of online learning.	4.5	4

Below is a comparison of student and teacher responses before and after the study:

Table 5: Minus Category – Before and After Comparison

Minus Category	Teachers	Students
Concerns favoring face-to-face instruction.	Before: 4.5 After: 4.5	Before: 4 After: 3.5
Concerns about potential obstacles.	Before: 3.5 After: 3	Before: 3.5 After: 3.5
Concerns over video and audio quality.	Before: 4.5 After: 4.5	Before: 4 After: 4.5
Concerns over achievement levels.	Before: 2.5 After: 2.5	Before: 3.5 After: 5.5

Table 6: Minus Category – Before and After Comparison

Plus Category	Teachers	Students
Confidence in face-to-face teaching/learning skills.	Before: 6 After: 6	Before: 5.5 After: 5.5
Perception of Benefits of online learning.	Before: 5.5 After: 4.5	Before: 4.5 After: 4

The data shows that after the study teachers were a bit less concerned with the potential obstacles to online music instruction. However, the data also indicates that teacher's perception of the benefits of online learning dropped after the study.

After the study, the data showed that students were a bit less concerned that face-to-face instruction was the only reliable method of learning. However, students concern over achievement levels jumped from a 3.5 before the study to a 5.5 after the study. This showed that they felt after their experience in the study, they would not be as successful learning over

the Internet. As with the teachers, students' perception of the benefits of online learning dropped after the study.

The averages of before and after scores on the survey were compared statistically and some patterns were evident.

On the test were two categories of questions, those that were designed to indicate either (a) concerns or (b) positive attitudes towards distance learning. The following correlations were found.

Teacher before and after scores

Negative indicators: R = .89

Positive indicators: R = 1

Student before and after scores

Negative indicators: R = .52

Positive indicators: R = 1

The correlation between before and after scores was moderate to high. See figures 1 and 2. This means that although the average scores of teachers and students were more positive at the end of the study, it was not a significant change from their before scores.

Figure 1: Teacher Responses to Questions 2-7 on the Pretest (Before) and Posttest (After)

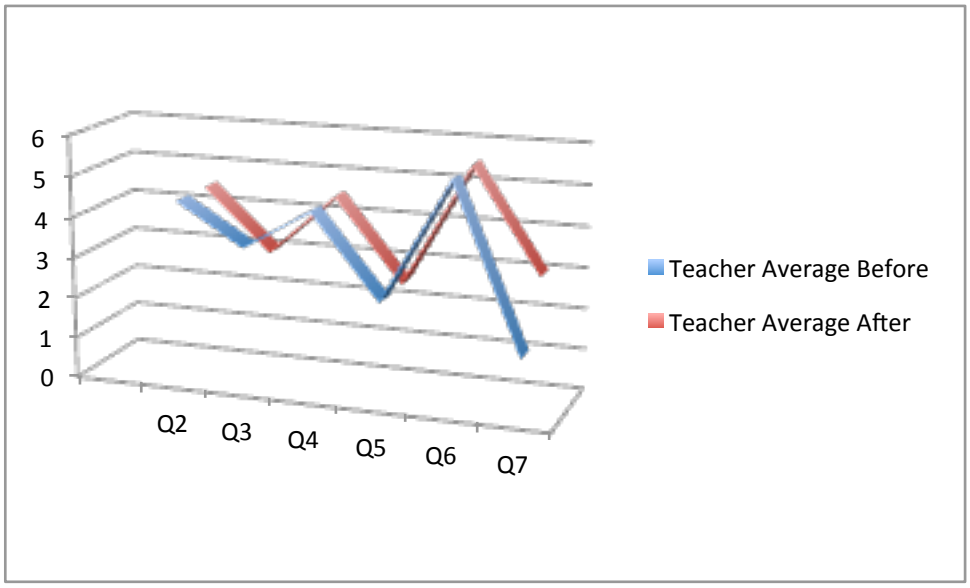
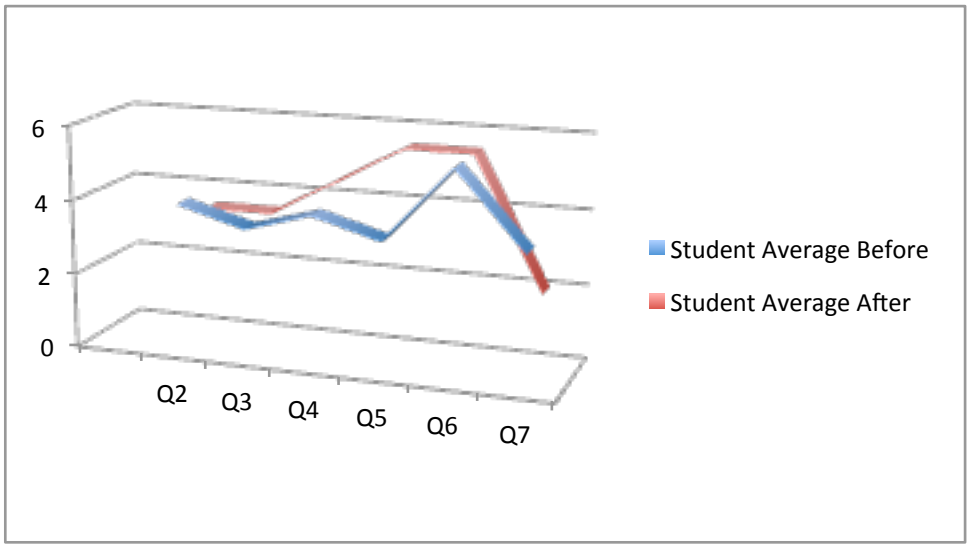


Figure 2: Student Responses to Questions 2-7 on the Pretest (Before) and Posttest (After)



A t-test was run on the results to determine significance. Values are shown below.

Teacher before and after scores

Negative indicators: p = .58

Positive indicators: p = .5

Student before and after scores

Negative indicators: p = .87

Positive indicators: p = .5

Although the correlation between teacher and student before and after scores was moderate to high, the t-test revealed the results were not statistically significant. This is most likely due to the small number of subjects involved in the study.

There were two open-ended questions for teachers and students. The first inquired about perceived obstacles to online instruction. These are the items that were mentioned:

- Audio and video quality of the lessons.
- Weak Internet access causing connectivity issues.
- Lack of “hands-on” instruction (working with specific fingerings, grip, etc.).

The second question asked about perceived benefits of online instruction. These are the items that were mentioned:

- Flexibility of scheduling and location.
- Ability to learn from teachers who live and work at great distances from the student.

Chapter 5 - Summary and Conclusions

This study showed that overall teachers and students beforehand could see the potential benefits of online music instruction, but afterward their view of the potential benefits dropped. The reasons for this drop could be many, but the open-ended responses provided some insight. Some expressed that in online music instruction there is a lack of hands-on teaching and learning. This sentiment could have been a factor in the lower scores for potential benefits after the study.

After the study, students were much less confident in their ability to learn over the Internet, while teachers were more confident in this area.

Based on this study, more research into the pedagogy of online music instruction needs to be done to address some of its shortcomings. With each passing year, technology will continue to improve, which will slowly eliminate the technical issues. However, it is clear that if this mode of instruction is to become more viable, teachers need to be better trained in the best practices of online music instruction.

It is recommended that this study be attempted again in the future when the technology has developed further and more teachers are familiar with this mode of instruction. It is also recommended that when this study is attempted again, that it be done with a much larger

sample size. This study was done with two teachers and two students. A larger test group could shed more light on this growing topic.

Appendix

The Reliability of Online Private Music Instruction

A Master's Thesis Project

Teacher 'Before' Survey

Name_____

School_____

Music Discipline Taught_____

You are participating in a research project to determine the validity of delivering online instrumental/voice instruction. Please answer the following questions. These questions are used to gather data *before* you have taught an online lesson.

After each statement, mark an X in the box for one of the following: 'Strongly Agree', 'Agree', 'Somewhat Agree', 'Somewhat Disagree', 'Disagree', or 'Strongly Disagree'.

	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree
I am confident in my ability to deliver quality applied music lessons face-to-face.						
The only reliable method of delivering applied music lessons is in-person.						
Teaching applied lessons live over the internet presents too many obstacles and problems.						
In teaching over the internet, technology is limited as far as the audio and video capabilities needed to deliver quality instruction.						
My students would not be as successful learning over the internet.						
I have the technical abilities to teach an applied music lesson online.						

I am hesitant to try teaching an applied music lesson online.						
I can see the benefits of teaching applied music lessons online.						

Additional Questions:

1. What do you believe to be the greatest obstacles to success with online applied music instruction?

2. What do you believe would be the greatest benefits to online applied music instruction?

The Reliability of Online Private Music Instruction

A Master's Thesis Project

Student 'Before' Survey

Name_____

School_____

Instrument/Voice_____

You are participating in a research project to determine the validity of delivering online instrumental/voice instruction. Please answer the following questions. These questions are used to gather data *before* you have taken an online lesson.

After each statement, mark an X in the box for one of the following: 'Strongly Agree', 'Agree', 'Somewhat Agree', 'Somewhat Disagree', 'Disagree', or 'Strongly Disagree'.

	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree
I am confident with the skills I have gained from face-to-face applied music lessons.						
The only reliable method of delivering applied music lessons is in-person.						
Taking applied lessons live over the internet presents too many obstacles and						

problems.						
In learning over the internet, technology is limited as far as the audio and video capabilities needed to have a quality lesson.						
I would not be as successful learning over the internet.						
I have the technical abilities to take an applied music lesson online.						
I am hesitant to try taking an applied music lesson online.						
I can see the benefits of taking applied music lessons online.						

Additional Questions:

1. What do you believe to be the greatest obstacles to success with online applied music instruction?

2. What do you believe would be the greatest benefits to online applied music instruction?

The Reliability of Online Private Music Instruction

A Master's Thesis Project

Teacher 'After' Survey

Name_____

School_____

Music Discipline Taught_____

You are participating in a research project to determine the validity of delivering online instrumental/voice instruction. Please answer the following questions. These questions are used to gather data *after* you have taught 4 online lessons.

After each statement, mark an X in the box for one of the following: 'Strongly Agree', 'Agree', 'Somewhat Agree', 'Somewhat Disagree', 'Disagree', or 'Strongly Disagree'.

	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree
I am confident in my ability to deliver quality applied music lessons face-to-face.						
The only reliable method of delivering applied music lessons is in-person.						
Teaching applied lessons live over the internet presents too many obstacles and problems.						
In teaching over the internet, technology is limited as far as the audio and video capabilities needed to deliver quality instruction.						
My students would not be as successful learning over the internet.						
I have the technical abilities to teach an applied music lesson online.						
I am hesitant to try teaching an applied music lesson online.						
I can see the benefits of teaching applied music lessons online.						
I will continue to teach applied music lessons online as a result of my experience in this study.						

Additional Questions:

1. What do you believe to be the greatest obstacles to success with online applied music instruction?

2. What do you believe would be the greatest benefits to online applied music instruction?

The Reliability of Online Private Music Instruction

A Master's Thesis Project

Student 'After' Survey

Name_____

School_____

Instrument/Voice_____

You are participating in a research project to determine the validity of delivering online instrumental/voice instruction. Please answer the following questions. These questions are used to gather data *after* you have taken 4 online lessons.

After each statement, mark an X in the box for one of the following: 'Strongly Agree', 'Agree', 'Somewhat Agree', 'Somewhat Disagree', 'Disagree', or 'Strongly Disagree'.

	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree
I am confident with the skills I have gained from face-to-face applied music lessons.						
The only reliable method of delivering applied music lessons is in-person.						
Taking applied lessons live over the internet presents too many obstacles and problems.						
In learning over the internet, technology is limited as far as the audio and video capabilities needed to have a quality lesson.						
I would not be as successful learning over the internet.						
I have the technical abilities to take an applied music						

lesson online.						
I am hesitant to try taking an applied music lesson online.						
I can see the benefits of taking applied music lessons online.						
I will continue to take applied music lessons online as a result of my experience in this study.						

Additional Questions:

1. What do you believe to be the greatest obstacles to success with online applied music instruction?

2. What do you believe would be the greatest benefits to online applied music instruction?

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