

WORCESTER POLYTECHNIC INSTITUTE

Choral Directors and Technology

An Interactive Qualifying Project Report
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I. Abstract

The purpose of this project was to explore the interface between music and technology with respect to choral directors and education, and to present the continued research that is done by WPI students and faculty regarding the virtual choir. All information and data was gathered from choral directors at the ACDA Eastern division conference in Philadelphia, PA.

II. Introduction

Music educators and students from around the Eastern United States attended the ACDA convention in Philadelphia, PA, where WPI students continued to gather information regarding music and technology. The data gathered at the convention is specific to the virtual choir and the Digital Choral Folder, but each student had to conduct a certain amount of research both before and during in order to gain a better understanding for the situation they were studying. However, research and preparation leading up to and during the convention came in other forms such as analyzing individual state-run websites, attending various seminars and concerts, and reading previous projects that also explored the interface between technology and music.

III. Background

A. Websites

The American Choral Directors Association consists of thousands of music educators across the country. Because this overlying organization is so large, it has been split into sub-groups by state. Each state has created its own website so that each member or interested party can become informed of the happenings of their state's division of ACDA. After collectively looking at each state's website, there was discussion as to the effectiveness of each. The websites gave insight into the diversity and depth of technological endorsement from the respective boards.

B. On-going Research

As part of personal research, each student attended concerts and seminars to expound upon the interaction between technology and music. The sessions attended were as follows:

- Breathe with Ease!
- Lift Ev'ry Voice and Sing
- Conducting Master class with Joe Miller
- Bach concert at the Kimmel Center for the Performing Arts
- Conspirare Concert
- That Sound!

Full reviews of the attended events can be found in Appendix A.

C. Literature Review

Each of the project members reviewed literature previously written by other students regarding the interface between technology and music. The majority of the reviewed literature was research related to projection technology or the use and development of digital choral folders. Both projects present methods to shift the choral classroom away from using paper music in order to be more environmentally friendly. Over the next few years, this technology will see a rise in popularity stemming from the undeniable depletion of global resources; however, this technology also has a long way to go before it can be deemed effective. Projecting scores is cost-effective but issues have been found with proper singing posture, visibility of the score, and page transitions. Digital choral folders would alleviate the problems found with projection with the use of e-ink technology, but they are not cost-effective. Rather than continuing in the path of score projection, the Virtual Choir and Digital Choral Folder were the main focus of research in Philadelphia.

In Hartford, the project focused around score projection. Music educators were given hardcopies of some music, while the rest of the music was projected on screens. The educators were surveyed about the projected scores, and conclusions were drawn as to the effectiveness of this method for classroom purposes. When there was a hardcopy of the music, the participants rarely watched the conductor, but with the projected scores participants were more likely to observe the conductor. The delay with the page turning was another problem that arose.

In New York City the group set out to further understand the relationship between music and technology. By constructing a website for the convention, they provided a way for information, such as the President's address, to be transmitted to the other music educators. They also used

technology to create maps of the local area and to reconstruct the ACDA schedule. All the information was up on their kiosk, though due to location there were few visitors.

Research about the Digital Choral Folder was also incorporated. This project investigated the ability use e-ink technology to alleviate the paper used by choral musicians. The results demonstrated that people were enthusiastic about the digital choral folders, but there was an issue of which way the pages should turn. This project determined that future groups need to study the page turning process more thoroughly.

The last report used for research was written about the Virtual Choir. This group used the work *Spem in Alium* by Thomas Tallis for their example; they programmed the virtual choir to perform the 40-part piece. They were successful in programming the piece of music, but there was still more to be done regarding the development of the program.

IV. Methodology

A. Scheduling

Scheduling the materials for the conference was an involved process, requiring three AV schedules, a conference schedule, and the combined knowledge of two conference committee members. The first issue was in that, of the three schedules given by the committee, none of them were complete or accurate. In fact, the most accurate list provided was one that was over a month old, despite the amount of groups that had to cancel their sessions due to the weather.

The largest obstacle in this process was the ACDA committee member in charge of AV equipment. He was extremely disorganized and out of touch with a lot of what was going on at the conference. In fact, a significant portion of what students observed him working on was not actually related to AV equipment, but with moving other things (mostly music stands) to concert locations. However, the committee member in charge of Interest Sessions, to which most of the equipment was being provided, was a large help. He knew most of the presenters personally and had assembled a list of who needed what. With his help, it was possible to draw up a schedule for the group's equipment.

B. PowerPoint Presentations

The ACDA requested that the students create a slide show with information about the conference and Philadelphia to be displayed on three screens attached to the wall near the entrance of the convention area (see appendix). It was decided that the slides should contain the event schedule for each day, with provisions to remove events that had already occurred. In order to provide information about the surrounding area, students researched local restaurants near the convention center. These were inserted into the PowerPoint slides as recommendations from

each of the students. Without knowing exact details of how the screens were configured or how much direct access the students would have to them, it was decided that the simplest way to remove old information was to have two presentations for each day, one for the morning and another for the afternoon. Other methods considered ranged from having a web page scripted to not list old events similar to what the New York convention group had done to simply deleting slides out of the PowerPoint on the fly. While setting up the kiosk, the students discussed the screen configuration with hotel personnel. They were just three screens with a single VGA connection that allowed all three to be connected to one computer, which the students had to provide themselves. Being able to alter the presentation on the fly from the kiosk turned out to be highly convenient, as the students were informed about weather-related cancellations by word of mouth. In some cases, up to date cancellation information was in the PowerPoint before it was posted on the ACDA Eastern Division website.

C. Philadelphia

1. Departure:

The American Choral Director's Conference in Philadelphia was to be held from Thursday, February 11th to Saturday, February 13th. Accordingly, the project group was ready to prepare for departure on the preceding Tuesday, and leave for Philadelphia early on Wednesday morning, allowing time to set up the kiosk Wednesday afternoon and evening. However, due to projected inclement weather in both Philadelphia and Worcester, plans for departure quickly changed and half of the project group departed for Philadelphia on Tuesday afternoon hoping to arrive before the storm was predicted to start around 8 PM, with the rest arriving Thursday afternoon after the storm had ended and roads were cleared. Had anyone attempted to travel on

Wednesday, the city of Philadelphia was almost entirely shut down, with the only vehicles on the streets being police and snow plows. The snowstorm that hit the northeast led to many last minute changes in the group's schedule for the Philadelphia conference, and also impacted the travel of many conference attendees, especially from the Washington D.C. area, which received upwards of three feet of snow.

2. Tuesday – Saturday:

After the departing vehicles were successfully packed, the majority of the day Tuesday was taken up by travel to Philadelphia. The first two cars arrived safely Tuesday evening and checked into the hotel, one around 6 PM and the other shortly after midnight. On Wednesday, the group was able to load in the equipment and begin to set up the information kiosk. The group had a meeting later to review the PowerPoint presentations to be displayed throughout the conference. The group then spent the remaining time on Wednesday to complete the details of the presentations for each morning and afternoon of the conference.

On Thursday, the group in Philadelphia began their morning with a meeting before the conference hall officially opened, while the group members still in Worcester packed the remaining equipment and departed for the conference. The conference got off to a somewhat slow start, as many attendees were also delayed by the weather conditions. During the first day of the conference, the kiosk was entirely used to provide attendees with free internet access without taking any surveys. When the remaining group members arrived in Philadelphia Thursday evening, all the equipment needed to successfully run the information kiosk was at the conference. Once the exhibit hall officially closed, the entire group had a meeting in order to prepare for giving demonstrations and taking surveys with conference attendees the following day. In the evening, group members prepared materials for the Virtual Choir demonstration.

Friday morning began with a meeting to go over the day's agenda and equipment schedule. The kiosk agenda was similar to the day before, with the addition of gathering data on the Virtual Choir. At the kiosk, we would allow conference attendees to read along with a piece of recorded music, and after a brief explanation of how the technology works, they were asked to answer a short survey. Aside from running the kiosk, the group was also asked to provide computers and projectors for presenters throughout the hotel conference area. When students were not running the kiosk, they were bringing equipment to and from exhibit halls and helping the presenters in any way possible. Once the exhibition hall again closed for the night, the group had another meeting and concluded they had gathered enough data to calculate results on the Virtual Choir experiment. The group then discussed their plans for the next experiment to be done on Saturday. The evening ended with students preparing material for the Digital Choral Folder's page turning experiment.

Saturday began with yet another group meeting where the day's events were discussed. The largest challenge for Saturday was to get laptops and projectors to presentations on time throughout the day, which proved to be no easy task due to the high demand for a small amount of provided materials. While these materials were being shuffled between various locations in the conference center, other students in the group gathered information by demonstrating a page turning experiment related to the Digital Choral Folder, which included another short survey. As the end of the conference neared, the amount of attendees seemed to diminish slightly. Due to decreased attendance in the exhibit hall, the group collected less data for the page turning demonstration than the previous day's Virtual Choir experiment, though the group was still able to deduce results based on these figures. Saturday afternoon proved to be a difficult period of time based on the amount of equipment required throughout the conference. Scheduled events

that needed equipment directly followed events in different locations that had similar equipment needs, which was further complicated by one of the projectors intermittently malfunctioning, only working reliably in conjunction with the ATC laptops for unknown reasons. The day's event needs were scheduled precisely, and the afternoon proceeded without any major problems. As the conference came to a close, the group disassembled the kiosk and packed up equipment in preparation for return to Worcester.

3. Load-in/Load-out:

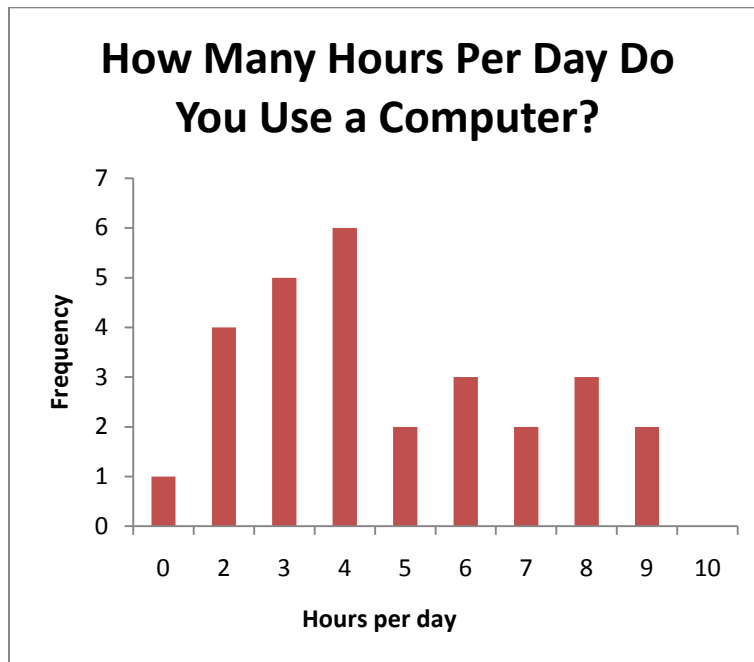
The load-in/load-out process did not go quite as perfectly as it was initially planned, primarily due to changes in weather conditions. The snowstorms in both Philadelphia and Worcester changed plans for arrival at the conference last minute, resulting in a rush to pack equipment and send some students down to Philadelphia on Tuesday. Had that equipment not arrived, the ACDA would have had to rent projectors from the hotel at a rate of \$600/day per projector, the total cost of which would have been nearly \$10,000. Some of the equipment was left behind, and was later brought by the other group of students on Thursday. Accordingly, load-in at the conference was not an ideal process. With all the equipment arriving on different days, the group was forced to slightly alter their plans for Thursday. Once all the equipment had arrived, the conference went as planned.

The load-out process was more coordinated than the load-in process, and went along more effectively. Although the students in the group left at different times as the final presentations utilizing the AV equipment ended, all of the equipment made it back to Worcester successfully, and the conference was an overall success. Out of all the equipment borrowed from professors and offices on campus, the only equipment lost was the power cable from one of the projectors borrowed from the Academic Technology Center.

V. Conclusions:

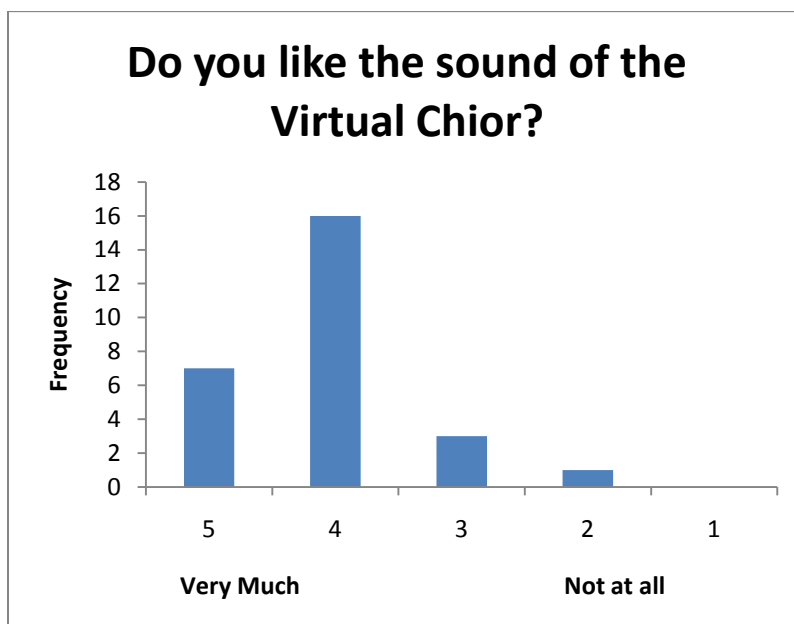
A. Virtual Choir Results:

The survey was set up with five questions where the responses were scaled 1-5, 5 being the highest. The first question was “How many hours per day do you use a computer?” This question was asked to obtain a general idea of how comfortable the participants were using a computer on a daily basis. The answers were very varied with 9 being the most hours, and one participant answering 0 hours per day.

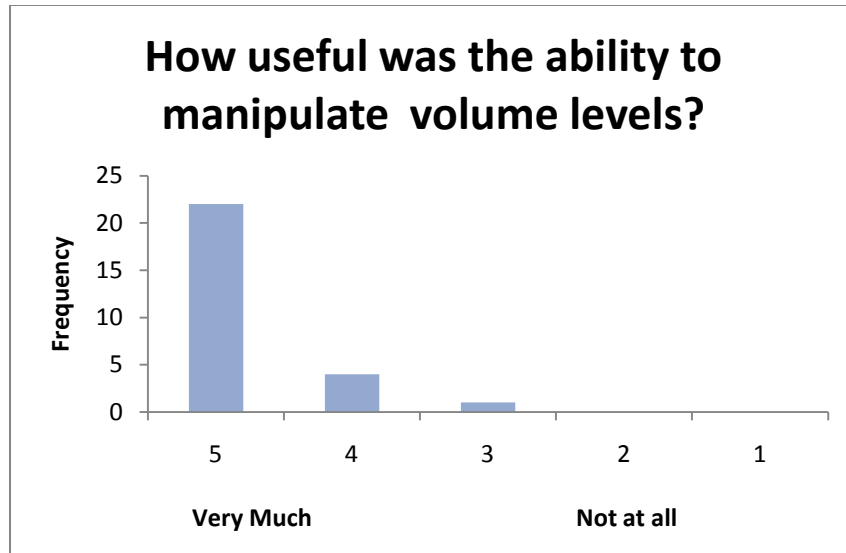


<i>How many hours a day do you use a computer?</i>	
Mean	4.7
Mode	4
Standard Deviation	2.35
Sample Variance	5.53
Range	9
Minimum	0
Maximum	9
Count	27

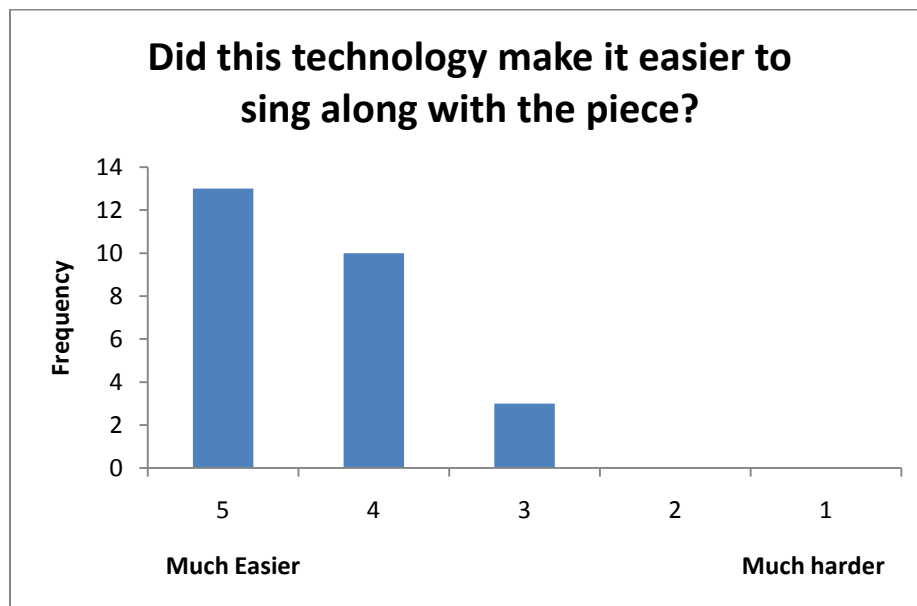
The second question on the Survey was “Do you like the sound of the Virtual Choir?” with the responses ranging from 1 representing “not at all” to 5 being “very much.” Out of 27 responses, 16 participants rated the sound of the virtual choir as 4 out of 5. In response to the third question, 22 participants found that the ability to manipulate volume levels was very useful, rating it a 5 out of 5. When asked if the technology made it easier to sing along with the piece, 23 participants rated 4 or more. This indicates that the virtual choir was successful in helping the participants sing along with the piece.



The participants were allowed to manipulate volume levels of each choral section, such that the part they sing could be set to a higher or lower volume than the rest of the voices in the choir. The results show that participants found the ability to manipulate volume levels very useful when singing with the virtual choir.



According to the results of the survey the Virtual Choir makes it easier for the participant to sing along with the piece. Most of the participants ranked the technology above 4 out of 5. This shows that the technology would be very helpful as a rehearsal tool.



B. Digital Choral Folder Results

Only 18 people were able to take part in the Digital Choral Folder survey which is not enough responses to gather statistically significant results. The survey and data gathered can be found in Appendix B under the Digital Choral Folder section.

C. General Conclusions

The Virtual Choir proved to be a very useful technology. A total of 27 attendees participated in the Virtual Choir survey and according to the results there were almost no participants that disliked any aspect of the technology. The most striking thing about the feedback received from the Virtual Choir evaluations is that the technology was almost exclusively well-received. There were very few to no concerns about the technology putting musicians out of work, though that may have had something to do with the fact that from listening to it, it was obvious that the prototype was not meant for anything but rehearsal. In fact, in conversation, many of the participants expressed excitement about how the technology could be of use to them. From here, the possibility for this technology to manipulate tempo in real time needs to be explored in more depth and evaluated for potential effectiveness. Though it was not displayed at the conference, the ability to do this is a vital point for the project and one which should be pursued beyond the scope of this IQP.

The first question on all surveys was “How many hours per day do you use a computer?” We found that there was a surprisingly wide range of the amount of hours these attendees spent on their computer, responses ranged from 0 to 9 hours per day. We had hypothesized, based on information obtained from previous project reports and the regional websites, that these choral directors would not be very familiar with technology. Although most participants spent 4 hours or less on the computer there were still a significant percentage of participants that spent more time on the computer. It was clear that age had a lot to do with the amount of experience these directors had with technology. Younger directors such as Heather Buchanan did not need any help setting up her computer and projector for her presentation. Some of the senior directors, however, needed much more assistance with the technology they reserved.

There is always one aspect of any project or event that we, as humans, have no control over and that is the weather. The weather played a large role in the outcome of this project. It was mainly a setback due to the fact that many people were delayed or deterred from coming to the conference because of the severe snowstorm that affected the area that week. Another problem the weather posed was transportation of the team and the equipment to the conference. Some of the group members had class until 5PM on Tuesday and were not able to leave before the snowstorm began, although most were able to make it to Philadelphia on Tuesday night. This affected the load-in procedure because not all of the equipment or group members made it to the concert before Wednesday. This process could be improved upon in future projects, perhaps organizing a better way to transport equipment or even a preparation procedure for an unexpected snowstorm similar to that which the group encountered. One thing to consider for transportation in the future is taking a train to the destination. Trains are very safe, less expensive than flights, and are rarely shut down due to weather conditions. Equipment could even be shipped to the destination ahead of time. Overall, it was very interesting to observe Choral Directors and musicians and their use of technology.

VI. References

1. Barriga, Jaime P. *Digital Choral Folder*. Diss. Worcester Polytechnic Institute, 2008.
2. Silvia, Jayce P., Marie F. Russo, Nicholas J. McKinnon, Renee J. Jurek, Katie A. Hudson, Sean D. Hallinan, and John F. Delorey. *Technology and Music*. Diss. Worcester Polytechnic Institute, 2006.
3. Teti, Adam J., Anthony A. Petrocchi, Shant Orchanian, Matthew D. Madden, Daniel N. Lattiere, Gerard P. Dwan, Katherine McKenna, William G. Lauwers, Anthony DeVecchio, and John F. Delorey. *ACDA Eastern Division Convention*. Diss. Worcester Polytechnic Institute, 2008.

VII. Appendix A: Interest Session/ Performance Reviews

Cassandra Cruz

That Sound!

I, along with many choral directors, attended an open rehearsal for the high school boys honor choir titled “That Sound.” The choral director used no technology, just a piano. The director started the rehearsal with a shoulder massage to relax the muscles of the neck. Next, he began a clap exercise to ensure that the students were paying attention to him and listening to each other. He had the boys do a funny exercise where they shook their pointed fingers. I am guessing it was to get their blood flowing. One thing I really like about his rehearsals is that he had the singers use hand movements to visualize the breathing and where in their range the notes they were singing should be. Including a vowel warm up where he had the singers make the shape of their throat with their hands to show what the throat muscles should be doing while they sing each vowel showing the tension and relaxation of the muscles. He had them visualize a ball between their hands which expanded as their voices grew louder. He spent some time teaching about using a head vs. a chest voice when singing. The singers had to ask their dad for a car in falsetto and then using a chest voice, which was really funny to observe. I noticed that some of the singers were really good at matching their hand movements with the notes and rhythm, but there were a few that did not understand or were not very good at it. The second half of the rehearsal they practiced singing “If music is the food of love” which was a really great song to sing at a spring concert. The singers were excellent, as expected. Some of the singers were out of tune so the director made the chorus sing the opening line an octave higher correctly and then sing it again in the original octave which corrected the notes.

Breathe with Ease

“Breathe with Ease” was an interest session held by Heather Buchanan from Montclair University. The session’s goal was to teach effective breath management through body mapping. Heather was very knowledgeable of technology; she brought her own Sony computer and requested a projector to display a very well put together PowerPoint presentation. She began the session by identifying several problems that singers come across because of poor breathing techniques including: noisy breathing, inability to hold a breath for a long time, projection of voice, and tone quality. She identified three aspects to consider when mastering breathing. First she spoke about balance and alignment of the spine to ensure proper posture which will enable better breathing. Just as any ballet teacher would do she instructed us to imagine a rope extending from our spine through the top of our head keeping our spine aligned with our hips and shoulders and keeping our posture tall. Next she spoke about all the muscles that are used when breathing. She immediately dispelled the myth that breathing was all about the diaphragm. Breathing is in fact regulated by the muscles surrounding your ribs! The external intercostals and the internal intercostals are the muscles that surround the ribs which tense and relax to allow breathing. Since the diaphragm cannot be controlled it is best to think of these muscles when controlling your breathing, this will fix many of the problems that were identified in the beginning of the session. Heather also got four people involved in a funny exercise where each person played a different anatomical part involved in breathing and had to coordinate the movements they would make, using their hands, when exhaling and inhaling. Most of her research was taken from “Body Map. Understanding the anatomy of breathing” by Barbara Conable.

Nicholas Stone – Interest Session Reviews

That Sound!

Jerry Blackstone with the Eastern Division High School Men's Honor Choir

The rehearsal started with a brief introduction of the Honor Choir and conductor Jerry Blackstone. The singers began by massaging each other's shoulders in order to loosen up and get to know one another. They then began to sing warm-ups, which included various arpeggios up and down through scales while the director displayed with his hands the step intervals being sung, to demonstrate how voices should fluctuate. Blackstone then explained to his singers the key differences between head voice and chest voice, and how placement of crossovers while singing affects the singers' tonality overall. When the choir began to sing their piece, the overall sound was much better than ever expected. Even though the students were in a high school and in rehearsal, they sounded like professional singers in concert. The amount of attendees in the audience was a clear indication that this performance was a special event and that these choral musicians were some of the most talented young singers at the conference.

Breathe with Ease

Heather J. Buchanan

After a brief introduction, Heather Buchanan explains that her seminar is designed to help choral directors teach their students how to breathe properly while singing, and introduces a method she refers to as body mapping. She describes many typical singing postures, and how many of them can harm a singer's ability rather than improve their voice quality and stamina. She goes on to explain that the body mapping technique focuses on aligning the spine, relaxing the ribcage, and allowing free movement of the diaphragm. With the aid of a

small skeleton model, Buchanan demonstrates the spine alignment and free movement of the ribcage. She then uses the audience to show that these breathing techniques are simple to teach, and simple to understand. She considers her method to be composed of a top-down exhale and a bottom-up inhale, which allows for maximum airflow and can help a choral singer to improve their voice quality, voice projection, and stamina.

Ravi Raval- Literature Reviews

Conspirare Concert

I attended the Conspirare concert. I have been singing in high-quality choirs since I was eight years old, and over the years I have heard many good choruses. Conspirare was entirely a different experience. The group produced, by far, the most incredible music I have ever heard in my life. The first piece was a Gitanjali Chants, a modern plainchant. The basses immediately impressed me, not only with their sound quality, but also with their sheer depth of pitch. At one point, they sang a G three octaves below middle C. The program was carefully crafted to provide a seamless experience for the audience. The concert was split into three themed sections. Other notable pieces from the first section were Agnus Dei, by Samuel Barber, and All Works of Love, by Joan Szymko. The second section was more up-tempo, with a folk and gospel feel; selections included *Treputé Martela* (The stomping bride), a humorous Lithuanian folk song with percussion, Plenty Good Room, and Walk Together Children by the late Moses Hogan. Finally, Conspirare performed two pieces as an encore: The Battle of Jericho, again by Moses Hogan, and Light of a Clear Blue Morning, originally by Dolly Parton and arranged by Craig Johnson (the director of Conspirare). The soloist, Kathlene Ritch, had the most beautiful voice I have ever heard. The latter song evoked such an emotional experience for me that I shed a few tears, and prompted me to buy the song from the iTunes store.

Chamber Orchestra of Philadelphia

I attended the Kimmel Center to hear the Chamber Orchestra of Philadelphia perform a concert of Bach's works, conducted by the world famous Bach scholar Helmuth Rilling. Among the featured performers was organist Eric Plutz. Additionally, the Westminster

Choir and Temple University Concert Choir provided background for some songs. The performance consisted of two cantatas, and after a short intermission, Bach's Magnificat in D Major. Orchestral music is generally less appealing to me than choral music; however, I was very impressed with the performance. The organist did make several errors, but overall the orchestra was quite good.

Sarah Jaffer- Literature (Concert & Session) Reviews

Conducting Master Class

I attended a conducting master class run by Joe Miller. In typical master class fashion, each student conductor was given a chance to conduct a live choir, after which they would receive a critique on their performance and at which point an exchange would begin between the student conductor and Joe Miller. Each of the student conductors was extremely skilled and very knowledgeable of the piece of their choice. The first conductor, Guillermo Muñoz, suffered from the problem of moving his upper body too much as he conducted. Most of his time on stage was spent learning how to be expressive with and make the most out of his gestures without moving the rest of his body. Through him, Joe Miller showed that a conductor's gestures are easier to follow and more effective if they are the sole conduit of the conductor's musicality.

The second student conductor, Joseph Shortall, had chosen an exceedingly difficult two-chorus Bach piece. What was, perhaps, most impressive about him was that he had learned the score well enough to conduct it almost entirely from memory. However, when it came to his interpretation of the piece, his conducting was often uninspired by the natural shape of the phrases. He was shown how to use the structure of the score to interpret it and bring more life to the music beyond his abundant enthusiasm.

Last, but certainly not least, Lisa Diver took the audience's breath away, conducting a gorgeous and moving rendition of Bruckner's Virga Jesse Floruit. In fact, she did such a good job of it that she stunned a room full of choral directors and music enthusiasts, as well as her

host. She was coached on her rehearsal technique and how to craft her gestures more precisely to achieve exactly the effect she was looking for.

All in all, it was an extremely informative and impressive display of conducting know-how. I doubt there was a single person in that room, experienced directors included, who did not take something away from the session.

Chamber Orchestra of Philadelphia

On Friday evening, I attended a concert at the Kimmel Center for the Performing Arts. And to start off, I would have to say that the performance hall itself was the highlight of the entire experience. The entire inside of the performance hall was shaped like a cello, which seemed to be as good for the hall's acoustics as it is for the instrument itself. As for the concert itself, I have to say it was somewhat disappointing.

I am a great lover of Johann Sebastian Bach's music, which is part of the reason why I was extremely disappointed every time the organist rushed (which was, unfortunately, most of the time). The concert master and principle cellist, though both accomplished players, seemed not to ever communicate. Thus, the orchestra played the notes, but did not play to support the soloists or the organist or the choirs, who had clearly rehearsed well and sung their parts beautifully and musically.

To sum up the experience, I would say it was uninspiring. They played the music, but made very little of it on a whole. What could have, and should have been a great and musically enriching concert, instead was flat and felt void of the passion necessary to truly make music.

Joseph Baker-Literature Reviews:

Interest Session: Breath with Ease! – Friday 4:00 PM

The topic of Heather Buchanan’s presentation is a technique called “body mapping”, which is based around the ability of a musician to be aware and conscious of their anatomy and how each part of their body is connected. She explains in detail the exact process that occurs within the body when breathing. When breathing passively, the body performs this function in an efficient manner. When a person sings, they actively take control of their breathing, which, while necessary, requires learning consciously what exactly the body does unconsciously. While explaining what muscle groups are involved in breathing, Buchanan discusses various posture problems and improper motions that singers often employ which hinder their ability to breathe as well as they otherwise could. Buchanan focused on two key parts of the body that most people do not make proper use of when breathing: the diaphragm and the ribcage. The idea of the ribcage moving is a somewhat foreign idea to most, and is actually very important to breathing properly when singing, as this movement is what gives the lungs the most space to expand. The diaphragm is an interesting muscle in that it has no nerve endings to sense touch. Any movement of the diaphragm is only felt indirectly by how it pushes against other parts of the body. That being the case, most people do not realize how large of a muscle the diaphragm actually is and fail to make full use of the muscle as a result.

Interest Session: “Lift Ev’ry Voice and Sing” – Saturday 11:30 AM

Judy Hanson began her presentation by having the audience sing a “Lift Every Voice and Sing” – without any introduction or sheet music. She was illustrating a point: less than half of the audience actually knew the song, and she jumped straight into it as if everyone should know it. This is a real problem for the Chicago Children’s Choir, which is not so much a choir as an

organization, providing choral programs to many Chicago schools. The most telling example was when they wanted to do a Beatles medley, only to find that most of the kids didn't actually know the Beatles at all, and could not relate to it at all until they watched Across the Universe, which sets "Let it Be" to the Detroit race riots of 1967. Children are willing to try any kind of music, they just have to start with something they know and understand before they are comfortable trying something new.

VIII: Appendix- Surveys

Virtual Choir Survey

(1) How many hours a day do you use a computer? _____ Hours

(2) Did you like the sound of the virtual choir?

Very Much Not at all
5 4 3 2 1

(3) How useful was the ability to manipulate volume levels?

Very Much Not at all
5 4 3 2 1

(4) Did this technology make it easier to sing along with the piece?

Much easier Much harder
5 4 3 2 1

Questionnaire for Digital Choral Folder

How many hours per day (on average) do you spend using a computer?

Was the music displayed on the screen large enough to read comfortably?

YES SOMEWHAT NO

Which of the Page Turning methods did you prefer?

- BOOK METHOD (two pages at a time)
 SHIFTING METHOD (one page at a time)

Please mark on the scale below how quickly you think you could become comfortable with using the SHIFTING METHOD (one page at a time):

Very Quickly Not Very Quickly
5 ----- 4 ----- 3 ----- 2 ----- 1

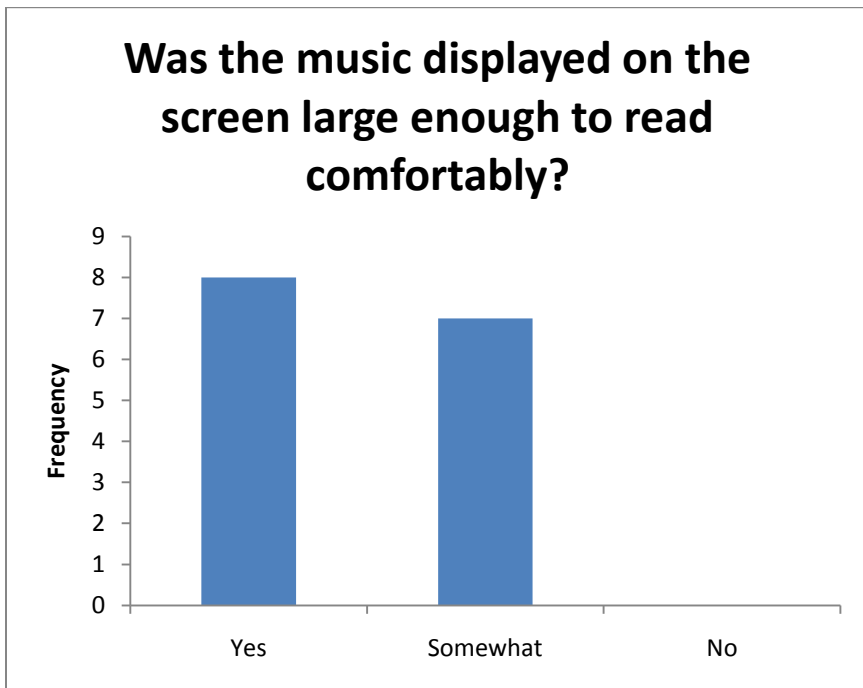
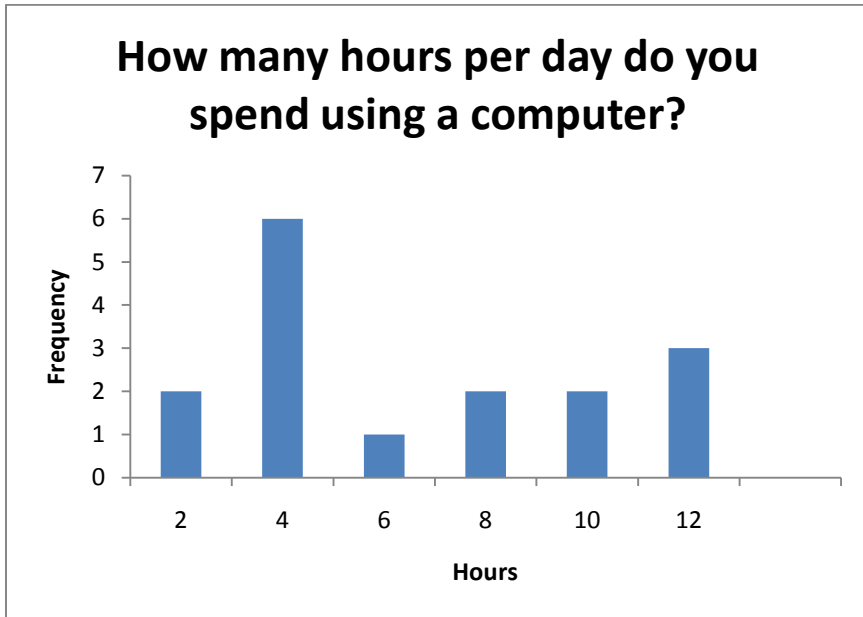
Please mark on the scale below how much you liked or disliked the SHIFTING METHOD (one page at a time):

Liked Disliked
5 ----- 4 ----- 3 ----- 2 ----- 1

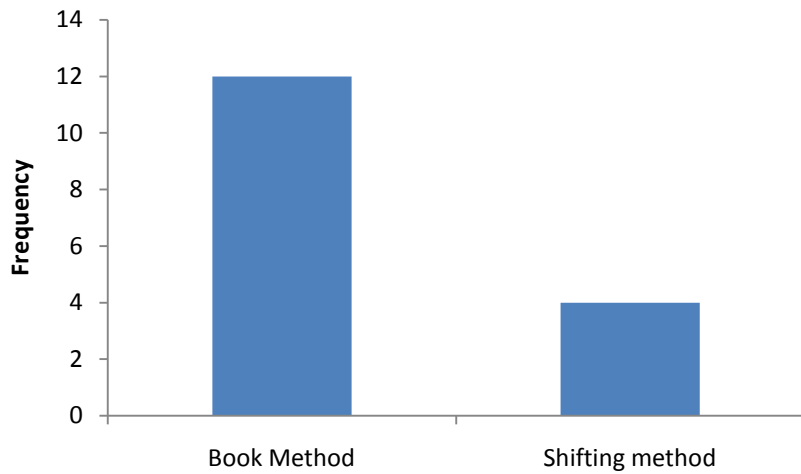
Please mark on the scale below how much you liked or disliked the BOOK METHOD (two pages at a time):

Liked Disliked
5 ----- 4 ----- 3 ----- 2 ----- 1

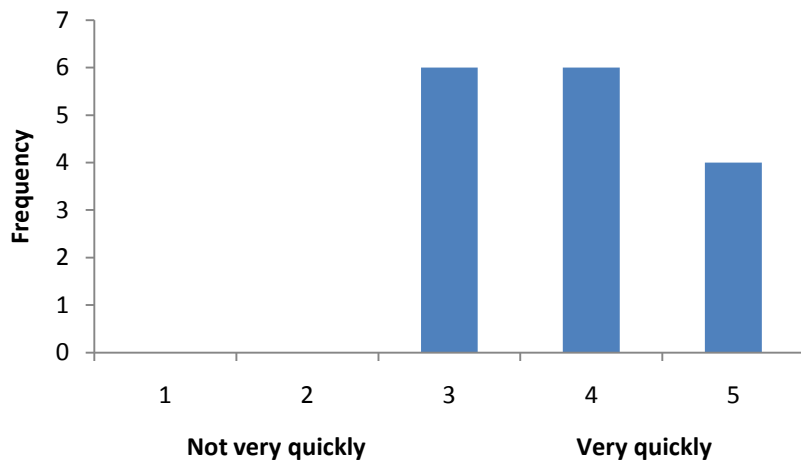
Data Results for Digital Choral Folder:



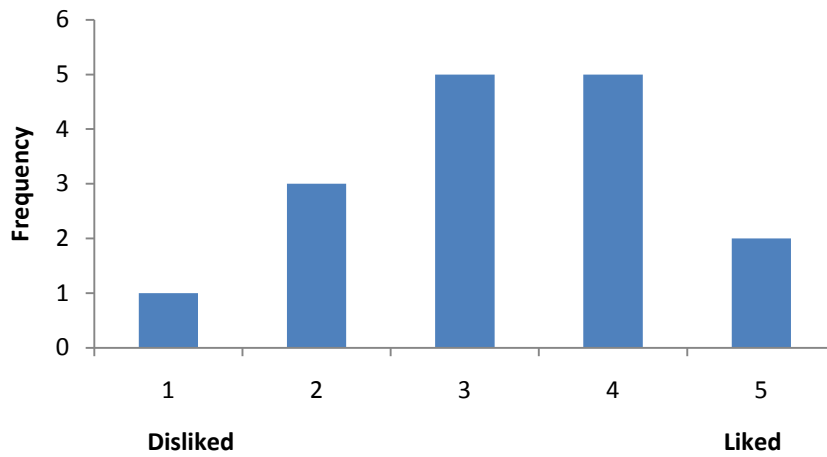
Which page turning method did you prefer?



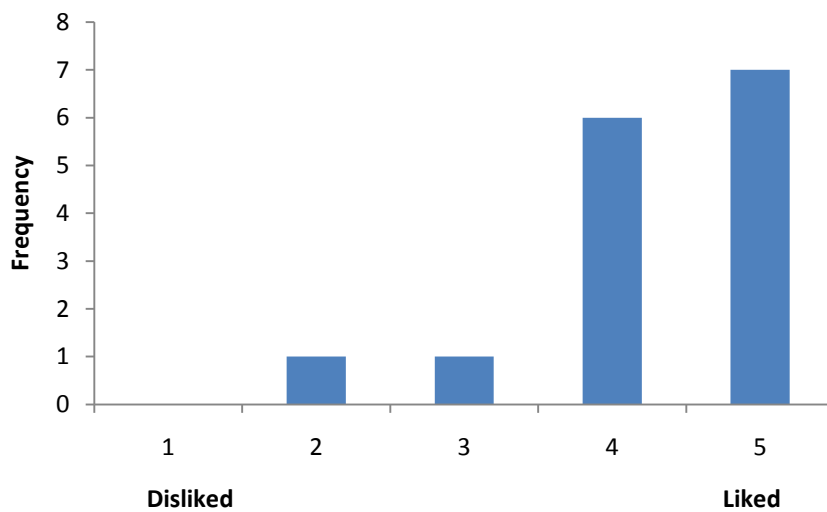
How quickly do you think you could become comfortable with the Shifting Method?



How much did you like or dislike the shifting method?



How much did you like or dislike the book method?



IX: Appendix C- Important Emails

----- Forwarded Message

From: Lynn Drafall <led5@psu.edu>

Date: Fri, 15 Jan 2010 06:02:12 -0500

To: John Delorey <jfd@wpi.edu>

Cc: "odd101@psu.edu" <odd101@psu.edu>

Subject: PowerPoint for media wall

Good morning, John:

Because we are using the AV services offered by the Marriott, they have given us the media wall usage for free. The wall includes three large screens as folks enter the registration/exhibit area, but I think the registration desk will be blocking the center one. So, there will be one screen available on each end of the free-floating wall. With the traffic plan we've derived, that means that there will be a screen at the entrance to the exhibit area and another at the exit.

Would you and your students be willing to create PowerPoint displays regarding our conference for these two screens? They can either be the same or different (I believe that each screen has its own computer.) These can include pictures, graphics, and text - whatever. And, I do think that not only should they include things about our conference specifically, but also some things about Philadelphia. We've made such a push to get our registrants out into the town to take advantage of all the fabulous richness of the place....so I'd really like to keep pushing that.

These will be VERY prominent as this wall is the first thing that is seen as people register.

Are you willing?

Cordially,
Lynn

----- End of Forwarded Message