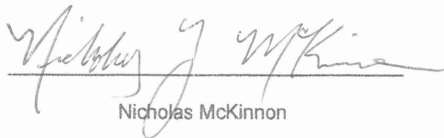Project Number: JD2-PNYC - 48

Technology and Music

An Interactive Qualifying Project Report

submitted to the Faculty

of the

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the
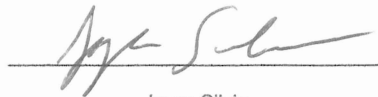
Degree of Bachelor of Science

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Date: March 13, 2006

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1. Choral Technology
2. Web Design
3. Recording Technology

Abstract

Worcester Polytechnic Institute boasts an outstanding music program and stands as an example of consonant harmony between technology and music. All musicians stand to benefit from the power of technology in some form. Our project team demonstrated the value of technology to the musicians at the Eastern Divisional Conference for the American Choral Director's Association, and digitally documented as much of the convention as possible.

Acknowledgements

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1. Introduction

Our Interactive Qualifying Project was entirely based around our trip to New York City to introduce the integration of technology into music at the American Choral Directors Association (ACDA) Conference. Preceding our trip we designed and organized a web site for people attending the conference. This web site included a downloadable PDA schedule, an area guide with maps to each location, a schedule of events, the president's address to all attending the ACDA conference, and selected video taped performances. The web site was critiqued by the president of the organization and improvements and updates were made. We also decided which interest sessions and performances that were to be video taped during the conference by polling members of the ACDA and finding out which ones they were anxious to see. To be prepared for video taping, we ran through the procedure at a couple of University of Massachusetts at Amherst choral rehearsals and transferred them onto the web site. A schedule was made ahead of time to organize our duties during the conference. Our duties involved loading and unloading our equipment, monitoring the information kiosk, video taping the selected interest sessions and performances and then uploading them onto the internal web site, as well as present at our own interest sessions and manage our question and answer sessions. Following the conference we met and discussed our accomplishments and improvements and began planning for the next ACDA conference. This project was the first attempt at bringing WPI's "Techfest" to the American Choral Directors Association. This IQP can serve as a preliminary blueprint for WPI's future role in the choral community at the national level.

2. Pre-Project Preparations: Initial Research and Polling

In preparation for our project work in New York City, we all worked together the spring prior to the conference in a PQP setting. We were able to get many things accomplished during this term, including website critiques, polling, and new website designs. With a large group of eight IQP students, we divided into three subgroups in order to allow everyone to provide the most of their ideas and talents.

One assignment during the Pre-IQP term was to examine the current ACDA national, division, and state websites, and present detailed critiques of them. We all came to similar conclusions in regards to the current ACDA websites. The ACDA National website (See Appendix) was lacking in the aesthetic aspect and its logo was too small and set off to the side to make its presence known. National's home page contained the contact information which is something that should be saved for the "Contact Us" link. We suggested that they use the home page for new breaking information, announcements, and upcoming events. The template of the website is a good thing to have, however the one they chose is slightly boring and is small in comparison to the size of the page. The links located on the side of the page are not aligned with the margin, and therefore doesn't look very professional. There are also many links that are very specific, perhaps splitting them into different categories to make it easier to navigate through the website. There are also many other small details that should be looked at by the webmaster of the National ACDA.

When examining the ACDA Eastern Division's website (See Appendix) we found several instances of poor website design. The black matting around the square of the open space in the website makes the website look smaller and more cluttered than it really is.

With the Eastern Division Conference coming up, the information about it on the home page is a very good aspect of the website. The direct links to each state website is very helpful; however, the location of the links on the website may not be the easiest to see or the most familiar place to put it. Overall the website has an unsystematic placement of information, perhaps a more orderly arrangement of links, icons, and information would be better for the website.

The final website we were asked to critique was the Massachusetts ACDA website (See Appendix). One positive thing we found was their use of a background other than white, the textured feeling given to the website adds to its aesthetic appeal. Understanding that the logo of the Massachusetts region is what it is, the size it can be overwhelming. The text of the links located on the left side is in a font that is fairly hard to read, and readability is the most important aspect of the website text. If the text of a website is not readable, then its whole purpose of relaying information is not fulfilled. Also some of the links are double on the home page; therefore there are two ways to get to a certain webpage of specific information. There is no need to have this doubled navigation options, it only confuses visitors. The top links are very small in comparison to the other links, and can possibly be overlooked. In general, we found that the ACDA websites needed some work, which leads to our next assignment.

In our subgroups, we were asked to design a website to be used prior, during, and shortly after the February Eastern Division Convention in New York City to provide information to convention visitors. This website must contain a place for the conference schedule, video clips of selected sessions, and an area guide. Using our critiques of the current websites, we designed three separate websites and at the end of the term chose

one to make slight adjustments and use for our website for the convention (See Appendix). In completing this assignment, we were finally able to see how our project would directly help the Eastern Division Convention that was still ten months away.

In addition to critiquing the existing ACDA websites, we took a poll of which interest sessions and/or clinics people would like to be recorded during the convention (See Appendix). We wouldn't be able to record every session, mainly because of lack of equipment and people to do the required video recording. We used the results from the poll and set up a schedule for recording the chosen sessions. It would have been more professional on our part to record all of the sessions, so that everyone could have seen everything from the convention but the adequate tools were not our disposal.

3. Scheduling

Due to the fact that we were dealing with a large group of people trading off a multitude of tasks; a precise and detailed schedule was needed to coordinate the event. The three-day conference was split up into individual days, and each day was marked, as to the activities that were occurring during that time. Each of the mandatory events was then inserted into the schedule, such as the presentations for each day, and the Missa Gaia concert performance. Everything else had to work around these unchanging events. There were two activities that needed to be scheduled in for people to do: manning of the kiosk, and filming other pre-selected presentations. During the PQP component of the project, the group took a poll as to the most interesting sessions people wished to see at a later time, should they miss the event. We then recorded the most desired lecture for each session of seminars. Since these only occurred at predetermined times, these were the second item to be planned into the schedule.

The kiosk was the final item to be added. The requirement, set forth by Professor Delorey, was that no less than two people should be overseeing the kiosk at any time. Under no circumstances was it to be abandoned between the hours of 8 AM and 6 PM, when the conference was active. This led to several complex arrangements in order to make the schedule, as a whole, work.

First off, no one was intended to work double and triple shifts whenever possible. The schedule was made as fair as possible for all people in this project. If one person had just completed a filming, they should get a break before running over to the kiosk for the next few hours. Secondly, the time span between seminars, concerts, and varying sessions would be the time where the kiosk would be the busiest, with people asking

questions before moving on to their next destination. Therefore, there would be no shift switching at these points in time. Each shift ended at least 15 minutes before or after an event ended or started, respectively, to give the questioning crowd time to reduce in numbers.

The scheduling was a task of juggling nine people into many slots in each day. The hard part occurred when several unforeseen complications arose. Initially, Professor Abercrombie, president of the American Choral Directors' Association, wanted our project group to record specific extra sessions. This required a complete overhaul of the schedule, as the entire project team was working for this time span, allowing no margin of error for manpower. Following that, we were made aware of additional mandatory rehearsals for the Missa Gaia concert. Again, this stretched the team's variability very thinly.

The final accommodations occurred in dealing with each individual's opportunities for meals and other similar necessities. With all of these requirements came a great deal of shuffling and reorganizing the master schedule. The final result was obtained and can be seen in *Appendix 1.* This uses the team's resources very well, and implements every one of the instances listed above.

4. Video Taping

The UMass choir was our test subject for video recordings and still pictures. Three video taping sessions were held. An example was at Smith College were choirs performed while we taped them using our video camcorder and digital camera. After the performance the video was transferred to computer. Select group members had opportunities to work with the editing software initially and the whole group eventually had a meeting to review the recording techniques.

While in New York City, selected video sessions were taped. Groups of two students arrived up to 15 minutes early to the events and introduced themselves to the presenters. Most people were cooperative and appreciated, but a few had problems with the taping. We had two camcorders and one laptop to record to. The camera not being recorded to laptop recorded onto Mini-DV tape and then onto laptop when it wasn't being used. Using iMovie software, videos were cut and briefly edited if needed. To fit all the videos on the computer and to decrease loading time, videos were compressed into "web streaming" size. After being compressed they were transferred to our server where our kiosk computers could load off of.

There wasn't enough preparation for the video recording. Only a few groups members were able to do the video editing, not the entire group equally. This turned out to not be a problem because some people wanted to do more of the video editing because they enjoyed it. Only our project manager was able to transfer the final compressed videos onto our server because of the complexity of the file transfer. This could have been improved by finding a simpler method of file transfer.

The cameras we used were inadequate for our needs. One camera was not made to be used with a laptop as it shut off after ten minutes or so. This caused slight glitches in video. The video was cut so the viewer couldn't notice, but this wouldn't have been done if we tested the cameras beforehand.

5. Website

5.1 Incorporating Video into a Website

The first assignment we were given during PQP was to find websites that successfully integrated video into the page. Since the videos of the sessions we selected were all an hour long or longer, it was necessary that the video be streamed on the site, rather than downloaded. One hour of web compressed video is approximately 60 megabytes of data, and is much too large to expect a user to download. Video streaming is the process whereby the data is downloaded and viewed in real time, as opposed to transferring the file completely, and watching the video afterwards. This allows the user to connect to the site, watch the first few minutes of the presentation right away, and decide whether or not it is something of interest to them. If the video was not streamed, the user would have had to download the entire hour of the presentation before they realized it was or was not what he or she was looking for.

Once it was decided that the video had to be streamed on the site, the next task was to make it possible. Our second assignment was to divide into groups and make four demo websites from which to choose. Our final decision was to use Apple Computers' QuickTime. QuickTime is easily embedded into HTML and is the standard video format on the Macintosh platform, which was a must in this project. The website at the information kiosk was displayed on five Macintosh computers, and it was therefore necessary to make sure everything worked flawlessly on the Mac. If we were to have any issues with compatibility at the conference, it would be damaging to the image of technology we were trying to present. We used the Macintosh program iMovie to record and encode the videos, because of its simplicity and ease of use. Since iMovie only

exports videos in the QuickTime format, it would have been difficult to use any other video format on the website.

With the decision to stream the QuickTime video format made, the step was to design a page that would allow the user to easily choose from a list of available videos. The three options we could see were to either link to a separate page for a particular video, open a pop-up window for the selected video, or to place the video and the list side by side on the page. Linking to a separate page for each video could be done with basic knowledge of HTML, but would require a full page to be made up with the existing layout of the site for each video, and for that reason the first option was ruled out. While the pop-up window would probably be the easiest method, it was likely that at the conference, a number of users would come and go, leaving pop-up windows open and minimized behind the main page. This ruled out the second option. We determined that the best way to incorporate the video into the page was to make a scrollable list next to the video interface. This method involves the use of JavaScript to target an IFRAME on the page, and change the source attribute to the proper video file. We believed IFRAMEs were the best way to smoothly present the video, although it was not necessarily the easiest way. We felt that it was most important that the website be clean, sleek and user friendly. When the video page was loaded, the video controls would be grayed out, and the screen could display instructions for the video page, with a scrollable list of interest sessions all on the same page.

5.2 Scripting

The most difficult obstacle to overcome was to write a script that was cross-platform, that is, it had to work on both PC and Macintosh web browsers. JavaScript has been widely used on the web since it was first introduced in 1995; however it has a multitude of problems concerning compatibility. Each web browser has a number of scripts which it does not support, so the object was to find out how we could write the script for the video section so that it would be accessible to all users. The original site was only compatible with Microsoft Internet Explorer, and used the following line of code.

```
document.all.themovie.src="video1.html";
```

Here, the IFRAME is treated like an object, and changes the source (src) attribute to the proper video. The next script we used treated the IFRAME like a frame.

```
frames['themovie'].location.href = 'video1.html';
```

This script allowed us to target the IFRAME containing the video from the main page, acting like a link, and changing the hypertext reference (href) attribute. It was this script that we used on the other parts of the site to navigate between IFRAMES, but in order to use it on the video page, it had to come from another page on the parent frame. The result was the following script.

```
parent.frames['themovie'].location.href = 'video1.html';
```

This script could be executed from one IFRAME and change the location of another IFRAME on the same parent page. Including this script was one of the final changes that were made to the site before the conference.

The use of IFRAMEs was integral to the design of the website. It allowed us to maintain the same layout for each page, while making certain portions of the page

scrollable. An IFRAME is a floating window in an HTML page; it has its own source file, and works like a normal HTML frame. The website was not heavy in text content, so it was not necessary to have a full page of scrollable text. The main goal in designing the site was to make it attractive, functional and user friendly.

5.3 Public Website

While the website was in development, all members of the group were able to access it from home. We used the Secure Copy Protocol (SCP) to access the audiolab server in Alden Hall, so team members could update the site. Members to the account could log in with the correct username and password, and make necessary changes. The permissions on the site were set to also allow anyone to view the page via the Hypertext Transfer Protocol (HTTP). Once the site was completely operating, it was uploaded to the web server for the Eastern Division of the ACDA.

5.4 Content

Several different sections remained in the final web site. There is a video welcoming address from the president of the American Choral Directors Association, Professor Wayne Abercrombie, a page showing the available interest sessions that had been recorded, an area guide with maps, and an up-to-date schedule of events. Each of these pages contains very different information and was created in a different manner.

Prof. Abercrombie's address was a simple page to design. A small text blurb quotes some major points of the speech itself. To the right, a QuickTime video window allows you to view the address video. Prof. Abercrombie came out to WPI one evening earlier in the project to have this address taped. The video was then converted, compressed, and uploaded to the website. Prof. Abercrombie approved of the resulting product.

Each selected interest session was video taped either to a Mini-DV tape or straight to the Macintosh iBook that was brought with us. If the session was not taped directly to the laptop, it was streamed to the computer and captured onto the hard drive. Since the tape had to be replayed for the computer to capture it, this process took as long as the video itself was. The video was edited if needed. In either case, the video had to be compressed as to avoid large transfer and load times when accessing said videos. This took between half and a full hour for each approximately ninety minute session. After this process was complete, the video was uploaded to the server. Permissions were set and the website was updated to allow this new video to be available on the "Video of Selected Sessions" tab on the website. Many people found this feature useful, although many did not have the time to spend watching an entire ninety minute session.

The process of making the videos viewable on the website, from recording to uploading, was relatively simple though time-consuming. The ability to record straight to the laptop saved a lot of time. The only foreseeable improvement would be to have a more powerful computer running the compression. While a long process, it was easy.

The area guide with maps was easy to make, but not widely used. Our group went to MapQuest.com for most of the information in that section. Attractions were gathered from MapQuest's database. There were several categories of top ten attractions that we chose to list on our site. Driving direction maps were obtained from MapQuest as well. These maps were a little odd because they were meant for driving directions, whereas our target audience would be walking most places in New York City. The only issue with this arose when one-way streets were encountered. However, most people were able to understand the maps. This process was also easy because of the common location of the data we were looking for. The only downside is that this section of the site was not used frequently. Most people, looking for the type of information we offered, used the Hilton hotel's concierge desk or used the maps that the ACDA provided in their guide. The only suggestion for this section would be to work more cooperatively with the ACDA as to only have one area guide. This service may not even be a valuable use of time and resources.

The most time-consuming portion of the content on this website was the schedule. Originally, we found an Adobe PDF file with a schedule of events for the three days of the convention. This was the basis of our schedule page. Over the course of about two months, many updates to the schedule were made. Prof. Abercrombie supplied us with a

copy of the ACDA's master schedule. This allowed us to update many session titles, presenters, and locations. Prof. Abercrombie, Robert Duff, and Judith Nicosia all reviewed our schedule and made corrections to it. It was great having people to run drafts of the schedule by for corrections. The only downside was when several conflicts in information arose. Changes were being made up until the day before we left for New York City. This portion of the site would have been much easier to complete if there was one concrete schedule that we could have gone by. Our group should have set a reasonable date for the ACDA by which the schedule should have become final and no more changes allowed. This would have allowed our entire group to focus more on debugging the technology we were bringing with us to New York City.

5.5 PDA Schedule

For the conference, we programmed a PDA Schedule so that conventioneers would have the ability to download and load into their palm pilots the entire convention schedule several days before the conference off the ACDA provided web hosting. Due to the fact that there are so many different manufacturers the main difficulty in programming the schedule was constructing it to be cross platform. This process involved using several software packages such as iCal, Palm Desktop (for both Mac and Windows), and Microsoft Outlook. The final schedule was actually a conglomerate of several files such as vCal (.vcs), Tab Delineated (.tab), Database (.dba), and Comma Separated (.csv). This would allow any user of the popular manufactures, specifically HP, Palm, Treo, and Blackberry, to use their own sync software and import the appropriate file of the schedule directly onto their handheld device. We ran into several complications in creating all the different files and we constantly received schedule updates. We only got the final schedule online one week before the conference. That, combined with the fact that the ACDA never linked our site from the convention homepage, the PDA Schedule was never utilized.

6. Information Kiosk

Throughout the three day conference, we had an information kiosk set up with five Macintosh computers displaying our internal website. Unfortunately, when we arrived to unload, the kiosk's location had been moved to the back of the function room. We were originally told that the location of our booth would be at the entrance of the function room so that people could get the best out of our information kiosk; but due to an unknown misunderstanding, we were placed in the worst possible location. The majority of the people walking through the function room didn't wander to the back aisle where our kiosk was positioned, and much to our disappointment, we received fewer visitors than expected.

The people that did stop at our kiosk did not have time to watch the interest sessions and performances we video taped previously during the conference. However, they were very impressed that the video taped sessions were already on our internal website having only occurred a few hours before their arrival at the kiosk. Many of the people who approached our kiosk were looking for an internet connection to check their email but we did not have internet hooked up, but this could be something to look into for the next ACDA conference. There was a small section of our booth displaying WPI booklets as well as a large banner displaying the WPI logo. We received several questions about the school and a few people were interested in the pamphlets about the summer frontiers program and the music program at WPI.

Another individual approached us towards the end of the conference bringing to our attention that we had taped a performance earlier that day without the performers' permission. We took down their contact information to send them the proper paperwork

because he did not want us to delete the video tape. Other than a few visitors, the kiosk did not turn out as we had planned and was unsuccessful, a lot of which had to do with its location.

7. Equipment Transit

Load-in and load-out for the 2006 ACDA Eastern Convention was extremely unorganized and chaotic. The problems plaguing the load-in and load-out began the even before we departed for New York. There were three main issues. First, no one person had a vehicle big enough to carry all our equipment to New York City in a single trip. Secondly, the conference coincided with the exam schedule for several of the students and third, our advisor, John Delorey, had to be at a meeting in New York before any of the students could even leave Worcester. Also, it was far too expensive to have everyone park at the hotel in Manhattan, so it was decided that we would use Mike's grandparent's house as a staging ground and parking area so we could park our cars for free and take the subway into the city. This split up our equipment between two cars which created a lot of confusion which will be discussed in detail later. The solution decided on was, during the meeting the evening before departure we would test and load as much equipment as possible into John's car because he was parking it at the hotel. Mike Kristan would also take the other half of the equipment directly after this meeting to his grandparent's residence located a few miles north of Manhattan, and the drive into the city in the morning after dropping those who parked in at his grandparent's house off at the subway. Problems with the computers began almost immediately during the meeting causing the inventory of our equipment and load-in to the cars to go very slowly with half the students doing inventory and loading, and the other half helping with the computers. This issue caused the inventory to simply list what we were bringing, and didn't allow us to pack intelligently. The transportation of the students also became an issue. Due to exams and classes, six of the students left Worcester at 10AM in a two car caravan and

arrived at Mike's grandparent's house in Yonkers, NY at approximately 12:30 PM. However, the other four students could not leave Worcester until 2PM and subsequently missed the entire load-in, dumping the work on the other students. Once we arrived in Yonkers, we realized that due to the fact that Mike's car was carrying the majority of the equipment, the original plan for Mike to "ferry" us to the train station in a single trip was not a possibility. Therefore, the plan was reformed so that Nick followed Mike to the train station to drop five of the students off, then returned to Yonkers to park his car and then Nick and Mike drove to the hotel together with the equipment. At this point, things began to run more smoothly. The five students who rode the subway arrived without incident at the hotel around 2:30 PM and Mike with the equipment in his car was not far behind. John had already gotten all of the equipment from his car onto the sidewalk thanks to a heads up cell phone conversation once we got off the subway and began walking toward the hotel. We quickly got the equipment upstairs into the exhibition hall and by the time all the equipment from John's car was loaded into the hall, Mike arrived. We unloaded Mike's car and set up went smoothly for the most part. However, due to the fact that we were also presenting at this conference we additionally had to set up our presentation room. This is where the fact that we didn't plan as we packed came back to haunt us. The equipment for the exhibition hall and the presentation room was all mixed into the same suitcases and boxes. This required many more trips back and forth between the two area's swapping equipment and lengthening our setup time. Even though we were shorthanded we were able to complete the set up and have the kiosk running a full hour before the hall officially opened. The last part of the load-in involved Mike driving his car back up to his grandparent's house and taking the subway back to the hotel.

Load-out unfortunately was far more chaotic compared to load-in. This was primarily due to the fact that the thousands of conventioneers were departing at the same time as we were, but there were a few issues on our part as well. First, the convention completed Saturday afternoon, however due to the fact that over half the people in our group were singing in that afternoon's "Missa Gaia" performance; we were again shorthanded during breakdown. Additionally, the exhibition hall was being allotted for a wedding that same evening, so we had to pack up all of our equipment and get out of there. However, we had no locked storage on the convention floor, so we had to haul all the equipment in many, many trips up over 30 flights to our rooms. This was the worst part, we were so pressed for time and shorthanded no one took any account for anything. No load-out inventory was taken, everything was packed anywhere it would fit and carried up stairs as quickly as possible to get the job done and get to St. Bartholomew's church to film the "Missa Gaia" concert. This meant that all of our equipment was scattered throughout three different rooms with no one person knowing where everything was. Due to the fact that there were two concerts and a rehearsal for "Missa Gaia" the same afternoon we didn't have time to have a group meeting either, and thus a time or more importantly a meeting place was never firmly decided for the next morning's load-out and departure. Mike had to get up quite early Sunday morning to get on the subway and get his car back down to the hotel so we could load it up. This occurred without incident, except on the return to the hotel Mike had some large traffic issues. The fact that all the conventioneers were attempting to leave at the same time caused quite the backup into the hotel's parking garage. By the time half of the students were packed and

downstairs the lobby was utter chaos. However, due to the fact that no one knew where to put anything the group members just started carrying equipment from their rooms and putting it wherever they felt appropriate. It took many cell phone conversations between the members to get all the equipment out into the parking garage to load into both cars. This could have gone much smoother and quicker had there been better communication the day before. In truth though, the delay did not cost us that much time, for we had to wait over forty minutes for John's car to be retrieved from the valet parking. During the wait, we were able to get everyone on the same page and all the equipment loaded either outside awaiting John's car or into Mike's car ready to go. We were all so frustrated by the time that the only guideline in packing both vehicles was a basic idea of what equipment went into each car. Therefore, once we got back into Worcester, there was a lot of confusion as to the location of computer power cables and accessories of the like which could have easily been avoided with better planning.

8. Interest Sessions

8.1 Choral Toys

The *Choral Toys* presentation caught the most peoples' appeal, as it addressed several new ways that technology could enter the choral institution. It used conceptual walkthroughs and live demonstrations to capture the audience's attention, and lead to very active question-and-answer sessions, even starting ethicality debates. This seminar even led many people to ask further questions at the additional help session as well as the kiosk. The technology of choral innovation has inspired unique solutions to improve the way in which we instruct, learn, and practice music.

8.1.1 Digital Choral Library

The Digital Choral Library software was developed at Worcester Polytechnic Institute, and is designed to better organize the musical scores that are stored in Alden Hall. The system functions like an electronic card catalog at the public library. Users can log in to their account, and search the database for a particular piece of music. The software displays information about the piece, such as where it is, or who has it, if it has been check out. The music can be organized by what groups are using it, or can be grouped manually by an administrator. Administrators have the ability to add, remove and edit music in the library. Ultimately, the goal of the Digital Choral Library is to digitize the scores in .pdf format to be downloaded into the digital music folders. This presents problems with copyright laws, however, and there is much progress to be made in that particular area. The software now serves simply as a means of locating the physical copy of the score.

8.1.2 Digital Choral Folders

Accompanying the Digital Library are the Digital Choral Folders. They would work with the library by receiving data, and presenting that data (musical scores) to the folder user. The folder can be configured to browse the library, and download a specific piece of music to display. The music would then instantly appear as if the user were holding the paper version of the score. This simple and intuitive interface would make the device widely useable by everyone, including non-technical people.

The appeal of the device is aimed at the goal of creating a paperless choral environment, and this is the direct object of that goal. By implementing a digital music display, along with a library of the choir's collection in a digital format, no paper is required at all. This results in fewer photocopies, fewer lost music copies, and no one digging through an entire room with thousands of scores on shelves.

8.1.3 Virtual Choir

The Virtual Choir is a concept based on the "Virtual Orchestra" (as developed by Dr. David B. Smith of New York Technical College and Worcester Polytechnic Institute's own Dr. Fred Bianchi). The basic idea is to use a MIDI file to direct the performance of an array of speakers to give of the feel of a very large chorus. Combined with a human performer controlling the interface and the tempo an entire chorus can be controlled by a single person. This technology is designed to be used in accordance with live performers, but is highly contested by many professional musicians for the argument that their jobs are being "outsourced" to a machine. This was a major source of questions and also arguments at the ACDA Conference presentation. This is not the case, the Virtual Choir/Orchestra is made to compliment human performers not re place them. The technology is not advanced enough to sound like a human right out of the box. In fact, the majority of the time spent on any virtual piece is making it human. Analyzing the score and finding the nuances that a performer would make but the computer would not. Making notes go sharp or flat, or come in early or late. Making a piece human literally involves making the computer play small mistakes. The technology has come quite far but still has a fairly long road ahead with the ultimate goal of being able to provide human like sound directly from a very basic MIDI score. The technical schematics and further detailed explanations of the Virtual Choir can be found in the conference PowerPoint presentation attached in the appendix at the end of this paper.

8.2 Web Design

Our web design presentation opened the eyes of many to the possibilities of connecting choral groups through the internet. They could post choral music in PDF format before a rehearsal for members to download and practice. They could even download the midi file for their part so they can learn from home. The idea behind our web design presentation is to introduce people to the possibilities of the internet and give them the beginning knowledge to being utilizing the internet to the benefit of their choral group.

Many of the ACDA web pages were very systematic and uninteresting. The idea behind a web site is to catch the viewer's attention in a stylish, uncluttered way. We presented a tutorial on how to use Macromedia's Dreamweaver and Fireworks programs to make a simple website. The presentation included file organization, Dreamweaver's setup, the basics to using the program, creating and using templates, imaging, creating a photo album, and the general dos and don'ts when building a website.

Organization was the first step to explaining how to build a website. Under the root folder there are at least four main folders to include following: an HTML folder for the actual web pages, a content folder for files that are linked to from the website that aren't web pages or images, a templates folder to hold any templates that are created for the site, and finally an images folder to hold all picture files. This is a simple, yet organized way to manage even a large, complex website.

The next step after setting up a file structure is to open Dreamweaver and begin creating or editing a website. The tutorial gives step by step images of how to open

Dreamweaver, giving it an existing file structure to work with. We felt this would be the best way to walk through the steps needed.

Several features of a website that are included in Dreamweaver were overviewed. There is a general properties toolbar that allows users to manipulate many useful things in the website. This toolbar includes the following text properties: size, font face, alignment, the ability to create lists, etc. Links are also easily created using this toolbar. This toolbar is very useful in creating and altering many things that make websites useful.

The tutorial also goes over how to insert images, text and image links, and tables. Then using the knowledge obtained from the first section of the tutorial, you can create templates. Templates are the repeating section of a webpage usually consisting of the main logo and basic links to each page of your website. After you know how to create and use templates you can begin designing using Macromedia Fireworks, a very basic imaging program. This program can also be used with Dreamweaver to create a photo album.

The next section of the presentation was to give a simple set of Do's and Don'ts of website design. A bit of research gave ample amount of helpful hints to anyone who is designing a website either for the first or the hundredth times. Several of these hints include the type and number of different fonts, color schemes, branding, templates, and page set up. Making sure the website is interesting to the user and unique enough to be distinguished from the other websites is also an important part of website design. However, the main purpose of a website to convey information to the public and if this purpose is absent it becomes a major factor in the failure of websites. This means that the website must be simple enough to be decoded. The main aspect of website design is the

consistency of the website, from page to page there must be similarities to ensure that the visitor is reminded of whose website they are exploring. Overall, the website design presentation was very successful and those who attended received all the basic knowledge needed to begin designing their own webpage.

8.3 Recording Technology

The third presentation that was presented at the ACDA convention was a presentation on recording technologies. This started off as one of the original topics during PQP and was eventually used in the project itself. The objective of presenting information on recording was to show various ways for choral directors to record his or her groups. Each setup shown would allow for a different budget range to allow for the best quality for each price.

The presentation was split up into three budget areas: low cost, medium cost, and high cost. Research was done online searching for the best option in each budget area. The low cost solution was found be to be the Archos Gmini 402 used along with the SoundPro SP-BOOSTER-1 microphone. The medium cost solution was found be a pair of AKG C1000s condenser microphones, Mackie 1202-VLZ pro mixer, and a Tascam CD-RW750. This setup was based off of the setup shown in the "Live Recording Handbook for WPI Music Ensembles" sufficiency provided by Prof. Rich Falco. Finally the high cost recording solution provided would be finding one's own local professional recording company. These options cover the cost range of a few hundred dollars to a few thousand.

The presentation was given on Saturday, February 18, 2006 at 8:00am and was based on a PowerPoint presentation we designed showing the information gathered about the three recording solutions, information on microphone placement, and a tutorial on how to setup a mixer.. A copy of this PowerPoint can be found in the appendix of this

report. A handout explaining the setup of a mixer was also available for attendees to take. This handout can also be found in the appendix of this report. After the slide show, we invited our guests up to the front to test our personal recording devices and to ask any questions they had.

The attendance at the presentation was very poor. Only about six people showed up and stayed. Those who did show up were interested in the material presented and seemed to learn some new ideas for recording. Questions were asked afterwards and the attendees seemed satisfied. The session was not the full allotted time as there were not many people or many questions. Also, the room needed to be broken down and all the equipment taken out as soon as possible. We were also not able to give the question and answer session that was scheduled later in the day because we had to move everything ahead of time. This should have been planned before, but was not known until we arrived. This session was also not recorded because of a flaw in the recording schedule.

9. Recommendations and Improvements for the Future

After post-conference discussion, we took note of improvements for the next ACDA conference that will be held in Miami, Florida next year. An important issue was that we never acquired permission to video tape some presentations and performances. This was supposed to have been taken care of before the conference but was never followed up on and luckily did not lead to any trouble. In the future, a form will be needed to confirm the presenter and/or performer's consent to be taped and should be taken care of in sufficient time before the conference to avoid confusion and hassle.

It is recommended that future teams have a Macintosh readily available to them during the development of the website. Since the kiosk is likely to remain Macintosh based, compatibility issues with the Macintosh browser Safari and/or the Mac operating system should be dealt with far in advance. Also, it should be ascertained at the beginning of development whether the site is intended to be public or simply an internal site intended for the Information Kiosk.

A few conventioneers who brought their PDA approached the kiosk and asked to download the PDA schedule, but because there are so many manufacturers we did not account for the fact that people would not bring their own sync cables, let alone their software. We never would have been able to provide them with cables and software; it would have been far too expensive. For future conferences, if the schedule is not firmly set well in advance of the conference and there is no publicity to allow people to utilize the PDA Schedule like this conference, then creating a multiplatform PDA Schedule is not worth the effort. We worked hard on the schedule and as far as we know not one person put the PDA schedule to use.

The only problems we found with the kiosk were the location and the availability of internet. An important improvement we discussed was having internet on our display computers for people to check their email or browse the internet if need be. And we discussed the important of location, although a misunderstanding, could have been confirmed before we arrived. We also could have had more pamphlets and advertising to boost the WPI name. Another issue we discussed after the conference was the problem with matching attire. Some of us were dressed in business casual, while others too casual. A dress code should be firmly established before the conference, we are there to represent our school and dressing appropriately is important.

We found that the web design interest session would have been more helpful if we had given critiques of websites and provided more one-on-one attention with convention visitors with specific questions about their website.

The recording presentation could have gone better if we established our exact topic dealing with recording earlier on. The subject of our presentation had changed many times throughout planning and it wasn't until before the convention we started focusing on recording techniques. The recording presentation was productive for those who attended, but should not be an interest session if this type of project is repeated again. There were companies with recording equipment and information at the ACDA convention that could have presented more information and more explanations than we could have. The recording idea should possibly be dropped or some how incorporate the different companies into giving presentations about their products. This could possibly lead to a better attendance and more information for the audience.

Load-in and load-out could have gone smoother in many ways. We attempted to anticipate all the issues we figured we would face. Retrospect is the best analysis though, so what recommendations could allow future trips to operate a bit smoother? First off, it would be wise to rent an equipment van. By simply taking this step, many of the issues that hampered and complicated our loading could have been avoided. Had we rented a van, the need to require Mike to go over and above taking several trips to Yonkers and back would have been completely avoided. A single vehicle would allow packing to go much smoother and the confusion on what particular equipment belongs in which vehicle would have been avoided. The fact that we didn't have any locked storage would not have been an issue as well. We could have simply loaded the van and parked it again, rather than haul all our equipment into our respective rooms. Additionally, testing the equipment further in advance of the evening before the trip began would have helped. This would have allowed us to pack with more concern. This is another point, when packing; do so not just by where things fit, but pack by specific equipment destinations. Grouping our equipment together by location would have made both setup and breakdown go much faster for us. Firmly deciding on a set schedule for load-in and load-out would have also been a great help. Granted, the fact that thousands of people were all attempting to checkout at once made the scene one of great confusion, had we anticipated this, it wouldn't have affected us. First, for load-in, be absolutely certain that everyone can arrive at the same time. The more hands the better. If we had the entire group available and had packed better, setup would have been effortless. Second, for load-out, predetermined coordination is essential. Everyone must know what time they are required to be packed, checked out, and at the load-out area. With these concerns addressed, the

issues observed load-in and load-out at the 2006 ACDA Eastern Division Conference would have not occurred and should be a set of guidelines for future convention exhibitors and attendees.

Appendices

Appendix 1: Poll Results

Date:	*Time:*	*Session:*	*Votes:*
Thurs. 2/16	8-9:30 am	Why We Sing	4
"	"	Teaching Sacred Music in a Secular Context	3
"	"	Open Rehearsal	3
"	"	Choirs and the Web	0
Thurs. 2/16	4-5 pm	Warming Up the Voice	5
"	"	Group Vocal Technique	3
"	"	Choral Music of Mozart	2
"	"	Choral Music of China and Taiwan	2
Fri. 2/17	8-9:30 am	Recruiting New Singers for the Community	7
"	"	Choirs and the Web	2
Fri. 2/17	11:15-12:15	Vela Vela: South African Music	6
"	"	Early New England and Contemporary Songs	1
"	"	Arranging for High School Choral Groups	0
"	"	Developing A Choral Color Palette	2
"	"	Seeing and Singing: Choral Music in Cinema	2
Fri. 2/17	1:30-2:30 pm	Great Choral Literature for Building Tone	5
"	"	Discovering Intergenerational Common Groups...	0
"	"	Yodel Your Way to Vocal Health	3
"	"	The Music of Meredith Monk	0
"	"	Starting a Multi-Cultural Choir	1
"	"	Robert Shaw Remembrance	3
Sat. 2/18	8-9:30 am	The Development of Part Singing	7
"	"	Choirs and the Web	0
"	"	A New Creation: Collaborative Commissioning...	1
Sat. 2/18	11:20-12:20	Choral Improvisation	7
"	"	Adventures in Programming	0
"	"	Brahms and His Choral Music	2
"	"	Latin American Choral Literature	1
"	"	Harmonic Singing	3

Appendix 2: Schedule

Thursday, February 16, 2006

	8:00	8:15	8:30	8:45	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	1:00	1:15	1:30	1:45	2:00
Ryan	Toys Presentation--->																Toys Q&A Session--------->								
Nick B	Toys Presentation--->																Toys Q&A Session--------->								
Nick M	Toys Presentation--->																Toys Q&A Session--------->								
Renée	Kiosk--------->																			Kiosk--------->					
Marie	Kiosk--------->												Kiosk--------->												
Katie					Kiosk--------->																				
Sean	Tape 'Why We Sing'--->				Cleanup								Kiosk--------->												
Jayce	Tape 'Why We Sing'--->				Cleanup															Kiosk--------->					
James					Kiosk--------->																				

Morning Session: "Why We Sing" - Paul Head
Afternoon Session 1: "Warming Up the Voice: A Practical Demonstration with the American Boychoir" - Fernando Malvar-Ruiz
Afternoon Session 2: "New York City Public School Music" - Francisco Núñez

	2:15	2:30	2:45	3:00	3:15	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15	6:30
Ryan												Kiosk--------->						
Nick B							Kiosk--------->											
Nick M							Kiosk--------->											
Renée									Tape 'NYC'---------->		Cleanup							
Marie									Tape 'Warming'----------->		Cleanup							
Katie	Kiosk--------->																	
Sean									Tape 'Warming'----------->		Cleanup							
Jayce												Kiosk--------->						
James	Kiosk--------->								Tape 'NYC'---------->		Cleanup							

	8:00	8:15	8:30	8:45	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45
Ryan															Kiosk------------>					
Nick B	Tape 'Legacy'------>				Cleanup										Kiosk------------>					
Nick M	Tape 'Legacy'------>				Cleanup															
Renée	Web Design Presentation-->							Kiosk------------>									Web Design Q&A------>			
Marie	Web Design Presentation-->																Web Design Q&A------>			
Katie	Web Design Presentation-->							Kiosk------------>									Web Design Q&A------>			
Sean														Tape 'Vela'------>				Cleanup		
Jayce	Kiosk------------>																			
James	Kiosk------------>													Tape 'Vela'------>				Cleanup		

Morning Session: "The Legacy of Robert Shaw" - Ann Howard Jones
Midday Session: "Vela Vela: South African Choral Music" - Mollie Stone
Afternoon Session 1: "Great Treble Choral Literature for Building Tone" - Marie Stultz
Afternoon Session 2: "Creating a Multi-Cultural Choir" - Francisco J. Núñez

	1:00	1:15	1:30	1:45	2:00	2:15	2:30	2:45	3:00	3:15	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15	6:30
Ryan		Tape 'Multi'------>					Cleanup							Kiosk------------>									
Nick B		Tape 'Great'------>					Cleanup																
Nick M		Tape 'Great'------>					Cleanup																
Renée	Q&A Session------>							Kiosk------------>															
Marie	Q&A Session------>							Kiosk------------>															
Katie	Q&A Session------>													Kiosk------------>									
Sean	Kiosk------------>																						
Jayce	Kiosk------------>																						
James		Tape 'Multi'------>					Cleanup																

	8:00	8:15	8:30	8:45	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	1:00	1:15	1:30	1:45
Ryan	Kiosk------------>																Tape 'Improvisation'---->			Cleanup				
Nick B	Kiosk------------>													Kiosk------------>									Travel--->	
Nick M									Travel------>		Rehearsal------------>				Travel---->		Tape 'Improvisation'---->					Travel-->	Call------>	
Renée	Tape 'Development'------>				Cleanup										Kiosk------------>								Travel--->	
Marie									Travel------>		Rehearsal------>				*Travel----->*								*Travel--->*	Call------>
Katie	Tape 'Development'------>				Cleanup				Travel------>		Rehearsal------>				*Travel----->*								Travel--->	Call------>
Sean	Recording Presentation------>								Kiosk------------>								Recording Q&A------>				Kiosk------>			
Jayce	Recording Presentation------>								Kiosk------------>								Recording Q&A------>				Kiosk------>			
James	Recording Presentation------>								Travel------>		Rehearsal------------>				Travel---->		Recording Q&A------>				Travel-->	Call------>		

Morning Session: "The Development of Part Singing" - Jon Noyes
Afternoon Session: "Choral Improvisation" - Lone Larsen

	2:00	2:15	2:30	2:45	3:00	3:15	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15	6:30
Ryan	Takedown Kiosk------------>							Travel--->		Tape Concert------------>									
Nick B	Tape Concert------------>						Travel--->		Takedown Room------------>										
Nick M	Performing------------>										Performing------------>								
Renée	Tape Concert------------>						Travel--->		Takedown Room------------>										
Marie	Performing------------>										Performing------------>								
Katie	Performing------------>										Performing------------>								
Sean	Takedown Kiosk------------>							Travel--->		Tape Concert------------>									
Jayce	Takedown Kiosk------------>								Takedown Room------------>										
James	Performing------------>										Performing------------>								

Appendix 3: Choral Library

WPI Music Library

http://localhost:3000/admin/piece

Apple Mac Amazon eBay Yahoo! News (652) ▾ Apple (174) ▾

WPI Online Music Library

Admin
Manage Pieces
Manage Folders
Manage Borrowers

Library
Keyword Search
Advanced Search

Listing pieces

Filter by keyword: [   ] (Filter)

Remove Filter

Title	Composer				
Old Alma Mater WPI	Me	Details	Edit	Destroy	Create Copies
Alma Mater WPI	Delorey, John	Details	Edit	Destroy	Create Copies
Blessing	Bart, Katie Moran	Details	Edit	Destroy	Create Copies
Brothers Sing On	Grieg, Edvard	Details	Edit	Destroy	Create Copies
Christmas Festival	Anderson, Leroy	Details	Edit	Destroy	Create Copies
Cindy	Wilberg, Mack	Details	Edit	Destroy	Create Copies
Elijah Rock	Hairston, Jester	Details	Edit	Destroy	Create Copies
Kling, Glockchen, Kling	Mager, Stephen	Details	Edit	Destroy	Create Copies
Medley from Les Miserables	Lojeski, Ed	Details	Edit	Destroy	Create Copies
Missa G	Winter, Paul	Details	Edit	Destroy	Create Copies

Next page
New piece

http://localhost:3000/library/select_terms

Apple   Mac   Amazon   eBay   Yahoo!   News (652) ▼   Apple (174) ▼

WPI Online Music Library

Admin
Manage Pieces
Manage Folders
Manage Borrowers

Library
Keyword Search
Advanced Search

Select the fields to search:

☐	Title	☐	Composer
☐	Year	☐	Vocal Parts
☐	Language	☐	Duration
☐	Singer Diff.	☐	Conductor Diff.
☐	Solo	☐	Instrumentation
☐	Location	☐	Choir
☐	Text Author	☐	Keywords
☐	Composer Country	☐	Composer Sex
☐	Composer Born	☐	Composer Died
☐	Text Year	☐	Price
☐	Publisher	☐	Publisher Country
☐	ISBN		

[Search these fields]

http://localhost:3000/admin/borrower

WPI Online Music Library

Admin
  Manage Pieces
  Manage Folders
  Manage Borrowers

Library
  Keyword Search
  Advanced Search

Browse by group

Edit Groups

Vocal Performance Lab

Interstate 8

Simple Harmonic Motion

Alden Voices

Glee Club

...Or add a new borrower

New borrower

📖 Apple Mac Amazon eBay Yahoo! News (652) ▾ Apple (174) ▾

WPI Online Music Library

Admin
  Manage Pieces
  Manage Folders
  Manage Borrowers

Library
  Keyword Search
  Advanced Search

Folder actions

New folder
List All Folders

  Folder #: _____
OR Barcode: _____

○ Folder Details
○ Re-Barcode/Unassign/Check-in
○ Assign (Check-out) Music
○ Check-in Music
○ Scan Folder

[Do it]

◄ ► | C | + | http://localhost 3000/library | ○ | Q- Google

Apple Mac Amazon eBay Yahoo! News (652) ▼ Apple (174) ▼

WPI Online Music Library

Admin
  Manage Pieces
  Manage Folders
  Manage Borrowers

Library
  Keyword Search
  Advanced Search

Keyword: [   ] (Search)
Advanced Search
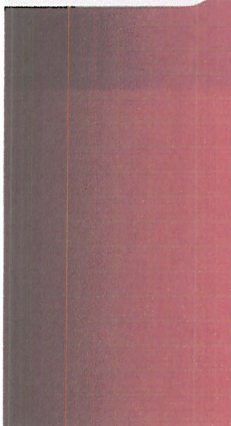
Remove Filter

      Title   **Composer**

          Details Edit Destroy Create Copies

Next page
New piece

Appendix 4: Virtual Choir PowerPoint

Slide 1

The *Virtual* Choir?

The Agenda

1. What is it?
1. How can you make whole chorus play off one computer?
2. Does it sound like a computer?
3. How hard is it to master?
4. Just how human does it get?

Slide 2

So what is the Virtual Choir?

This concept is a sub-group of the "Virtual Orchestra" (as developed by Dr. David B. Smith of New York Technical College and Worcester Polytechnic Institute's own Dr. Fred Bianchi) begins with the invention of MIDI Technology.

The basic idea is to use a MIDI file to direct the performance of an array of speakers to give of the feel of a very large chorus or orchestra

Slide 3

So what is the Virtual Choir?

Computers are not quite advanced enough yet to follow a conductor, so the system requires a performer to keep tempo. Many other features are also available to the performer increasing the humanity of the performance.

Lets run through the whole system!

Slide 4

The Whole System

First off, the system begins on a computer containing the score's entire MIDI file.

Secondly, several MIDI synthesizers to take all that digital information and turn it into a electric audio waveform.

Lastly, you need an array of amplifiers speakers and cabling to send each vocal part to their own speaker.

Choose speakers WISELY!

Slide 5

The Whole System

Seems pretty simple dosen't it?
Let's take a look at last year's "Virtual Orchestra" technical schematic.

Slide 6
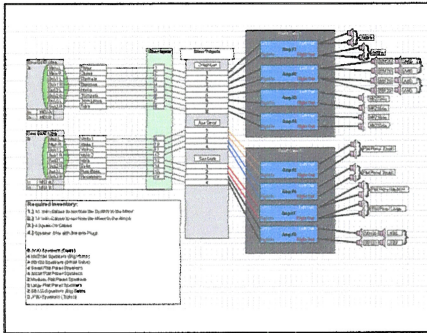
Slide 7

The Whole System

Layout is key to success. If you want to have your audience feel like they are hearing a huge chorus it has to be laid out just like a real chorus.

Tenor speakers should be where the tenors stand. And so forth and so on.

Slide 8

I bet it sounds like a machine!

Actually, with the advent of MIDI over two decades ago. Synthesizers have grown tremendously, now reproducing near perfect wave forms of orchestral instruments right out of the box.

Surprisingly enough, that absolute perfection is exactly what the MIDI advocates try to avoid.

By far, the majority of the time spent on any virtual piece is making it human. Analyzing the score and finding the nuances that a performer would do but the computer wouldn't even look at.

Slide 9

I bet it sounds like a machine!

Choral pieces actually are a bit different. No MIDI synthesizer will have a full bank of patches pre-loaded for a choir. Each note of the score must be recorded by performers, and digitized.

Once each note is loaded into the synthesizer, then you can begin writing a MIDI file to play those notes.

Recording good vocals is very tricky, this makes much more work for the MIDI artist trying to figure out how a singer would sing that specific note and adjust the waveform. This is done for each and every note for the whole piece.

Slide 10

Human Interface

Lets take a look at last year's performance before I go into the details of what exactly a "performer" does with this software.

Slide 11

Human Interface

The Virtual Choir performer has a fairly unlimited control of the performance all from a mouse and a MIDI keyboard

The first and foremost control is tempo. Especially important when mixing live and digital musicians. But you can also "Vamp" the piece back to a measure, create a loop, adjust the volume, and cut parts in and out as you please just to name a few.

Slide 12

Human Interface

This technology does take some adjustment time. Just like any other instrument, it will not be mastered in a day. Controlling a tempo is easy enough, but the more complex features available to the performer really take the time in learning how to get the most out of this technology

It's a work in progress remember, everyday the technology sounds more real and gets easier to use.

Slide 13

Questions?

My information:
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  rcullan@wpi.edu

Virtual Orchestra Developer:
  Dr. Fred Bianchi
  bianchi@wpi.edu

For More Information:
  http://www.acdaeast.org/wpi/

Appendix 5: Web Design PowerPoint

Slide 1

Macromedia Dreamweaver
Tutorial For Website Design

Slide 2

Slide 3

Getting Started

- Before you can begin using the program you need to create a Website Folder.
- In Dreamweaver, click on the pull down menu   and click

Slide 4

Getting Started

- Title your web site here

- Click the folder under local root folder and select the folder you created previously

- Also do the same to select your images folder

- For now that is all you need to do, you can always return to this by going to the pull down menu 'site' and clicking 'manage sites'

Slide 5

Getting Started

With the Files tab open:

This is what your set up should look like. There are a few extra folders here because I created a photo album which will be explained later. The red ovals show which folders should be there at this point in the tutorial.

Next you can begin building a web page. Next you will learn to create tables for organization, and links.

Slide 6

Introduction

- This introduction is a quick overview of Dreamweaver's layout. If you are already familiar with this program and/or HTML code and you have questions I would suggest going to our Question/Answer session from 12:00 to 2:00 this afternoon in this room.

- Dreamweaver is a program that simplifies web design. Rather than having to learn all the code that is involved in creating a site, you can build in a visual way.

Slide 7

Introduction

Here I have opened a blank html file in Dreamweaver. The bottom tool bar is the properties bar. When you click on text and tables, this is where you will edit fonts and sizes and colors. However, html limits the design aspect of web building so later I will quickly go over a complementary program called Fireworks.
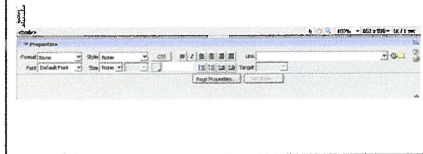
Slide 8

Introduction
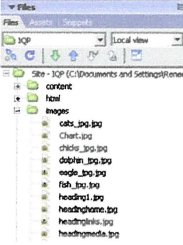
- Use the toolbar from the previous slide to edit anything that you have selected. If you want each page preformatted then click 'page properties...' on the bottom of the toolbar. It's a good idea to have this set up with your preferences rather than under a default so there aren't any glitches when people view your site because people have different internet browsers and browser settings.

Choose font, size, color, background color, background image
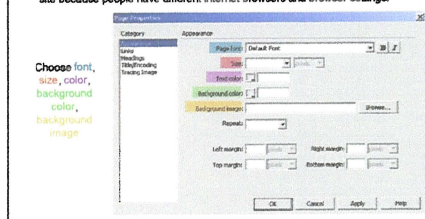
Slide 9

Introduction
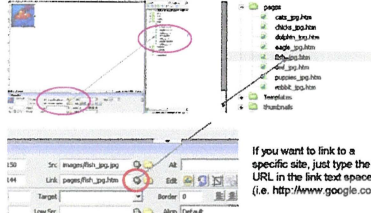
To add images (for links or headings), extend your images folder on the right side of the screen under the files tab and drag the photo to where you want it to go. Make sure the image file, most commonly .jpg or .gif, is the right size because larger images take more time to load and you want your site to run as smoothly as possible.

Slide 10

Introduction

- To link the picture to a page on your web site or to another web site select the picture and go to the properties tab on the bottom of the screen, find where it says link and click and drag the target button to the place you want to link it.

If you want to link to a specific site, just type the URL in the link text space (i.e. http://www.google.com).

Slide 11

Introduction

The same goes for text. Just highlight the text you want linked and go to the properties tab at the bottom of the screen and drag the target to the html page on your site or type in a web address (i.e. http://www.google.com) in the link space.

The text you choose to highlight is the title of the link, the text that people see on your site. Try to keep the link short, one to two words long, your site will get sloppy if you create sentence long links. Also if you want a link to your email address type this into the link space, mailto:youremail@something.com, and when they click the link a blank Outlook email will open and it will already contain your email address.

Along with a homepage your site should have other sections. In the sample web page, there are sections for links, photos, news, and media, and each image is a link to that .html file. The links.html file has the links, the photos.html file has the pictures, etc.

Slide 12

Tables

- Using tables is a good way to organize your website layout. To add a table click the pull down menu 'insert' and select 'table'.
- Choose your number of columns and rows and how big you want the table to be. The rest of the options are not important at this time because tables in this tutorial are for organizing so you don't actually want to see the cell borders. You can see outlines of the cells when you're editing the page but not when viewing the site online.

Slide 13

Tables

If you want to edit the table, just highlight the whole table, not just a cell, and go to the properties tab at the bottom of the page and change any options you wish to change. If you need to add a row or a column just right click anywhere on the table, go to 'table' and then to 'add column' or 'add row'. You can also delete rows and columns this way, or you can just highlight the whole row/column and press delete on the keyboard. Just make sure you don't delete the whole table! Not to worry, the life saver called undo will save you, just press Ctrl + z.

You can also select the table by right clicking on it and choosing 'select table'.

Slide 14

Tables

By selecting a cell in the table, or multiple cells by holding the Ctrl key and clicking the cells you want to select, you get these options in the properties tab at the bottom of the

This button is to split cells in your table, the button to the left of it is to merge them.
You can edit the vertical and horizontal alignment of each cell (i.e. left, right, top bottom, center).

And you can change the cell height and width, this is done in pixels or percent of the table. To type in a percent you need to remember to put in the % symbol otherwise it will take it as pixels.

Same as before you can create a link to text or an image that's in the table After highlighting text or selecting an image, just drag the target to the html file of your website you want to link to or type in a web address.

Slide 15

Templates
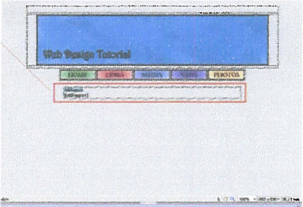
- Templates are the basic outline of your site, it should be the first thing you do. So start out with a new html file by clicking the pull down menu 'file' and clicking 'new' and selecting html. You should have a blank sheet, and then start designing.
- This is the repeating part of your web page, this does not change no matter where you are on your web site. Templates usually contain the menu buttons and maybe an image that displays your web site theme.
- They have an editable region where you can add text news and pictures.
- See the sample web page on the disc and open the template to take a look at how it works.

Slide 16

Templates

- When you're finished with your design, which in my example looks like this...

...you need to create an editable region, when you drag your template onto your html files, which will be explained next, because you want to be able to add text. You don't want this to be the same thing you see no matter what link you click on.
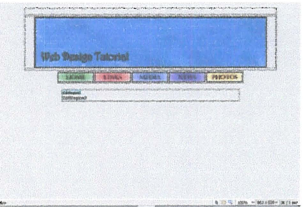
Slide 17

Templates

This design has...

- 3 tables
- 5 images linked to pages on my site
- A header image with the theme of my site
- An editable region

Slide 18

Templates

In the example web site the editable region is just a one cell table, right click on the cell and go to 'templates' and click 'New Editable Region'. Name the region and click ok. Now you're template is finished, but you need to save this file as a template file because right now it is just an html file. To save your template just click the pull down menu 'File' and click 'Save as Template...'

Slide 19

Templates

Open a new html file after you've saved your template. To add the template to your html file click the assets tab under the files menu on the right side of your screen. Click the 'templates button' and your template should show up here. Click and drag it onto your blank workspace. To go back to the old options on your right just click the 'files' tab. When you drag it over it should appear on your screen and you can now put what you want in the editable region. Add this template to all pages of your site.

To preview your an html file at anytime, save the file first, then press *F12* and your browser will open with your html page. Use the preview to test links to make sure they all work. If they don't, that means you probably typed it in wrong or you need to re link it (choose the target and select the file again).

Slide 20

Imaging with Fireworks

Now that you know how to use the basics of Dreamweaver, you can liven up your site by creating your own headings with Fireworks. Open a new Fireworks file (.png) and choose the size of your working area, this can be changed later so it's not extremely important at this time.

You can add text and choose the font without being limited to boring html fonts like Arial and Times New Roman. You can also download free fonts from web sites such as www.abstractfonts.com. Save the files you download to your desktop, unzip them and drag them to your fonts folder which is usually located in your windows folder in the C: drive. If you have questions about this you can ask them at the end of the session or at one of the question & answer sessions. You can even use the pencil or paint brush tool to write your own headings. This program is one of the simplest imaging programs. It doesn't have a very complicated layout, so just by playing with the program you can learn a lot.

When you're finished, save it as a fireworks file (.png) and an image file, that way you can edit the .png file later if you want to make changes, if you don't save the fireworks file you can not edit the image later. If you do need to make changes, just overwrite the old image file and refresh your files in Dreamweaver. To save as an image go to the pull down menu 'file' click save as, and under file type choose .jpg or .gif, whichever you prefer. Then next slides will quickly walk you through Fireworks.

Slide 21

Imaging with Fireworks

Step 1: Getting Started

Open a new Fireworks file and choose the size of your working area.

Slide 22

Imaging with Fireworks

Step 2: Design

You can mouse over each tool to see what they are. Here are the ones you will most likely be using...

Pencil Tool: Drawing tool, does not blend. Use the eraser to the right of the pencil to erase, make sure you're on the right layer.

Text Tool: Drag a text box and choose the font, color and size in the lower properties toolbar.

Selection tool: Move, select, and resize objects, select text by double clicking in the text box

Paintbrush: Drawing tool, blending similar to real watercolors.

Line/Box Tool: Draw lines and boxes.

Fill Tool: Color in closed shapes. Choose your fill color and line color below.

Fill/Line Colors: Select line or fill, right now fill is selected, then choose your colors or no line/fill.

Slide 23

Imaging with Fireworks

Clicking this tab you can create and delete layers. Adding and deleting layers are the only things you will need to use.
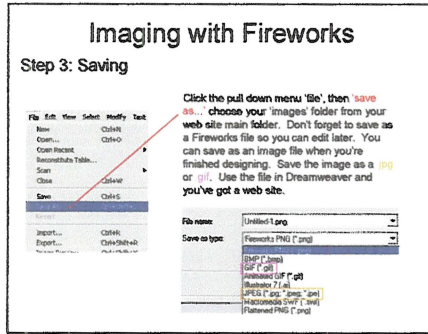
These are your layers. They are listed in order of layer, so the bitmap in this case, is the top layer on my drawing space. You can click and drag each piece to a different layer.

Slide 24

Imaging with Fireworks

Step 3: Saving

Click the pull down menu 'file', then 'save as...' choose your 'images' folder from your web site main folder. Don't forget to save as a Fireworks file so you can edit later. You can save as an image file when you're finished designing. Save the image as a png or gif. Use the file in Dreamweaver and you've got a web site.
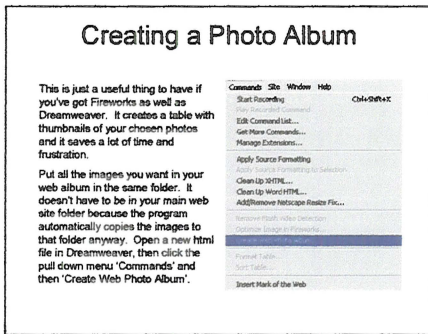
Slide 25

Creating a Photo Album

This is just a useful thing to have if you've got Fireworks as well as Dreamweaver. It creates a table with thumbnails of your chosen photos and it saves a lot of time and frustration.

Put all the images you want in your web album in the same folder. It doesn't have to be in your main web site folder because the program automatically copies the images to that folder anyway. Open a new html file in Dreamweaver, then click the pull down menu 'Commands' and then 'Create Web Photo Album'.
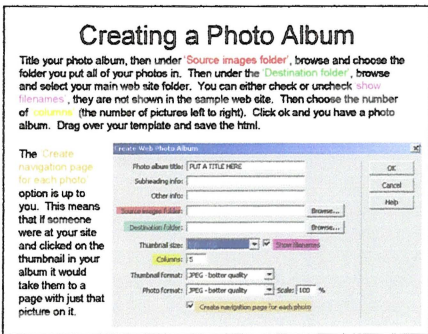
Slide 26

Creating a Photo Album

Title your photo album, then under 'Source images folder', browse and choose the folder you put all of your photos in. Then under the 'Destination folder', browse and select your main web site folder. You can either check or uncheck 'show filenames', they are not shown in the sample web site. Then choose the number of columns (the number of pictures left to right). Click ok and you have a photo album. Drag over your template and save the html.

The 'Create navigation page for each photo' option is up to you. This means that if someone were at your site and clicked on the thumbnail in your album it would take them to a page with just that picture on it.

Slide 27

Questions?

You now know the basics to create a web site. You have this power point presentation on your disc as well as the sample web site created on Dreamweaver, and a trial of Dreamweaver and Fireworks. This should at least get you started and if you like the program you can choose whether or not to buy it.

The best way to learn these programs is to play with them, make mistakes and fix them. They are set up to make web design easier for people who don't know complicated html code, and Fireworks is an easy way to break away from the design limits of html code. And the great thing about the internet is that people of all ages use it so there is no limit as to who can access your web page. Even if the target viewer demographic isn't likely to own a computer, they can get access to the internet from a public library.

Questions?

Slide 28

Now What?

Now that you know the basics, what can you do to make your website effective?

Some questions you should think about...

- How do you make your website stand out?
- How do you create a website that flows?
- What do your target users like to see?

Slide 29

Do's and Don'ts

There are several areas of website design that have certain guidelines to help you:

- Fonts
- Layout
- Colors
- Consistency

Slide 30

Do's and Don'ts - Fonts

Font size:
Only need 2 fonts per page
    Headings
    Text of body

Heading need only be 1.5 to 2 times larger than body text
    Can use bolding or underline to emphasize

Body text needs to be comfortable to read
    Usually pick the size you find comfortable, use the next size up

Use only 2-3 different font sizes on a page
    In order to get a professional look.

For text not intended to be read: (i.e. copyright information)
    Make it as small as you like
        If someone wants it they will look for it
    Perhaps making the color duller or use a fading effect would be good

---

Slide 31

Do's and Don'ts - Layouts

Text Alignments:
Left-aligned
    Best for body of page, easiest to read

Right-aligned
    Best for some special cases, such as navigation menus

Centered
    Best for Headings and short paragraphs
        Sometimes hard to read

Justified
    Not good for bodies of text
        Creates weird word spacing
        Difficult to read on computer screens
        Usually used in newspapers

Slide 32

Do's and Don'ts - Layout

Text Layout:
Line Length
    Lines should contain 8-12 words
        Any larger and it discourages readers
        Makes it difficult to follow the lines

Line Spacing
    More than single space
        Good for making sure the text is easy to read
        Also adds a sense of openness to the text

Slide 33

Do's and Don'ts - Color

Color Schemes:
White for background, Black for text, and a highlight color(s)
Reds = warmth
Blues and greens = cool
Pastels = light, airy
Dark, strong = claustrophobic, overpowering
Do not over use the highlight color
Adjust it by varying the saturation or brightness
Colors opposite each other
Create a distinct, eye-catching look
Colors near each other
Relay a sense of subtleness and sophistication

It's okay to use more than 2 colors, but don't get out of hand
Make sure the prominent colors are neutral
Color coding website can be a good thing

Slide 34

Do's and Don'ts - Color

Readability:
Light background, dark text is easiest to read

Very dark background, white text isn't too bad to read

Stay away from similar colors on each other
Unless it's the heading, have fun with that ;)

Try not to create too many distractions
A busy background (i.e. a wallpaper)
Warning colors (i.e. yellow and black)

Slide 35

Do's and Don'ts- Consistency

CONSISTENCY
Keeping consistencies on your website, especially when navigating to a new page
To remind user that they are still looking at your information

A motif:
Defines your website
Makes great use of a symbol or trademark
If you don't have a motif:
Creating a website gives you the perfect opportunity to make one
To also make your life simpler:
Using same fonts, colors, backgrounds, graphics, and layouts
Once these are determined, less time is required of you

Veering from your schemes implies
Special meaning to that inconsistency
Unwanted inconsistencies lead to misrepresentation of your goals and objectives

Slide 36

Do's and Don'ts

**Above all other Guidelines and
Rules of Thumb:**

Make it Interesting

Add your own twist to the website
Use graphics that are appealing and exciting
Use of imaging software such as
Fireworks will be helpful

Appendix 6: Recording Technology PowerPoint

Slide 1

> ### Choirs and Technology Part 3: Recording
>
> Jayce Silvia & Sean Hallinan
> Worcester Polytechnic Institute

Slide 2

> ### Why Record?!?
>
> - Hear things you never noticed before in practice
> - Analyze a piece of music to determine where a problem is occurring
> - Just simply save a performance to listen to

Slide 3

> ### How Much does it Cost?
>
> - A decent quality recording setup can cost anything from a few hundred dollars to a few thousand
> - Why spend a lot of money for a professional recording if you are just recording for yourself to listen to

Slide 4

Archos Gmini 402

- Music/Video/Photo/Games
- Small, Lightweight, Portable
- Easy to use
- Bring it with you to listen to recordings or watch videos of performances wherever you go
- Price: $230

Slide 5

Archos Gmini 402

- 20GB Hard Drive
- Internal Rechargeable Battery:
  Up to 10 hours for music.
  Up to 4 hours for video on built-in LCD.
- Plays MP3, WMA and WAV audio files
- Decent Quality Built-in microphone for recording
- Line-in for external powered microphone

Slide 6

Archos Gmini 402

- PC and Mac compatible
- Transfer files via USB port
- Acts like an external hard drive
- Burn recordings directly to a CD by using your own computer software
- OR share you files with someone else by plugging directly into his or her Archos or external hard drive – eliminates unneeded burning/wasting of CDs

Slide 7

SP-BOOSTER-1

- Low cost, small, portable, self-contained Omnidirectional stereo microphone
- Built-in preamplifier
- Compatible with all MiniDisc, DAT, MP3, VHS, Camcorder and Cassette recorders with line inputs
- Price: $100

Slide 8

SP-BOOSTER-1

- Frequency Response: 20 - 20,000 Hz
- Runs 18-20 hours on one set of batteries
- Dimensions: 4.5" x 1.5" x 1.1" (11.43cm x 3.81cm x 2.79cm)
- Small and portable
- Plug directly into your Archos for great quality, cheap recordings
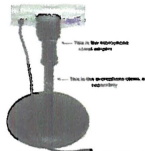
Slide 9

Low Cost Recording Solution

- Archos Gmini 402 and SP-Booster-1
  (batteries not included)
- Total Price: $330

Slide 10

A More Advanced Technique
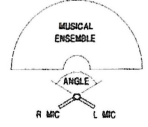
Slide 11

Stereo Microphone Setups

Coincident Pair

- Two directional mics
- Symetrically angled apart
- Diaphragms of mics are one above the other
- Stereo image depends on polar pattern and the angle between mics

MUSICAL ENSEMBLE

ANGLE

R MIC   L MIC
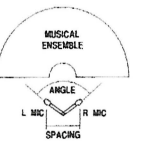
Slide 12

Stereo Microphone Setups Cont.

Near Coincident Pair

- Two directional mics
- Symetrically angled apart
- Diaphragms of mics are separated
- Stereo image depends on angle and spacing of mics

MUSICAL ENSEMBLE

ANGLE

L MIC   R MIC

SPACING
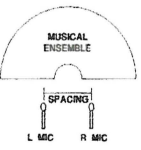
Slide 13

Stereo Microphone Setups Cont.

Spaced Pair

- Two identical mics
- Placed several feet apart
- Stereo image based on distance mics are apart

Slide 14
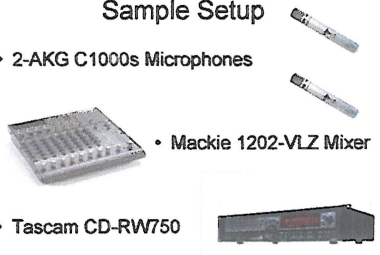
Stereo Microphone Setups Cont.

- Getting that desired sound depending on the setup chosen:
  - Increasing the angle:
    - Increases stereo spread
    - Increases ratio of reverberation to direct sound
    - Increases depth of the image
  - Increasing the Spacing:
    - Increases stereo spread
    - Degrades focus of image
  - Increasing microphone directivity:
    - Increases stereo spread for coincident and near coincident pairs
  - Increase distance from ensemble:
    - Increases the ratio of reverberation to direct sound

Slide 15

Sample Setup

- 2-AKG C1000s Microphones

- Mackie 1202-VLZ Mixer

- Tascam CD-RW750

Slide 16

**Mackie 1202-VLZ Pro
12-Channel Mixer**

- 12 line inputs (4 mono, 4 stereo pairs)

- Separate RCA-type tape/CD inputs and tape outputs (unbalanced)

- 3-band active EQ (80Hz, 2.5kHz, 12kHz)

- Phantom power for premium condenser mics

- Built-in power supply

- Price: $369.00

Slide 17

**AKG C1000S Stage and Studio
Condenser Microphone**

- Battery status LED for reliable monitoring of remaining battery life

- Can be powered by internal 9 V battery or by phantom power (9-52 V DC)

- PPC 1000 allows the microphone to be switched from cardioid to hypercardioid pickup pattern

- Presence Boost Adapter PB 1000 is included for high-end enhancement

- Price: $299.95 (pair)

Slide 18

Tascam CD-RW750

- RCA unbalanced analog I/O
- S/PDIF coax and optical digital I/O
- 24 bit A/D and D/A converters
- Sample rate conversion
- Adjustable gain on digital I/O
- Digital fade in/out from 1 sec to 24 sec
- RAM buffer
- Programmable
- Wireless remote included
- Timer Playback
- Auto or manual track increment
- Sync start
- CD TEXT authoring and support

- Price: $500

Front View

Rear View

Slide 19

Medium Cost Recording Solution

- AKG C1000S & Mackie 1202-VLZ & Tascam CD-RW750

- Total Price: $1168.95

Slide 20

How To Setup A Mixer
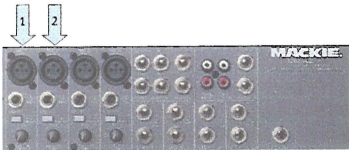
1. Plug in and turn on the mixer using the power switch located on the back of the board.

Slide 21

How To Setup A Mixer
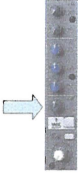
2. Plug XLR cables from left and right microphones into channels 1 and 2 respectively.
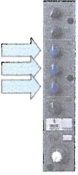
Slide 22

How To Setup A Mixer

3. Turn the pan knob on channel strip 1 all the way to
the left and on channel strip 2 all the way to the right.

Slide 23

How To Setup A Mixer
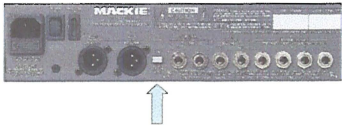
4. Check and make sure all 3 EQ knobs on both
channels are set to unity.

Slide 24

How To Setup A Mixer

5. Set the Output Level button to the raised position,
(+4dB).

Slide 25

How To Setup A Mixer

6. Connect the left and right XLR outputs from the mixer into their respective analog inputs on your recording device.

(A XLR adapter may be necessary if your recording device has non-XLR inputs).

Slide 26

How To Apply Phantom Power To Microphones

- After both microphones are connected to the mixer, turn on the phantom power by flipping the switch on the back of the mixer.

WARNING: Do not plug in nor unplug the microphones when the phantom power from the mixing board is turned on.
Doing so could damage the transducer element.

Slide 27

How To Set Microphone Trim Levels
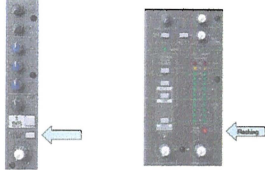
1. Unmute microphone channel by depressing the mute button on the channel strip until it is in the raised position.

Slide 28

How To Set Microphone Trim
Levels

2. Depress the channel solo button so that the solo light
on the main panel begins to flash.

Slide 29
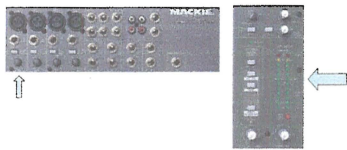

How To Set Microphone Trim
Levels

3. Turn the Gain Knob on the channel strip to unity.

Slide 30

How To Set Microphone Trim
Levels

4. Gradually turn the trim knob up while watching the
meter bridge on the main pannel. Stop when the
lights begin to peak around 0dB.

Slide 31

How To Set Microphone Trim Levels

5. Depress solo button on the channel again, solo light should stop flashing.

Slide 32

High Cost Recording Solution

- Find your own local recording professional

Appendix 7: Quarter Sheets and Handouts

Choral Toys

Choirs and Technology
Interest Session #2

Come and learn from John Delorey and Students from Worcester Polytechnic Institute

Topics for discussion:

The Virtual Choir Technology
The Digital Choral Library
Digital Music Stands

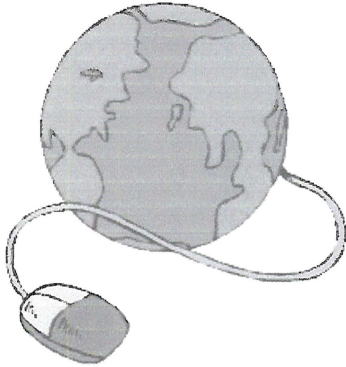Or feel free to ask your own technology question at our Drop In Hours

Session: 8:00AM-9:30AM

Friday, February 17th, 2005 @ The Hilton

Drop In: 12:00PM-2:00PM

Friday, February 17th, 2005 @ The Hilton

Web Design

Do you want to develop a website for your choir?

Do you already have one and want to learn how to update it?

Do you need to spice up your current website?

Attend the Morning Interest Session!

Friday, February 17th
8:00-9:30AM
located in the Hilton
with
John Delorey and Students from
Worcester Polytechnic Institute

Recording

Want to improve the sound of your group?

Learn some basic recording techniques and fix those problems you never noticed.

Come visit us at:
Choirs and Technology Part 3: Recording
John Delorey, Sean Hallinan, Jayce Silvia
from Worcester Polytechnic Institute
On Saturday Feb. 18, 2006 from 8:00am-9:25am
in the Sutton Center, Hilton.

Equipment:

- 2 – AKG C1000S microphones with microphone clips
- Mackie 1202-VLZ mic/line mixer with power cable
- Tascam CD-RW750 CD Recorder
- Pair of headphones
- 2 microphone stands (or 1 stand with a stereo bar)
- XLR cables
- Power strip

General Setup:

1. Plug in and turn on the mixer using the power switch located on the back of the board.
2. Plug XLR cables from left and right microphones into channels 1 and 2 respectively.
3. Turn the pan knob on channel strip 1 all the way to the left and on channel strip 2 all the way to the right.
4. Check and make sure all 3 EQ knobs on both channels are set to unity.
5. Set the Output Level button to the raised position, (+4dB).
6. Connect the left and right XLR outputs from the mixer into their respective analog inputs on your recording device. (An XLR adapter may be necessary if your recording device has non-XLR inputs).

Microphone Placement:

- Use Space Pair method.
- Distance from ensemble: 10 feet
- Spacing between mics: 8 feet
- Height: 10 feet
- Microphones should be parallel to the floor and aimed directly toward the ensemble.

Set Levels:

1. Get ensemble to play some music.
2. Depress 'solo' button on channel 1.
3. Gradually turn the 'trim' knob on channel 1 until the light on the mixer meter bridge peak around 0dB.
4. Depress 'solo' button on channel 1 again.
5. Follow steps 2 – 4 for channel 2.
6. Turn main mix knob to unity.
7. Follow CD recorder instructions to initiate recording
8. Use the recording level function of the CD Recorder to adjust both right and left signals to roughly 18dB.
9. Record about 60 seconds of music then pause recording.
10. Have ensemble play loudest section. Watch the meter on the CD Recorder make sure the red 'over' light doesn't turn on. If it does, turn down the recording knobs.

Recording:
1. Follow CD recorder instructions for starting and stopping the recording.

Website Links Relating to Presentation:

Setting up Microphones:
http://www.tape.com/Bartlett_Articles/stereo_microphone_techniques.html

Microphone Polar Patterns
http://www.crownaudio.com/mic_web/tips/mictip2.htm