Project Number: JD2-DILI -53

DIGITIZING A MUSIC LIBRARY

An Interactive Qualifying Project Report

submitted to the Faculty

of the
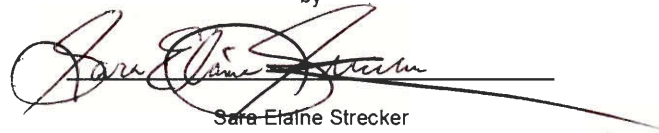
WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

by

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Date: December 22, 2004

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ABSTRACT:

This project will reorganize and digitize the music library at Worcester Polytechnic Institute. Music information will be searchable through a computerized database. Also, there will be a system in place which allows music to easily be returned, taken out of and added to the music library through a system of barcodes.

1. INTRODUCTION:

Worcester Polytechnic Institute's Music Library has been a sore spot for the music department. The files that were organized were stored in ancient folders that fell apart when touched. A large number of files were scattered on the floor of the music library or stuffed into shelves.

According to John Delorey, the reason for this chaos, was that the last IQP group who had been working on this project did a lot of organization and left the music room looking neat and after the grades were in, dumped the music that they hadn't organized into the room.

The main goals of this project were to do four specific things:

1. Find an organizational system for the music library
2. Implement this organizational system
3. Reorganize the card catalogue, and remove extraneous cards
4. Submit the music to John Paik for insertion into the database

There are many ways to implement an organization strategy. It was imperative to find which way would be most efficient to those who would be using the music library. The current numbering system had many flaws, one of the most startling of these being a card

catalogue that was unkempt and did not contain correct information on approximately

2000 separate pieces of music that were in the library.

2. BACKGROUND:

There were many possible ways that the music library could be organized. The goal of this project was to find a way of organization that minimized the effort of a person looking for a song. After much deliberation it was determined that there were three distinct ways to organize the music. The music was all ready numbered. Some of the music was labeled "done" however, upon questioning no one was entirely sure what "done" meant. The music could be organized by number, as it was, organized by author/composer or organized by song title. The number system could also be revamped in order to implement the Dewey Decimal System.

2.1 Defining and Analyzing the Problem

The music library, upon examination was a mess. Music was scattered in all corners of the small room. There were hymnals hidden in the back corner behind some shelves. Approximately the bottom half of a shelving unit contained music that had been stuffed haphazardly into the shelves. There were two bins which contained scores of music on the floor.

Upon closer examination, it was revealed that the chaos seen on the floor and shelves was nothing compared to the card catalogue. The card catalogue looked organized upon first glance; however it was soon evident that this was not the case. Attempting to find the music which was listed was a problem. The list of composers

didn't match up with the list of titles. Some songs were listed under three or four people when, in reality one person was the composer, the other the author of the lyrics, a third might be the arranger, etc. Each different name had a different card. To complicate matters, some songs were listed with the same number but with different titles and different composers.

There needed to be a different system in place then what currently existed. There needed to be a different way to find music instead of looking it up in an ancient card catalogue, finding the number, realizing that number 500 was in the shelf that was supposed to have 283 and coming out frustrated.

In order to implement a system that took full advance of WPI's resources, the music library had to be reorganized so that pieces were easier to find and digitized so that one could look up a piece of music from anywhere instead of just inside the library itself and so the music was easier to keep track of. Music could easily get lost in the library in the library's current state. With music scattered everywhere, and such an outdated and sadly, not updated card catalogue, finding a piece of music could easily be harder than rewriting it. Even if the card catalogue said the music existed, it wasn't necessarily where it was supposed to be or it might not even exist.

2.2 *Solutions*

Of the possible solutions listed in section 2.1 (reorganizing the library alphabetically by composer, alphabetically by title or using the Dewey Decimal system) there seemed to be only one solution that would fit the needs of the music department at WPI.   The decision to reorganize the music library alphabetically by composer was finalized by John Delorey after about a week of analysis. This seemed to best fit the needs of everyone involved. Each of the other solutions seemed to make more problems instead of correct them.

2.2.1 – Title Method

If the organization by title method was chosen, then there was the question of what to do with music that had the same title, i.e. Adoramus Te. All of the music with the same title would be together but what if a piece of music was a collection of two or three songs. If the music was entitled, for instance, Two English Airs, should it be filed under T, for Two, E for English or under the titles of the two songs? If one of those songs is Drink to Me Only and the other is Shall I, Wasting in Despair, which letter should the music be filed under? This was a perplexing problem.

Also, another problem with the Title method was that though it was a viable option, it seemed that there weren't any advantages to it over the number method. If someone wanted a Cantata by Bach, they had to know the exact number of the Cantata. Also, I found that some Cantata's were filed by their number, while others were filed by title.   This seemed to make the problem even more confusing. A person who was looking

for Cantata 21 for instance might find it filed under I, for the English Title, "I had Great Heaviness of Heart" instead of C, for Cantata, or they might not know that "I had Great Heaviness of Heart" was actually Cantata 21. This could easily lead to someone assuming that the music was missing when it wasn't.

A final problem with this system was the strong possibly of misfilings. As per Cantata 21, there were two separate, legitimate places to put the piece. For Two English Airs, there were at least three spots where the music could fit in the library. A library system has to be almost foolproof in order for it to work well. People can easily put music back where they believe it belonged, but that spot, even though it makes logical sense to the person, isn't where the music was supposed to be filed. There seemed to be too many chances for error in this method.

2.2.2 - Numerical System

There was a number system in place in the music library but it wasn't working too well. There were many missing numbers and some doubled numbers, where the same number was assigned to two separate songs. There were also a few cases of the same song being assigned two different numbers and being filed in two separate spots.

The numerical system also relied heavily on a card catalogue. This catalogue was in utter disarray when examined more closely. SATB music was included in the TTBB card catalogue and vice-a-versa. Many of the cards that were in the catalogue did not

correspond to any music in the library. Some music was filed under one composer in the composer catalogue and when the song was found in the title catalogue, it was listed under a different composer. The numbers on both of these cards matched. It was soon apparent upon checking the actual music that the music was written by two people or by someone entirely different. The card catalogues provided seemed to be more of a hindrance to the organization of the music than a help.

Because of these problems, it made sense to try something else. If something doesn't work well after a few years, it seems that the system's failure is an indication that change is needed.

2.2.3 – Organization by Composer

The final solution which seemed to have the most advantages was to organize the music by composer. There are several reasons as to why this is a better system then what was in place. First of all, if someone wants a piece of music by Bach, for instance, and they can't remember what the piece is, they can easily go into the music library and look in the Bach section. Also, if a person is looking in the library for a specific piece, he also has very easy access to all other pieces written by that person.

In most libraries, books are organized alphabetically by author. It seems logical to use a library's system as a basis for organizing the music at WPI. Also, all of the

music under a certain author is organized alphabetically by title. This also follows a library's typical format.

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There are some disadvantages to this system however. First of all, keeping it organized is slightly more difficult than by using a straight numbering system. There is a greater risk of error due to someone having problems alphabetizing the music after taking it out. Also adding music to this system is much more difficult than adding music to a system which uses straight numbers.

3. TECHNOLOGY

One of the big problems with the current organizational method of the music library was the card catalogue. It was difficult to update and even more difficult to keep organized. Though the card catalogue needs to stay as a backup system, new technology needs to be added in order to make the music library up to date. Using a database would make the music library much easier to search. One could go online and type in the author, title or other search criteria and determine from that information everything else they need to know to find it in the music library. It's also a quick way for someone to tell if the song they are looking for is actually in the music library or might need to be purchased for the library. At this point in time there are many songs that are duplicated. In every instance this occurred because the song was filed either under another name or in a different place. A digitized music library will minimize purchasing songs that are all ready in the music library.

By making the music library easier to search, it can be used more efficiently. If, for instance, someone is searching for a piece of music that has the word "Love" in the title but he can't remember exactly what the title of the song was. In this instance both a title list system, a composer list system and a numerical/card catalogue system would be inappropriate. However, by having a searchable database, this person can type "love" into the search bar of the database and come up with 20 matches in the TTBB and SATB lists. Through this search, he can narrow down by part, etc. This would easily save

hours of searching through a card catalogue and actual music trying to find the song he was looking for.

Technology has made this project far easier. By typing the music into a spreadsheet, it allowed an easy search of the files that were there and a way to keep track of which file existed and was misplaced, which file only existed in the card catalogue and which files were as the card catalogue said they were. Also, using a spreadsheet allowed for easy alphabetization by sorting by composer, title and number. Without technology, this project would be very difficult if not impossible to do in the seven weeks of the term.

4. IMPLEMENTATION:

4.1 TTBB

The TTBB music was, by far, the hardest to organize of the two. The card catalogue was badly messed up and many of the music folders fell apart when touched. Also, when the card catalogue was finally looked at in detail, it was realized that approximately one quarter of the cards were only filed in either the Title list catalogue or the author list catalogue, not in both.

The first step in organizing the music was to take the card catalogues and digitize them. First, the information on the cards had to be put into spreadsheet form. This was done solely based on the information in the author's card catalogue. Next, the title card catalogue was used in order to cross reference the information. Many more titles were added in this process. After these were sorted alphabetically by composer, the actual pieces of music were tackled. Here, there were a few glitches, specifically in the TTBB music. When copying the information from the cards, only the title and author had been copied, not the number of the music. Therefore each card had to be gone through again in order to get the number from it before proceeding. Also, it was observed here that there were cards that had the same title but different composers. These were marked in italic font.

Once the numbers were recorded, the music was added to the shelves. Pieces that weren't found were bolded on the spreadsheet in order to better identify them. (Fig 4.1)

	A	B	C
103	Da Vittoria	Ave Maria	655
104	Da Vittoria	O Vos Omnes	348
105	Davies, Walkford	God be in my Head	745
106	Davison, Archibald T.	Ye Watchers and Ye Holy Ones	249
107	**Dawson, William L.**	**Aain'a That Good News**	**208**
108	Dawson, William L.	Every Time I Feel The Spirit	574
109	Dawson, William L.	Ezekiel Saw De Wheel	536
110	Dawson, William L.	Mary Had A Baby	239
111	Dawson, William L.	Soon Ah Will Be Done	14
112	Dawson, William L.	There Is A Balm In Gilead	252
113	**De Cienas, Juan**	**Camentacion**	**1256**
114	**De Zespedes, Juan**	**(Convidando esta La Noche**	**1260**
115	Delius	To Be Sung of A Summer Night	441
116	Delorey, John	Magnificat	1257
117	*Desamours, Emile*	*Noel Ayisgen (A Haitian Noel)*	*1191*
118	Di Lasso, Orlando	Matona, Lovely Maiden	5
119	Di Lasso, Orlando	O Bella Fusa	903
120	Diemer, Emma Lou	Madrigales Three	202
121	Ditson	Ten Traditional Carols	323

Fig 4.1 – Formatting Example

Some shelves were emptied and the music was added to these shelves in alphabetical order. Every six shelves a break was left so that music which didn't get sorted or wasn't listed could be added in more easily. The process of reorganizing this music took approximately 20 hours.

4.2- SATB

The SATB music was much easier to catalogue, probably because the process from the TTBB music simply had to be repeated. The codes used, (Bold for missing music, italic for doubles) were well established. There was also considerably less SATB music. Here, there were a few interesting issue, which, thankfully, didn't pose any

problems. Some of the folders were marked "Done" with a post it note half. Upon further examination, the folders marked done appeared to have the music in them in order by number. This theory was not valid for all folders marked with "Done" however.

4.3 – Card Catalogue

The card catalogue was originally partly handwritten and partly typed. There were spelling errors and some of the handwritings were tough to decipher. Therefore, by saving the tables as .txt (Text and Tabs) they could be put into Microsoft Word. By adjusting the page size to the size of an index card and putting a line of the table (Composer, Title, Number) on each page, index cards could easily be printed off to make the card catalogue more legible. Also, the type of music, be it SATB or TTBB was added to the bottom right corner. Space is left on the card to accommodate additions like the number of pieces of music. See Fig 4.2

Adam, Adolphe   461

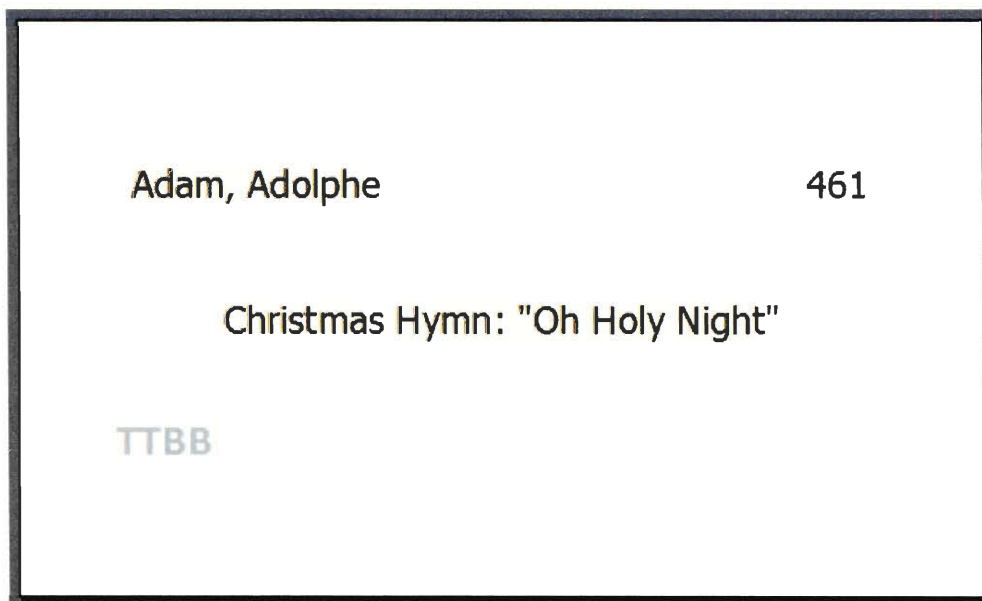Christmas Hymn: "Oh Holy Night"

TTBB

Fig 4.2- Index Card Format

The original numbers from the last system were left on the music as well as on the cards. This was done in part to help with the transition, and also to keep the music more organized in the long run.

5. FUTURE WORK:

Much needs to be done in order to keep the music library up and functional. Order needs to be kept so that the library never becomes the mess that it once was. In order for this to occur, a specific system should be followed. The remaining chapter outlines the best way to keep order in WPI's music library.

5.1- Maintaining Order

There are specific things which have been put in place in order to ensure that the library runs smoothly. The card catalogue is now legible. All the folders are currently in alphabetical order by composer. There will be posted in the music library a list of all the music, by number, per shelf so that when someone takes it out, they will have a better reference point of where the music should be replaced to. Because most of the checking in and checking out of the music will be electronic, there is no need to go into a detailed method for that here.

Adding music to the library is slightly more tricky. The music is to be added to the library in alphabetical order by composer. A card is to be made up in a similar format to the one shown in fig 4.2. There are no longer title list cards. However a complete title list and a complete composer list for TTBB and SATB will be included with this project. New music is also to be added to the database using a specific form. This form will include all of the data seen in figure 5.1

Fig 5.1- Information Provided

This is not the actual form, but this is the type of information which will appear in the digital library. These forms are currently being completed by sufficiency students.   If the music is added a piece at a time in this manner it should be easy to keep up to date.

Many more changes are going to be taking place in digitizing the music library. All of the folders as well as all of the music will be given barcodes so that it is easier track. These changes will take place over C term 2005, though once the music is organized in a decent fashion, they will be easier to implement.