CHORAL SCORE PROJECTION

An Interactive Qualifying Project Report

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By

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Abstract

This project will explore the usefulness of displaying digital music on a projector screen during a choral reading session at Alden Hall on the Worcester Polytechnic Institute campus. The WPI Men's Glee Club read the score during the reading session from a projector screen. The following document addresses the effectiveness of reading from projected scores and surveys the reactions of the participants. This data will verify that the projected method is adequate for teaching music in a large group setting.

Acknowledgements

- John F. Delorey, Advisor – Director of Choral Activities/Adjunct

  Instructor, Humanities and Arts department

<u>Introduction</u>

In the near future, humankind is going to suffer from paper shortages due to the decline in the number of trees on Earth. The music world is sure to be affected by this because preference and current technology limit musicians' desire and ability to stray away from using sheet music. As we progress through a technological era, more digital methods for reading music are becoming apparent. The first step in the right direction seems to be projected music. Whether it be scanned sheet music, or a previously filed PDF of sheet music, perfecting this type of technology is essential to wean us from our reliance on paper.

For my test case, I planned and executed a choral reading session using music projected onto a screen in two different methods. One method was projecting scanned music, and the other projecting a PDF file of the music. The reading was executed in Alden Hall on the Worcester Polytechnic Institute campus, during a Glee Club gathering. A typical reading session begins with everyone acquiring the sheet music. However, for this test case, the singers had only a projected image of the sheet music to sing from.

The music used during the session was music previously rehearsed that people were familiar with. Upon completion, the singers received a ten part questionnaire, which was used to gauge responses. A comparison of the two methods was made using the results.

There are many similarities between the two projection technologies I used. First, the clarity all depends on the type of scan used and how well the PDF has been transferred. The majority of the feedback will be used to further the development personal digital reading device, not projection music specifically.

Methodology

1. **Organization and Planning**

In preparation for the reading session, I was given two (2) pieces of sheet music of music sung by the Men's Glee Club. Because this project deals with variance between methods of copying music, I have underwent separate techniques for getting the images ready to be projected. Each piece will be displayed as PDF file, and as a high resolution image. At first, the Glee Club will not be alerted to which of the methods had been used for the music piece so that they will be able to make their own choice as to the better method. They will then answer a questionnaire about the visual aspects of each type of music.

I was able to reserve the equipment necessary to perform this experiment through the ATC (Academic Technology Center). The equipment I acquired was as follows:

· Two (2) projectors

· Two (2) projector screens

Other equipment that I will be utilizing for this project includes the following:

· A laptop

· A scanner

· Necessary electrical cables

In order to ensure that there will be ample space for the Men's Glee Club and all the equipment necessary for this project, I reserved Alden Hall for March 28, 2009 for the reading session. The lighting control in this building will provide a good atmosphere for reading off the projector screens. The projector screens were set up next to each other on a low stage in front of semi-circular rows of chairs. A center isle was created for the projectors and the laptop to be placed. The conductor will be situated between the two projector screens so that it will provide an equal visual advantage to everyone in the room.

To create the digital music, the two (2) selected pieces were scanned into a computer one page at a time. The images were then edited and cropped to the proper size and resolution for the projection screens being used. After all the images of a piece were scanned into the computer and sufficiently edited, it was then transferred to a Power Point document.

2. Creating the Questionnaire

The most important part of the reading session was to develop a survey to observe the reaction of the participants. Due to the time constraints, I wanted to keep it fairly short, and make sure I gather all the relevant data I need. I also

wanted to cover the physical (vision, clarity, ect.) and physiological (irritations, ect.) bases of interest within the questions. A few of the questions were number based (1 through 5), and I added a comment section for anything additional people wanted to add.

Questionnaire

Which version was easier to see?   1   2

Which version was easier to see?   1   2

Was it difficult following the music without your own hardcopy?

-Not at all   -Quite

-Slightly   -Very much

How comfortable was the view of the projector screen?

-Very comfortable   -Poor

-Adequate   -Undesirable

How well could you see the PDF images?

Poorly   Strongly

1   2   3   4   5

How well could you see the scanned images?

Poorly   Strongly

1   2   3   4   5

Which form of the projected music do you prefer?

-PDF   -No preference

-High Resolution   -Do not like projected music

Did the turning of the pages bother you?

-Not at all   -Quite

-Slightly   -Very much

Were you able to see the conductor well?

-Not at all   -Okay

-Slightly   -Very Clearly

3. Implementing the Reading Session

The organization and set up for the reading session was probably the most time consuming aspect of the project. I had to make sure I had all the necessary materials (projectors, projector screens, and a laptop), and a place to perform the reading session. On top of that, I had to make sure enough people were going to be there to have it be an effective session. Once a had everything set up in Alden Hall, I situated myself in front of the conductor, with control over the changing of the slides, and the choir sang through the session.

<u>Results</u>

       The survey was the most revealing part of the reading session. On a wide level, participants preferred the PDF files to the high resolution scanned images. This is not what was expected and was likely due to scanning discrepancies.

       Generally, participants could follow along with the music, but many said if they didn't already know the music, it would have been more difficult to follow. The view of the projector and the conductor was satisfactory according to the questionnaire. The only thing that will always prove to be a problem with projected music, is the inability to turn the page for yourself. This, along with some peoples' inabilities to read the words, were the two most common complaints in the comment box on the questionnaire.
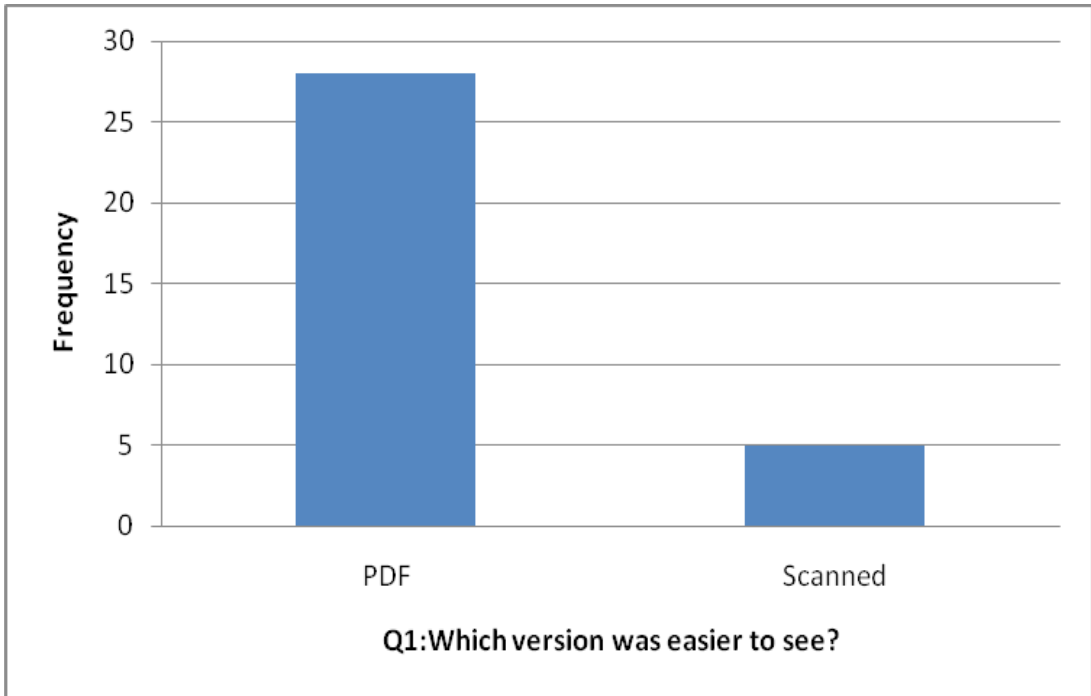
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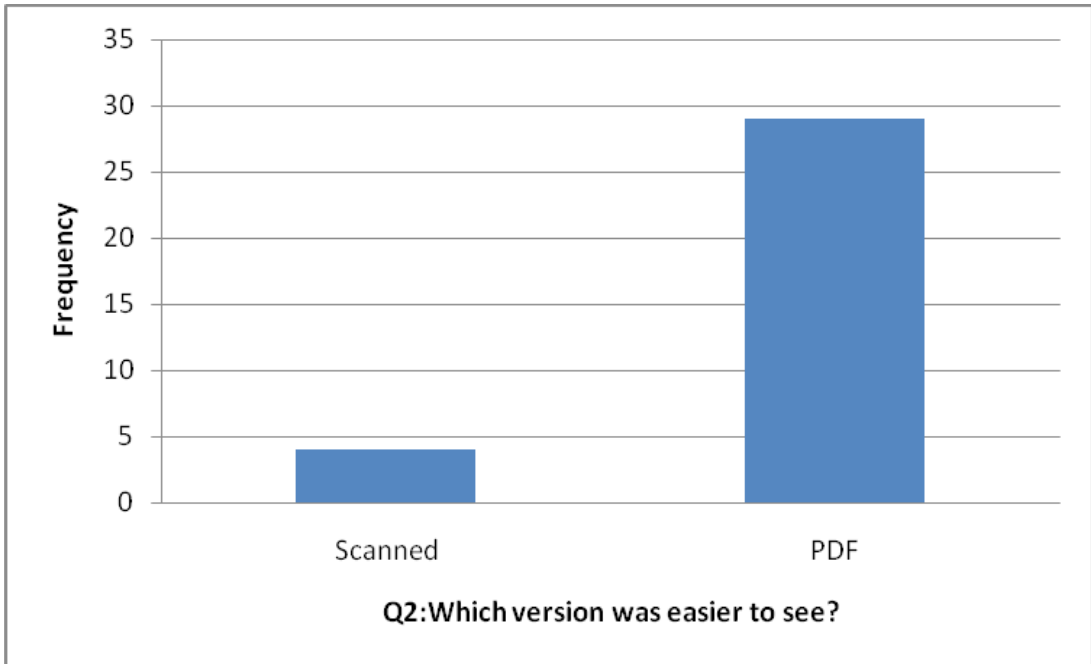
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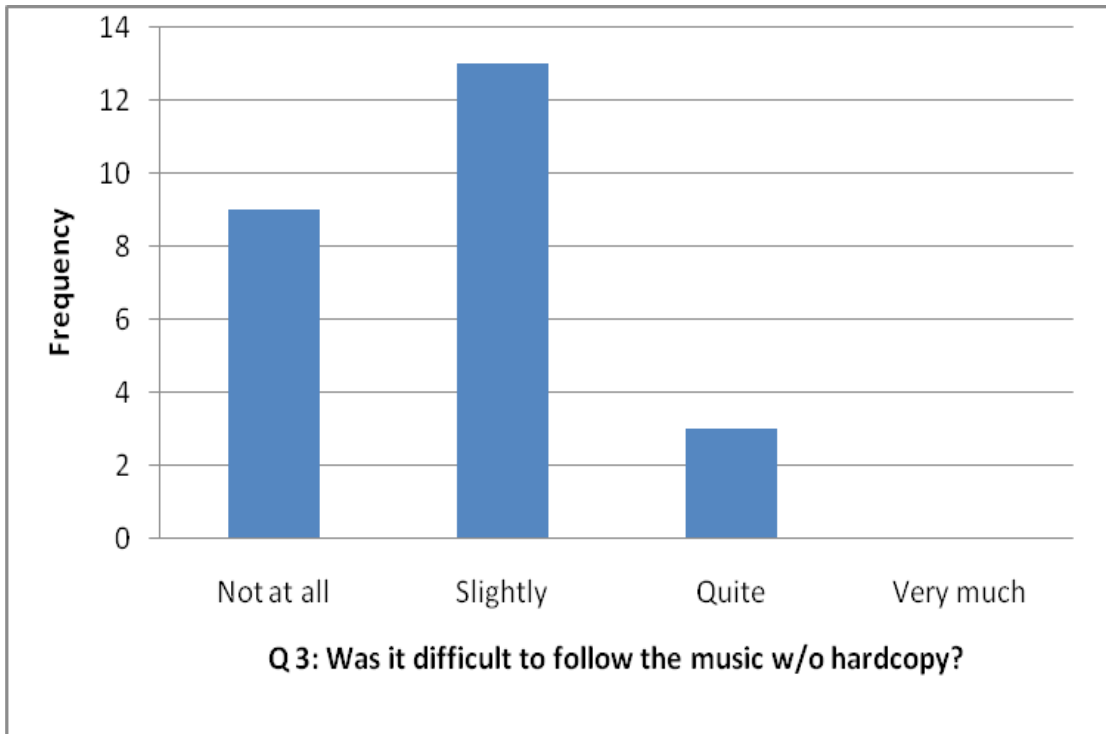
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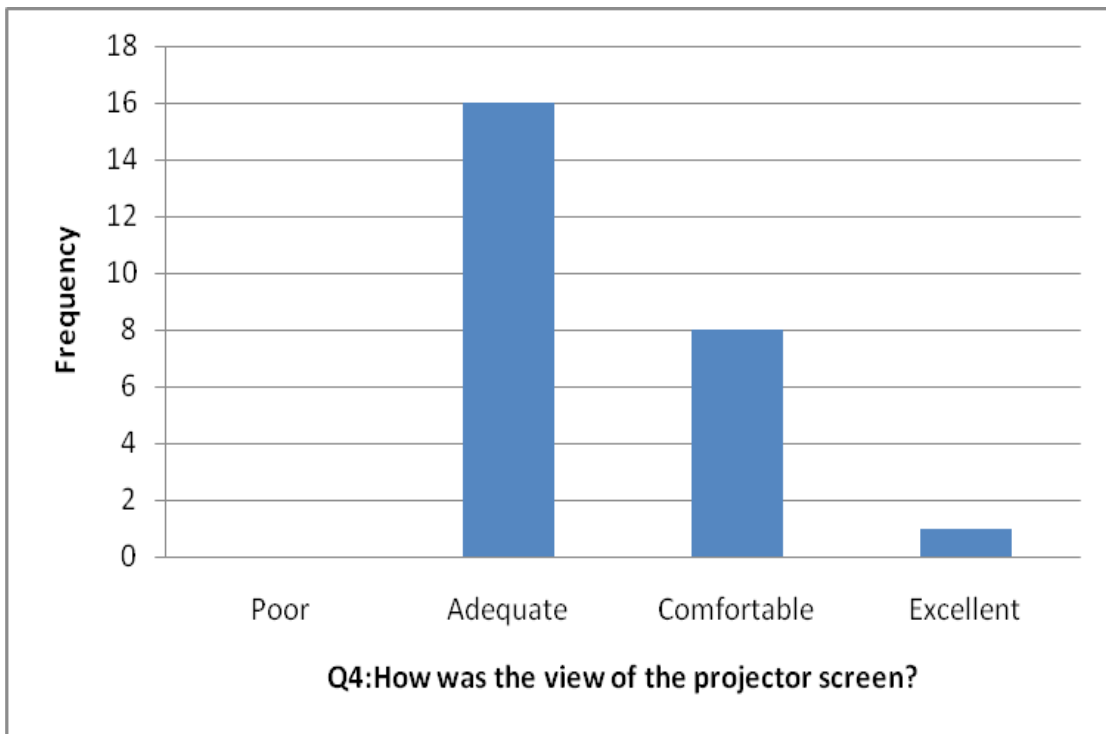
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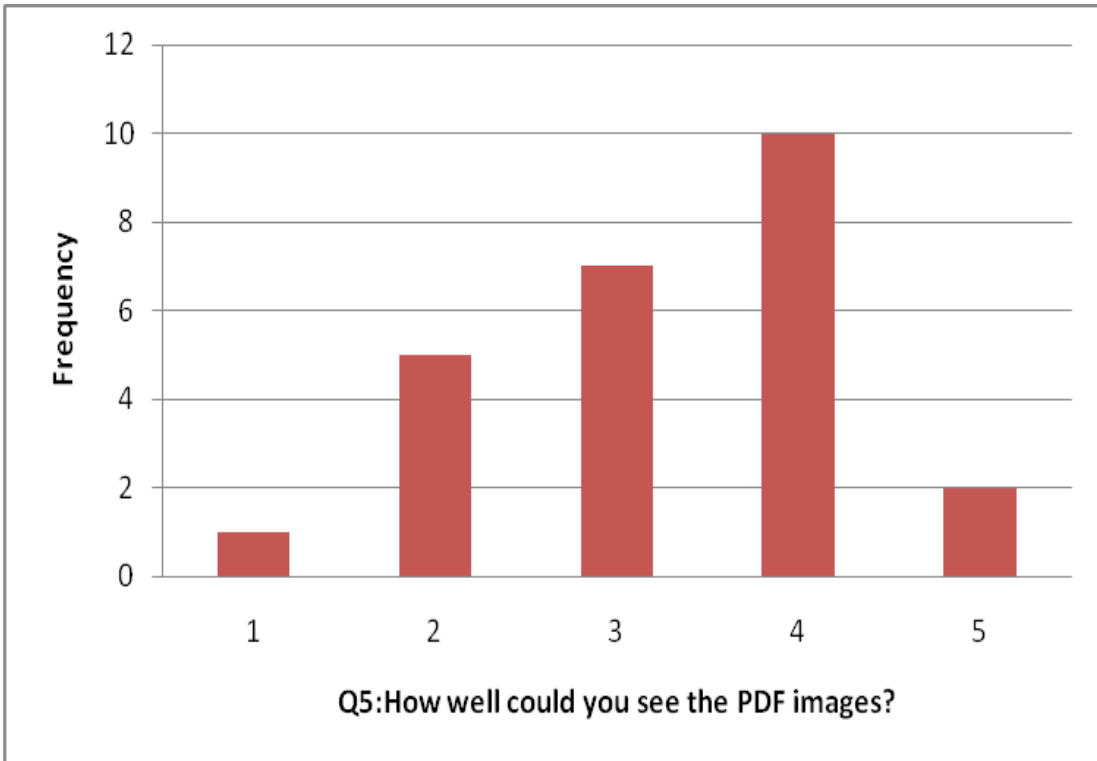
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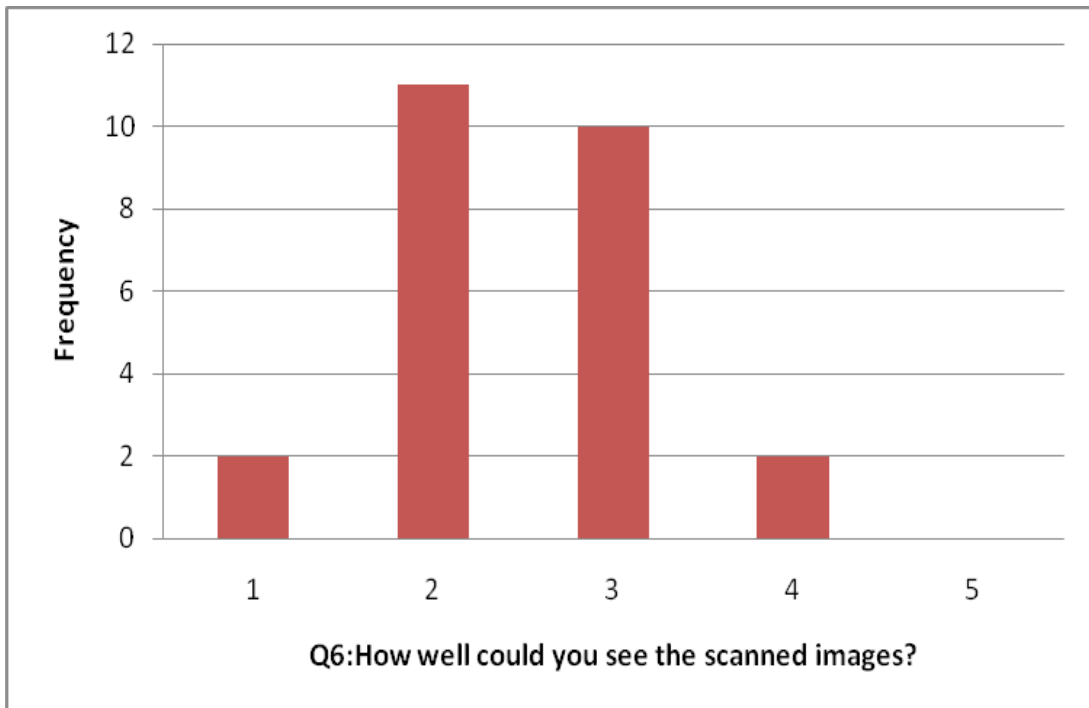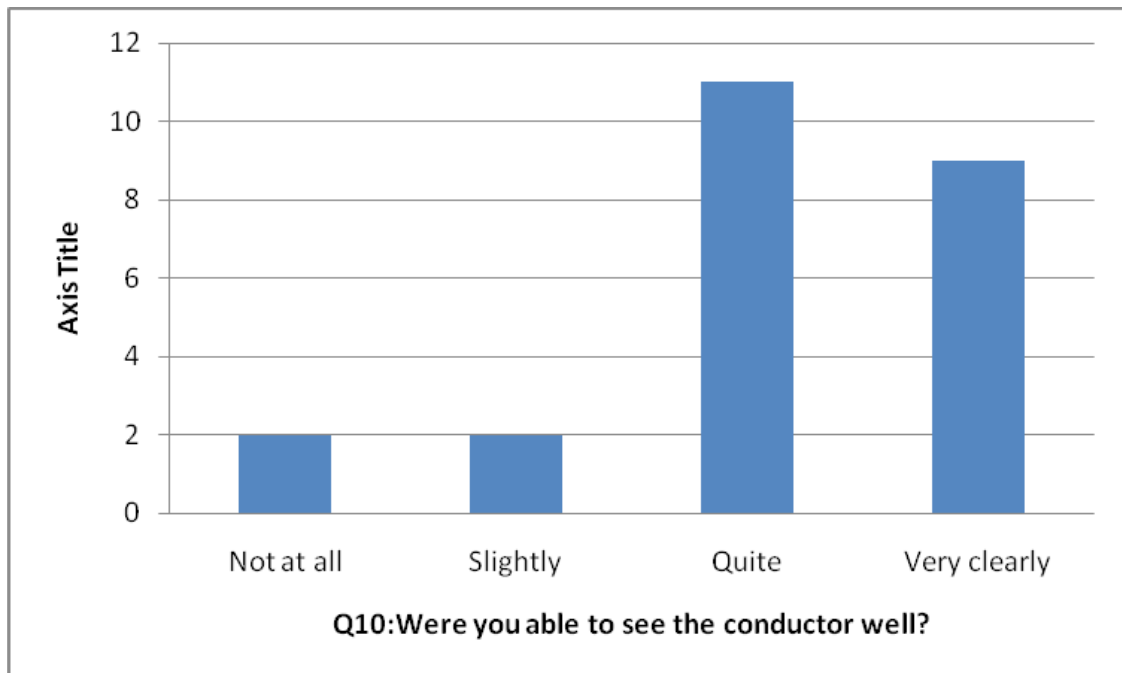

Figure 6

Figure 7

Figure 8

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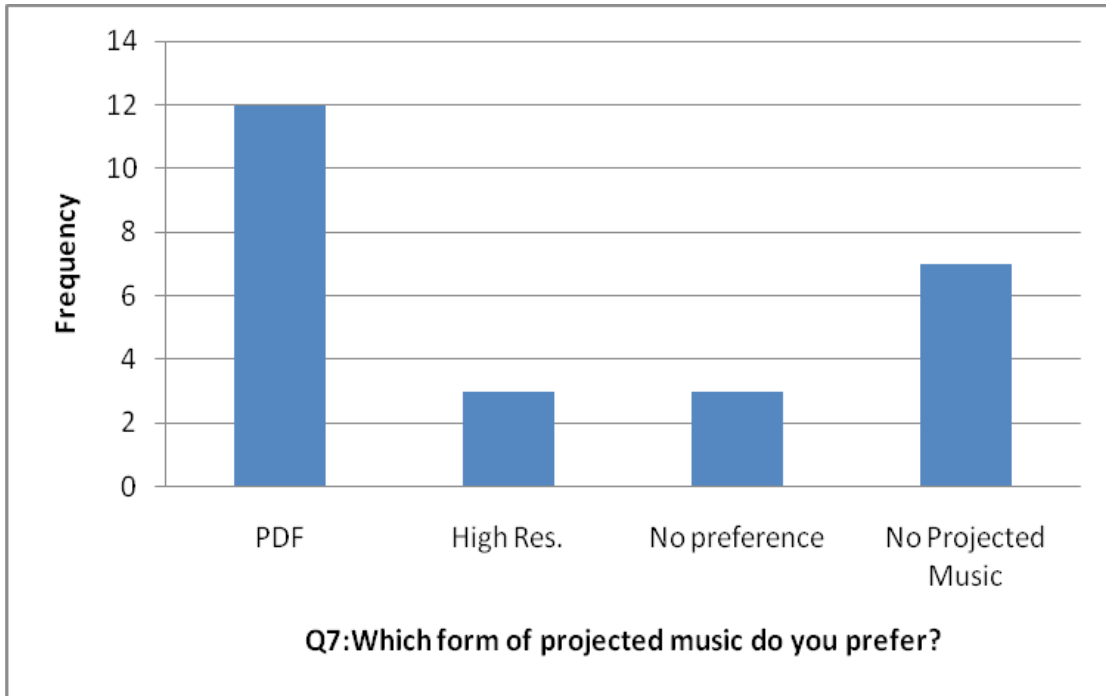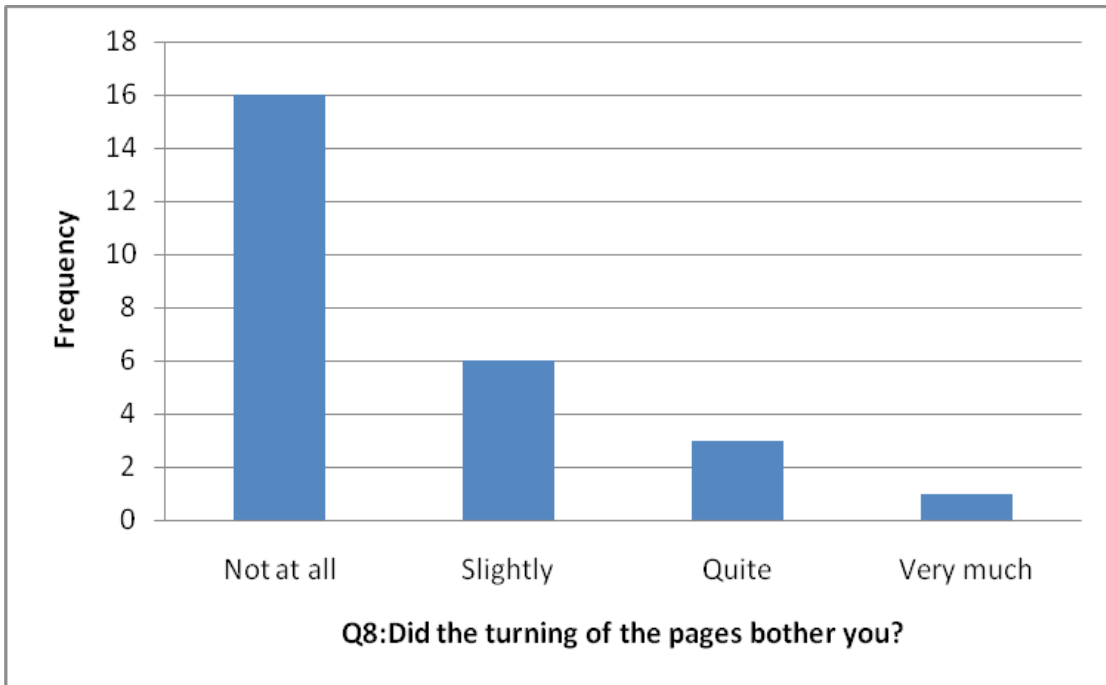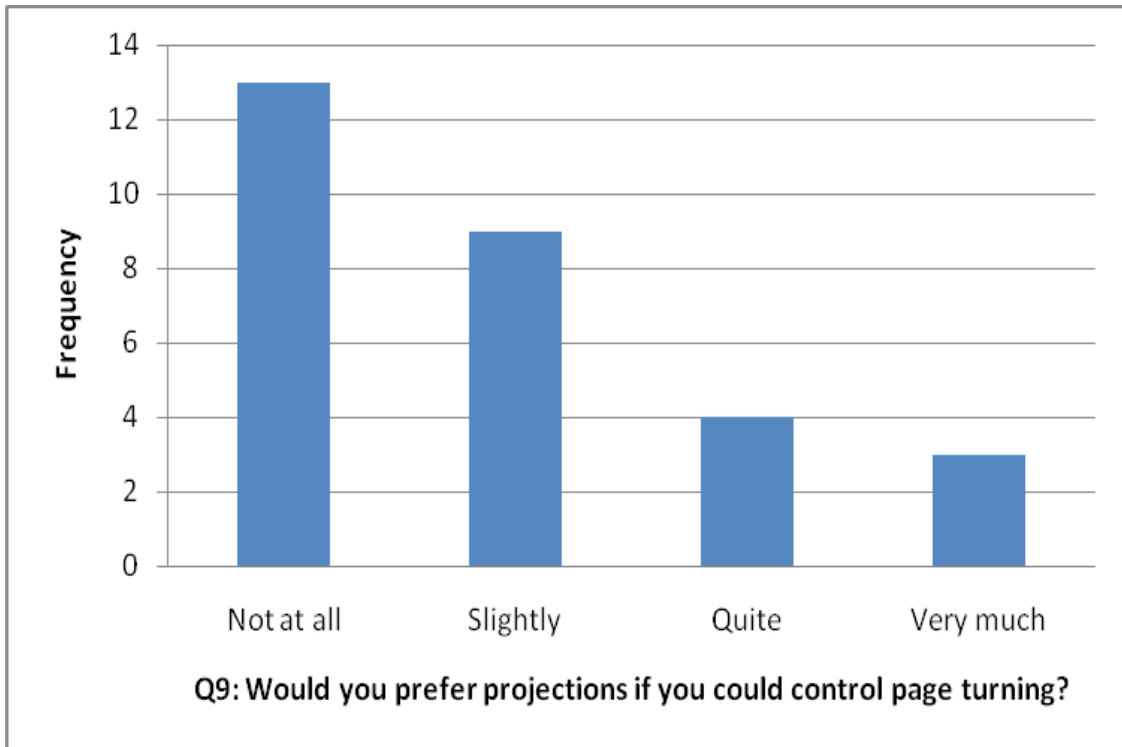
Figure 9

Figure 10

Conclusions

We have far from perfected the way we read music, and a technological advancement in the way we read music is a must in our society. Eventually, our paper sources will be used up or at least become non-cost-effective. We are going to have to find a new way for a large group of people to read a musical number. If we could put thousands of sheets of music into one affordable device, this definitely seems like something worth continuing research on.

In the past few years, projected music has been tested and tweaked to gain a better understanding of how to perfect it. Many people have given opinions, some things can be changed, and some cannot. Comfort and ability to read/see the music and words is something that could be perfected, but things like page turning can not. A large choir cannot comfortably flip from page to page as they previously could.

I believe the idea of a personal digital reading device is the end result of researching technological advances in music reading. This would solve some of the problems of projections, but not all. At some point in the future, I am sure this will be tested.

Nunc Dimittis

Worcester Service

Music by John Delorey

Preces and Responses

Worcester Service

Music by John Delorey

Precentor

O Lord, open thou our lips.

T 1 — And our mouth shall show forth thy praise.

T 2 — And our mouth shall show forth thy praise.

B — And our mouth shall show forth thy praise.

B — And our mouth shall show forth thy praise.

Pr

O God, make speed to save us.

T 1 — O, Lord make haste to help_____ us.

T 2 — O, Lord make haste to help us.

B — O, Lord make haste to help us.

B — O, Lord make haste to help us.

Pr

Glory be to the Father, and to the Son, and to the Holy Ghost,

Preces and Responses

Pr — The Lord be with you.

T 1 — And with they spi - rit.

T 2 — And with they spi - rit.

B — And with they spi - rit.

B — And with they spi - rit.

Pr — Let us pray.

T 1 — Lord, have mer - cy up - on us. Christ, have mer - cy up - on us. Up - - on us.

T 2 — Lord, have mer - cy up - on us. Christ, have mer - cy up - on us. Lord, have mer - cy up - on us.

B — Christ, have mer - cy up - on us. Lord, have mer - cy up - on us.

B — Christ, have mer - cy up - on us. Lord, have mer - cy up - on us.

Pr — Our Father...

T 1 — ...which art in heaven...

Preces and Responses

Pr
O Lord, shew thy mercy up-on   us.

T 1
And   grant   us   thy   sal - va - - - - tion.

T 2
And   grant   us   thy   sal - va - - - tion.

B
And   grant   us   thy   sal - va - - - tion.

B
And   grant   us   thy   sal - va - - - tion.

Pr
O Lord,   save   the   state.

T 1
And   mer - ci - ful - ly   hear   us   when   we   call   up - on   thee.

T 2
And   mer - ci - ful - ly   hear   us   when   we   call   up - on   thee.

B
And   mer - ci - ful - ly   hear   us   when   we   call   up - on   thee.

B
And   mer - ci - ful - ly   hear   us   when   we   call   up - on   thee.

Pr
Endue thy ministers with   righ - teous - ness.

25

T 1
And make thy cho - sen peo - ple joy - - - ful.

T 2
And make thy cho - sen peo - ple__ joy - - ful.

B
And make thy cho - sen peo - ple__ joy - - ful.

B
And make thy cho - sen peo - ple__ joy - - ful.

Pr
O Lord, save thy peo - ple

T 1
And bless thine in - her - i - tance.

T 2
And bless thine in - her - i - tance.

B
And bless thine in - her - i - tance.

B
And bless__ thine in - her - i - tance.

Pr
Give peace in our time, O, Lord.

T 1
Be - cause there is none oth-er that fight-eth for us, but on - ly thou, O, God.

T 2
Be - cause there is none oth-er that fight-eth for us, but on - ly thou, O, God.

B
Be - cause there is none oth-er that fighteth for us, but on - ly thou, O God.

B
Be - cause there is none oth-er that fighteth for us, but on - ly thou, O, God.

Preces and Responses

Pr O God, make clean our hearts with – in us.

T 1 And take not thy Ho – ly Spi – rit from us.

T 2

B And take not thy Ho – ly Spi – rit from us.

B And take not thy Ho – ly Spi – rit from us.

After the first collect   *After the second collect*   *After the third collect*

T 1 A – men. A – men. A – – – – – men.

T 2 A – men. A – men. A – – – – – men.

B A – men. A – men. A – – – – – men.

B A – men. A – men. A – – – – – men.