North Shore Choral Society Web Site – Usability Analysis

James W Miller

millerjw@world.oberlin.edu

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Instructor: Tricia Cunat

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Executive Summary

The North Shore Choral Society (NSCS) is a non-profit performing arts organization consisting of approximately 125 volunteer singers, a paid Music Director and a paid Accompanist. This paper analyzes the usability of the North Shore Choral Society's web site and makes recommendations for improving the usability of the site. The most important of these recommendations can be implemented in less than one week.

The process of analysis includes identifying the business needs of the Society, identifying users and stakeholders of the site and preparing typical use cases that show how the site can be used. These cases were used to develop a list of tasks that users would typically perform while using the NSCS site. Users that fit the profile of NSCS users were located and asked to test the site using the list of tasks. Some site usability problems were identified during this testing. The site was also analyzed against a list of design heuristics. This analysis also revealed some usability problems.

Changes to the web site that were thought to address some of the revealed problems were made and actually installed on the web site. Users were also recruited to test these changes using the same list of tasks. This second round of testing showed that the users could perform the list of tasks faster and with better results with the changes installed on the web site. Therefore, the changes were left on the web site.

This last section of this paper contains a list of recommendations to implement other changes that will address the remaining problems identified in the testing and the heuristic analysis. It is important to address the high priority recommendations as soon as possible. The author of this paper plans to do this by October 15, 2005.

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Analysis

"Every proposed model of the software development process includes activities aimed at capturing requirements: understanding what the customers and users expect the system to do" (Pfleeger, 2001, p. 136). No software development process would skip the analysis step because this could lead to an unsuccessful project. Therefore, we start with an analysis. This analysis will identify the needs of the business that is funding the web site as well as the needs of the users who will visit the site.

Business Needs

The North Shore Choral Society (NSCS) is a non-profit performing arts organization consisting of approximately 125 volunteer singers, a paid Music Director and a paid Accompanist. The business needs are the same as most other non-profit performing arts organizations. Overall these needs include communicating with the public in a manner that will encourage attendance at performances and voluntary financial contributions to the group. Specifically the needs are:

1. To encourage monetary and in-kind contributions from members of the public and members of the North Shore Choral Society.

2. To motivate the public to attend concerts. A full concert hall motivates volunteer singers and helps offset the expenses of professional musicians used during the concert.

3. To recruit and retain excellent volunteer singers.

User Needs

There are many times when the goals of the business seem to be in direct conflict with user goals (Digital Web, 2004). However, in this case, and in the case of many non-profit organizations, the business need of the organization to provide information matches the needs of the users to obtain the information. To confirm this, there is a table of specific user needs on the next page.

	User Need	Why Do Users Need This?
1	Find information about music being performed.	To evaluate type of music and determine interest in attending any concerts.
2	Find information about concert dates, times and locations.	To select one or more concerts to attend.
3	Find out about ticket prices and how to order tickets	To help with the logistics of attending a concert once performances are selected. To make concert attendance decisions based on ticket price.
4	Obtain general information about the group.	To decide whether to join the group. To make decisions about making a contribution to the group.
5	Locate names of officers and board members	To provide feedback. To determine who is in-charge of specific activities in order to volunteer. To decide whether or not to run for office.
6	Examine details of all past performances	Decide whether or not to join the group. To gather information for planning future performances.

Stakeholders

"Ensuring success of the company Web site is not something that belongs to one job title" (Sterne, 2004). "The people in your company who complain about it (the site) should also be asked to join the team (and be) willing to take responsibility for it. (Sterne, 2004). In the case of the North Shore Choral Society, internal stakeholders such as the Vice Presidents of Concerts, Public Relations, and Fund Raising take active roles in reviewing web site content and representing the external stakeholders served by the web site. The stakeholders and their representatives are described in the table below.

	Stakeholder	Represented by	Rationale
1	North Shore Choral Society Members	All Board Members	Members direct their friends to the site to promote concerts. Members also use the site to check schedules and announcements. A professional looking site promotes pride in the group.
2	Sponsors and Potential Sponsors	VP Finance	Sponsors want to know about the mission and character of the group and what the group provides to the community. A web site that provides a service to the community encourages contributions.
3	Music Director	Himself	The professional Music Director wants the site to reflect the quality of the group he leads. He can direct professional musicians that he wants to recruit to perform with the Society to the site.
4	Public – within concert attending range	VP Concerts, VP Public Relations	The public wants information about concerts including works performed, ticket prices, and concert locations and times. Easy to access and clear information can encourage increased concert attendance.
5	Public – outside concert attending range	VP Concerts, Music Director	Other musical arts organizations may be interested in knowing when and where works have been previously performed.

Use Case Specifications

"One convenient way of determining the functional requirements for a system is to identify its uses cases. Use cases partition the system into a set of logical, minimally related pieces, each of which describes some way in which the system will function." (Pfleeger, 2001, p. 141). Use cases for the North Shore Choral Society web site are documented below using the approach described in the course text book (Brinck, 2002).

Use Case 1: Obtain concert information for current season

Description	The user is considering attending one or more North Shore Choral Society concerts and is seeking information.
Actors	User, System
Additional Use Cases Needed	None
Steps	1. User scans the home page and selects the Concerts Link. 2. System displays the current season concert page. 3. User scans the information to see dates, location and contents of performances. 4. User notes concert dates of selected concerts. 5. User might continue to "Purchase Tickets" use case.
Alternative 1:	1a. On the home page, user types "current season" in the search box. 1b. System displays a list of links 1c. User selects the first link which leads to the current season concert page.
Alternative 2:	3a. While scanning concert information, user clicks on a program notes link. 3b. System displays detailed program notes. 3c. User reads notes. 3d. User clicks Concerts link to return to Concerts page.
Alternative 3:	3a. On the concerts page, the user selects a link to this season's brochure. 3b. System loads Adobe reader and the PDF brochure 3c. User examines brochure to see dates, location and contents of performances. 3d. User clicks on back arrow go return to Concerts page.

Use Case 2: Purchase concert tickets.

Description	A user has previously decided to attend a concert and wishes to purchase tickets or a user wants to know ticket prices before looking at concert information.
Actors	User, System, Executive Director
Additional Use Cases Needed	Use Case 1: Obtain concert information.
Steps	1. User selects Tickets on the home page. 2. System displays ticket information. 3. User reviews ticket information. 4. User sends email message or makes a telephone call to the Executive Director. User does not send payment information via email. 5. Executive Director completes the transaction by telephone and mails tickets.
Alternative	1a. User reviews ticket information. 1b. User decides to purchase tickets at the door. 1c. User leaves the site or clicks a navigation link.

Use Case 3: Member searches for latest announcements.

Description	A Member of the North Shore Choral Society may come to the web site to find information that is relevant to members but not of interest to the general public. An example of this type of information is the weekly announcements call the "*Blue Notes".*
Actors	User, System
Additional Use Cases Needed	None
Steps	1. User clicks the Members link on the home page. 2. System displays the Members page. 3. User selects the Read Current Blue Notes Link 4. System displays the current *Blue Notes* 5 User reads the current announcements.
Alternative 1:	3a. User notices the Membership Guide link and clicks on it. 3b. System displays Membership Guide PDF document 3c. User clicks a navigation link
Alternative 2:	3a. User reads calendar on current page and sees the information he/se was seeking. 3b. User clicks a navigation link.

Use Case 4: Sponsor seeks information

Description	Sponsors and potential sponsors can visit the site to gain an insight into the organization.
Actors	User, System
Additional Use Cases Needed	None
Steps	1. User reads mission and text on home page. 2. User clicks on the Sponsors Link. 3. System displays the Sponsors Page. 4. User reads information on the Sponsors Page. 5. User clicks on the About Us navigation link 6. System displays the About Page 7. User skims about page. User is impressed with the picture of the group, the background of the Music Director and the large number of group members performing volunteer functions. 8. User notices Executive Director phone number at bottom of page 9. User calls Executive Director and arranges to make a generous donation.
Alternative	5a. User examines other areas on the site using navigation links. 5b. System displays requested information.

Use Case 5: User searches past concert information

Description	People from any location may be interested in what works the North Shore Choral Society has performed in the past.
Actors	User, System
Additional Use Cases Needed	None
Steps	1. User selects a Past Concert Season (using drop down box). 2. System displays the Past Seasons index page positioned at the season selected by the user. 3. User examines information and clicks on a performance date for more information. 4. System displays summary information for that performance 5. User selects one of the performed works and clicks on the Program Notes link for further details. 6. System displays Program Notes for the selected work. 7. User skims Program Notes. 8. User repeats steps 1-8 as often as desired.
Alternative	1a. User types name of work or composer in search box. 1b. System displays list of items. 1c. User selects a link. 1d. System displays selected information. 1e. User reviews information.

Target Audience Description

The target audience includes members of the North Shore Choral Society, people who would attend concerts of great choral works, and people who are interested in the type of music that would be performed in concert halls and churches. The target audience also includes people who would make donations to the Society. Based on this description, it can be assumed that a large percentage of the target audience is over 40 years of age.

The North Shore Choral Society has an audience that is highly educated and affluent. The table below provides demographic information on the three communities in which the North Shore Choral Society will perform this season.

Table 1 - North Shore Choral Society Community Demographics (city-data.com, 2005)

	Evanston	Northbrook	Winnetka
Median age	32.5	44.1	39.8
Median household income (2000)	$56,335	$95,665	$167,458
Median home value (2000)	$290.800	$370,800	$756,500
% of people 25 and older with Bachelor's degrees or above	62.4%	62.2%	84.4%
% of people 25 and older with Graduate degrees	33.2%	27.6%	44.1%

Many of the younger members of the North Shore Choral Society use Macintosh computers in their work. The target audience expects that multiple types of computers and browsers will be supported.

User Scenarios

It is helpful to think of members of the target audience in specific terms. To that end, here are three profiles of users that could be members of the target audience.

User profile 1 of 3:

Name, Age, Gender	Allan,80, male
Member of NSCS?	No
City, State, Type of Home	Evanston, IL – Single Family Home
Education	PhD, Education
Living Situation	Lives with wife. Children live in other cities
Hobbies	Taking and teaching courses at Institute for Learning in Retirement.
Occupation	Retired
Income	$50,000
Work Hours	Retired
Disabilities	Uses hearing aid
Computer, Monitor, Software	Dell Desktop, 1280 by 800 resolution, Windows XP at Home with Internet Explorer 6.
Network Connection	Cable
Technical Skill	Uses Browser and Outlook Express only. Calls for outside help when any technical problems arise
Interaction with Website	None. Allan likes to attend concerts. He is the kind of user that should be attracted to the site.
Typical Schedule	6:00 Wake up. 6:30–7:30 Walk and buy paper. 7:30–9:00 Read Paper. 9:00–9:30 Drive to Institute for Learning in Retirement (ILR). 9:30–11:30 Attend Class. 11:30–12:30 Eat lunch with classmates in student union. 12:30–13:00 Drive Home. 13:00–16:00 Watch or listen to Chicago Cubs baseball game. 16:00–17:00 Study. 17:00–19:00 Eat dinner with wife. Watch network news. 19:00–20:00 Answer mail and email. 20:00–22:00 Relax or prepare for course.
Activities that vary from schedule	Study and relaxing time may vary based on Chicago Cubs schedule. More time is devoted to class work after baseball season ends. May take two-week long trips to visit children and grandchildren.

User Profile 2 of 3

Name, Age, Gender	Pat, 40, female
Member of NSCS?	Yes
City, State, Type of Home	Evanston, IL, Single Family Home
Education	BS Math
Living Situation	Lives with husband and two children
Hobbies	Singing, desktop publishing for charitable organizations
Occupation	Systems Architect at a large company
Income	$85,000
Work Hours	8:00 – 16:00
Disabilities	None
Computer, Monitor, Software	Brand X Desktop with 1GB of main memory, 100GB hard disk, 1280 by 1024 monitor resolution, Windows XP Professional and Internet Explorer 6
Network Connection	Cable
Technical Skill	Strong mainframe and database design skills. Knowledgeable PC user. Excellent problem solver.
Interaction with Website	Regular visitor to the site. Checks accuracy of information on site.
Typical Schedule	5:30 Wake up. 6:00–7:00 Read email and news from internet. 7:00–8:00 Drive to work. 8:00–11:30 Review system and database designs work. 11:30–12:30 Eat lunch with coworkers. 12:30–15:30 Attend meetings. 15:30–16:00 Varies by day. 16:00–17:00 Drive home. 17:00–19:30 Eat dinner and spend time with family. 19:30–21:30 Do volunteer work. 21:30–22:00 Relax.
Activities that vary from schedule	May spend entire weekend days on volunteer work. Attends North Shore Choral Society rehearsals from 19:00 – 22:30 on Tuesdays. May spend time assisting older son with his technical consulting practice.

User Profile 3 of 3

Name, Age, Gender	Les
Member of NSCS?	Yes
City, State, Type of Home	Northbrook, IL, Single family home
Education	MA, English
Living Situation	Lives with wife. Children live in other cities
Hobbies	Reading, writing, singing
Occupation	Retired – works part time
Income	$75,000
Work Hours	13:00 -16:30
Disabilities	None
Computer, Monitor, Software	Compaq desktop, 1024 by 768 monitor, Windows 98, Internet Explorer 5.
Network Connection	AOL Dial-up
Technical Skill	Minimal technical skill. Asks others for computer help frequently. Significant experience with Microsoft Word.
Interaction with Website	Except for writing, Les avoids computer use whenever possible. Visits site once per week to read announcements.
Typical Schedule	7:00 Wake up. 7:30–9:30 Exercise and drink coffee 9:30–12:00 Read and write 12:00–13:00 Eat Lunch at home with wife 13:00–16:30 Work as manager of non-profit organization 16:30–17:00 Pick up mail and return home 17:00–19:00 Eat Dinner at home 19:00–20:00 Relax 20:00–22:00 Participate in community meetings
Activities that vary from schedule	Attends NSCS rehearsals on Tuesday nights from 7:00 – 10:30.

Exploratory User Testing

"Nothing provides more insight than seeing users actually trying to accomplish something on your site and not succeeding". (Brinck, 2002, p. 423) I maintain the North Shore Choral Society web site and I *think* that users are able to find what they are looking for on the site. However, I have not actually seen users trying to accomplish specific tasks. Therefore, I do not really know if it is easy, difficult, or impossible to perform typical tasks. By conducting tests with formal scripts the performance of the users and the site can be observed directly. This will help reveal where the site needs to be improved.

To get the maximum value from the users' time and to make sure that the test runs smoothly, it is necessary to carefully prepare. The documentation of the preparation is shown on the preparation worksheet in Appendix A. (Brinck, 2002, p.424). The appendix also contains a copy of the handouts and User Consent Form (Brinck, 2002, p. 431) that the users will receive at the beginning of the test. The description of the test users and the tasks that they are expected to perform are also in this appendix.

The test will be conducted in the users' homes on the equipment that they would normally access the NSCS web site. If the users' equipment is configured in a way that was not anticipated when the site was designed, this will be detected during the test.

Exploratory User Testing Summary Results

Introduction

This section contains the actual results of the test plan documented in the previous section. Three users that closely approximated the User Profiles in Appendix A were selected. The tests of the existing North Shore Choral Society Web Site were conducted in their homes. The specific information on each user is also shown in Appendix A. Each user attempted all of the tasks shown on the task list in Appendix A. The details on how each user approached each tasks are shown in the raw test results for each user in Appendix B.

Summary of Exploratory Testing Results

The table below summarizes the test results. The final three columns show which users were able to answer the question posed in the task description. The task descriptions have been shortened here for presentation. The original questions are shown in Appendix A.

Table 2 - Exploratory Test Results

Task Number	Task Description	Summary of Observations	Success (Y/N)		
			B	J	R
1	When and where will the concert take place?	All easily found the Concerts navigation link.	Y	Y	Y
2	How much would it cost you to buy a ticket to the concert you found?	Ticket navigation link at left was not obvious. Users expected a link with the concert information.	Y	Y	N
3	How would you buy the ticket?	All users expected to be able to buy over the web. NSCS does not support this.	Y	Y	Y
4	What are the names of the Music Director and Accompanist?	All users found the about page and seemed to find the information on it useful.	Y	Y	Y
5	Where and when is the next rehearsal?	It was not obvious that this information is under Members.	Y	Y	N
6	Who composed Pax	This task took longer than other	Y	Y	Y

	Vobis?	tasks. Users lost time searching through the current season when the information was in a past season. One user successfully used the Search box on the home page.			
7	What is the minimum contribution required to be a Sustaining Member?	This was easy. All users found the Sponsors link.	Y	Y	Y
8	Name one of the works performed in last year's (2004) December concert.	One user did not find the Past Seasons and instead used the search function to get the answer.	Y	Y	Y
9	Find the most current *Blue Notes*. What is the date of the current issue?	All users found the answer. One user used the search function. It was not obvious that this information is under Members.	Y	Y	Y
10	What are the performance dress requirements or who can you ask to find out? Find one of these answers.	The expected approach to this question was to find the PDF document "Membership Guide" under Members. The successful users decided to call the Executive Director using the phone number on the web site.	N	Y	Y

The following usability problems were observed:

1. When the navigation links at the left hand side scrolled off the page, users had trouble finding them again.
2. There is no site map. Two of the three users complained about this.
3. Ticket information was not easy to find when looking at information for a specific concert.
4. It is not clear what information can be found on the Members page. (Users did not easily find the Members' Newsletter or the Membership Guide.)
5. The Search box is at the bottom of the Home Page. Users expect it at the top.

6. The Concert Brochure and the Membership Guide load slowly on dial-up connections.
7. It is not easy to find information from past concert seasons. (It took longer than it should to find this information.)

These problems do not appear to be significant enough to compromise the business objectives of the site. Users were able to complete the most important tasks including finding the upcoming concert information and linking to ticket information. In fact, the failure percentage was only 13.3% ((4 failures/ (10 tasks * 3 users) *100)). However, it is clear that there is room for improvement.

Information Architecture

"At this stage you need to detail the content and organization of the web site. The team should inventory all existing content, describe what new content is required, and define the organizational structure of the site."(Lynch, 2001) Lynch recommends the following deliverables:

1. Detailed site design specification
2. Detailed description of site content (Site maps, thumbnails, outlines, table of contents)
3. Detailed technical support specification (Browser technology supported, connection speed supported, web server and server resources)
4. Proposals to create programming or technology to support specific features of the site
5. A schedule for implementing the site design and construction
6. One or more site prototypes of multiple pages
7. Multiple graphic design and interface design sketches or roughs.

Site Design and description of site content

The plan for the development of the North Shore Choral Society web site was established as part of a graduate school project (Miller, 2003). The implementation of the first phase of this plan is based on the information architecture as shown in Figure 1 below. This is the current architecture of the North Shore Choral Society web site (http://www.northshorechoral.org).

The resulting web site is described in the paper *North Shore Choral Society Web Site – Implementation* (Miller, 2004). The current information architecture is a tree structure that is that is usually three levels deep. The first level is the home page. The second level is a summary page. In the case of "About" and "Tickets" there are no further levels. In the case of Concerts, a program notes page for each concert can be found one level below the Concerts Summary Page. There is no site map.

Structure: The site does contain the information required by the business and the contents in general meet the needs of the users and stakeholders. However, some of this content is not easy to find. Users have difficulty locating historical information. Specifically, it is not easy to find information in past newsletters and past concert seasons. Content levels one and two have navigation links on the left side and at the bottom of the page and it is easy to navigate at this level without returning to the home page. However, level 3 pages such as the detailed Program Notes under Concerts do not always have link information. This forces the user to use the back arrow in his/her browser in order to return to level 2. Navigating between past issues of the *Blue Notes* member newsletter is also not clear. There is a java applet on the home page to

display the next concert. If the Java Virtual Machine is not installed on the user's computer or Java Applets are blocked by a firewall, the next concert information does not appear.

Labels: The navigation labels generally let the user know what to expect at the target of each link. However, since there is no site map, it is not necessarily clear that rules for rehearsal attendance and the current newsletter are found under "Members" and that the name of the Music Director is located under "About".

Navigation Model: The site appears to assume the Satisficing model of human navigation (Brinck, 2002, p. 126). For the most part, the pages function independently and the most important content and links are immediately visible. Based on exploratory user testing, several of the subjects tried to infer the structure of the site based on what they saw. This indicates that some users would prefer using the Mental Maps model and it would be reasonable to create a site map and to change the appearance of the navigation area to indicate what part of the site is being displayed at any given time.

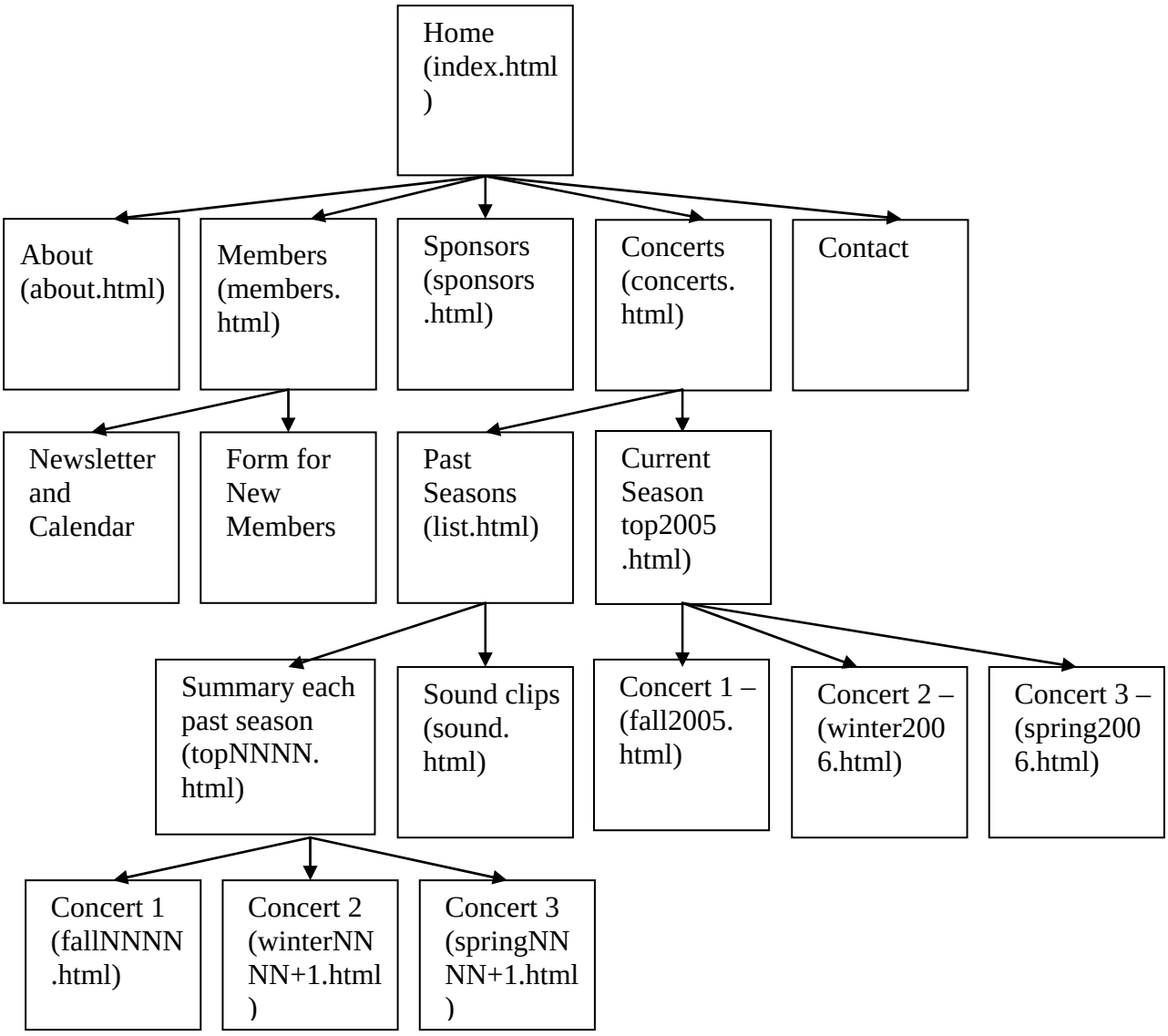


Figure 1 - Current Information Architecture

Alternative Information Architecture: **The discussion above implies the following requirements for improved information architecture:**

1. Provide support for the Mental Maps model of Human Navigation.
2. Include a site map.
3. Provide better navigation to historical information such as past *Blue Notes* and information about past concerts.

Figure 2 shows the modifications to the existing architecture to address these requirements.

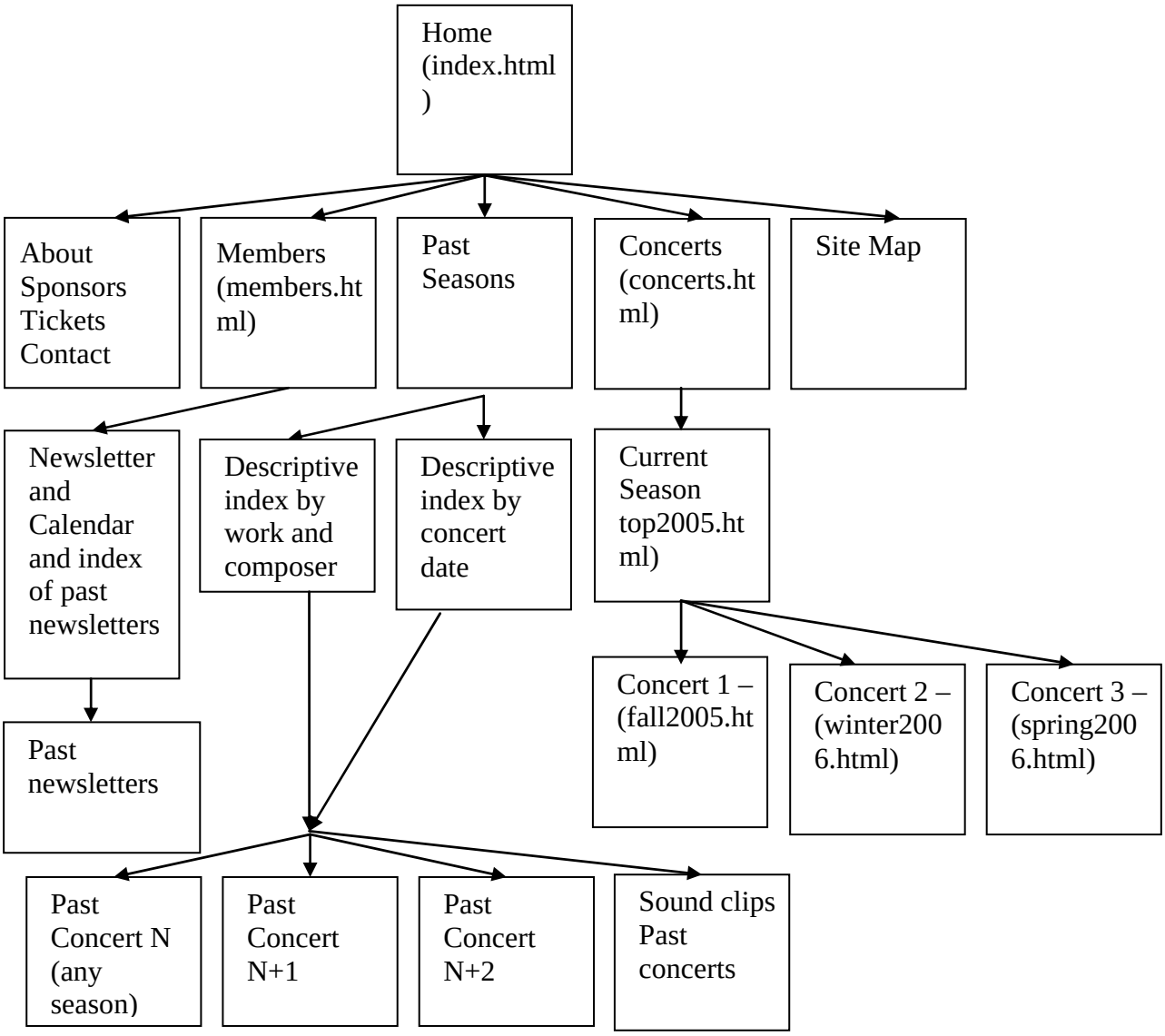


Figure 2 - Revised Information Architecture

Architecture Recommendation: The alternative architecture is preferred because it provides additional navigation approaches without compromising the advantages of the existing navigation. The alternative architecture also addresses the problem of making past concert information and past *Blue Notes* newsletters much more accessible. The new site map accommodates the "Mental Map" users without hurting the "Satisficing" users.

Technical Specification and programming solutions

The web site is currently hosted for free at the North Suburban Library System data center. This site provides access to the Apache Web Server, the PHP scripting language and the MySQL Relational Database Management System. Nothing on the web site should be implemented that would exceed the capabilities of the currently installed versions of these open source system software packages. The web site needs to support dial up users. Browsers older than Internet Explorer 5.0 and Netscape 4.0 need not be supported. However, users of the site are known to use recent versions of Firefox, IE, Opera, and Netscape. All of these must be supported. The use of PHP can be considered to dynamically build some of the descriptive index pages shown in the new Information Architecture.

Schedule

The new architecture should be implemented before the 2006-2007 concert season information is loaded. The target date is August 10, 2006.

Heuristic Evaluation

Introduction

The section evaluates the North Shore Choral Society web site against Jacob Nielsen's ten design heuristics (Nielsen, J. n. d.). The weaknesses revealed in this analysis are partially addressed in a high-end prototype for a new web site design. The prototype is tested to verify that the new design represents is an improvement over the existing design

Evaluation against Nielsen's Ten Design Heuristics

The table below lists the ten design heuristics. The Site column evaluates the site design against the heuristic. The Page column evaluates the page design against the heuristic. The Content column evaluates the content of selected individual pages against the heuristic.

Table 3 - Evaluation against Heuristics

#	Heuristic Summary	Heuristic Details	Site	Page	Content
1	Visibility of system status	The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.	There is a navigation system that was designed to give the user context by showing the name of the current page in bold on the left side and at the bottom of the page	Bolding of the current page name was only implemented on the home page. Some pages omit the navigation aids from the bottom of the page (tickets, members, sponsors)	The PDF documents such as the Membership Guide and the Concert Brochure do not have any navigation aids. The user must use Browser controls.
2	Match between system and the real world	The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented			Program Notes pages are written with words, phrases and concepts familiar to musicians and concert-

		terms. Follow real-world conventions, making information appear in a natural and logical order.			goers.
#	**Heuristic Summary**	**Heuristic Details**	**Site**	**Page**	**Content**
3	User control and freedom	Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.	Users can easily jump to the home page or to any other second level page using the navigation system.	There are links (mostly in Concerts) that open a new browser window and take users to an external site. This is not clearly identified in the link.	Users cannot stop the download of the Membership Guide or the Concert Brochure. These are PDF documents.
4	Consistency and standards	Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.	The site design follows web browser conventions. The formats are consistent across pages and links do not take users to unexpected places.	Clicking on the Concert Brochure link from Concerts or the Membership Guide link from Members takes the user to a PDF. The PDF is a "different world" because it does not have navigation links.	The content of these pages was designed for the printed page – not for use on the web.
#	**Heuristic**	**Heuristic**	**Site**	**Page**	**Content**

	Summary	Details			
5	Error prevention	Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.	Currently the site only displays information so error conditions do not arise. Each page is self contained and users do not take any actions which could update databases.		The Java Applet on the home page displays a scrolling message showing the next concert. If this Applet cannot start, there is no error message. The scroll area just remains blank.
6	Recognition rather than recall	Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.	There is no site map. This was identified as a problem by the Exploratory Test users.		In general, the links on the content page provide an accurate description of what will appear if the link is selected. However, the Members link is not self explanatory.
#	**Heuristic Summary**	**Heuristic Details**	**Site**	**Page**	**Content**
7	Flexibility and efficiency of use	Accelerators -- unseen by the novice user -- may often speed	A drop down box in the left side navigation	A drop down box on *Blue Notes* pages provides	

		up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.	area provides quick access to Concerts of Past Seasons. URLs are permanent and nothing prevents book marking and linking	quick access to past *Blue Notes*	
8	Aesthetic and minimalist design	Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.	There is a scrolling message on the home page identifying the next concert. This can distract some users.	There background on every page is white. There are no watermarks or complicated colors.	The concert Program notes are packed tightly and lack white space.
#	**Heuristic Summary**	**Heuristic Details**	**Site**	**Page**	**Content**
9	Help users recognize, diagnose, and recover from errors	Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.	Due to the simple (read only) nature of the current site, error conditions do not arise	If the home page is unable to connect with the MySQL database that contains the hits counter, a system-oriented message could be issued.	
10	Help and documentation	Even though it is better if the system can be	There is currently no site map.	The Contact page provides and email	

		used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.	The search function only appears on the bottom of the home page.	address and a phone number for assistance	

Prototype

Introduction

A prototype can be useful for testing changes to a web site especially when changes to the overall site structure are under consideration. There are a number of approaches to prototyping (Brinck, 2002). The prototype presented here is an extension of the high-end prototype. The high-end prototype approach was initially chosen because of the availability of Macromedia's Dreamweaver MX 2004 tool and in anticipation of rolling the prototype forward onto the production web site. Dreamweaver can be used to modify existing pages to produce prototype screen layouts. It can also be used to create digital mockups of proposed new pages. The pages produced for this prototype are shown in Figures 3 through 5.

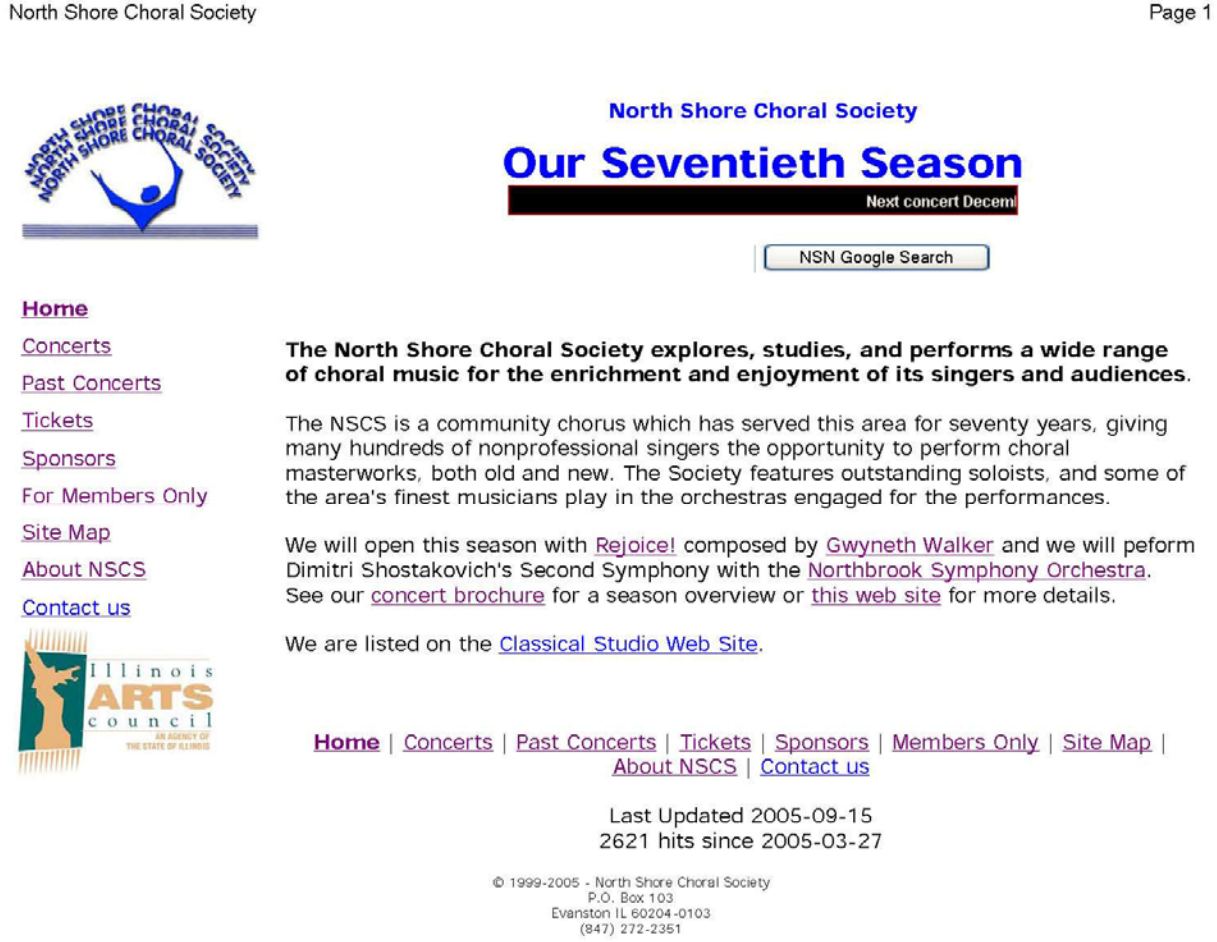
While planning a paper based prototype using these pages, it became apparent that with some additional effort, these pages could be placed on a testing web site and then on the live web site. This provided an immediate, although small, benefit to the users of the web site. The proposed changes are of an incremental nature. If the changes significantly departed from the existing structure or the existing look and feel of the site, they could not have been safely placed on the production web site.

Changes to the Homepage

Figure 3 shows the changed homepage. The drop down box that confused the exploratory test users has been removed and replaced by the new "Past Concerts" menu item. A new link was added to the main "Past Concerts" page to point to a new Index by Composer page. The exploratory test users requested a Site Map. A "Site Map" menu item has been added to the navigation areas. The wording of the

navigation item for "Members" has been changed to "For Members Only" to indicate that this area is not of interest to the general public. The selected navigation item, in this case "Home", has been highlighted in both navigation areas. The Google search box has been moved from the bottom of the page to the top where users expect to see it. It has also been reduced in size to keep it from forcing too much white space at the top of the page. The colors on this page can be better seen on the live web site at http://www.northshorechoral.org/index.php.

Figure 3 - Revised Homepage



New Site Map

The users in the exploratory test felt the need for a site map. This map is shown in Figure 4. Items that the testers had a difficult time finding have been included on the map. The production version of this map can be found at http://www.northshorechoral.org/sitemap.html.

Figure 4 - Site Map



Index by Composer

Figure 5 shows the new page that provides a listing of all performances since the beginning of the 1998 season. The page is sorted by the last name of the composer. The exploratory testers were slightly frustrated that the only access to performance information was by concert date. The Index by Composer page is designed to make finding performance information easier. Since the information on this page does not contain extra white space, it is also possible to see all the works performed on a single page or on two pages depending upon browser and monitor settings. The search box at the top of the page can also be used to search the site for information on a specific work or composer. The production version of this page is located at http://www.northshorechoral.org/composers.html.

Figure 5 - Index by Composer

North Shore Choral Society

Index by Composer

NSN Google Search

Home
Concerts
Past Concerts
Tickets
Sponsors
For Members Only
Site Map
About NSCS
Contact us

Composer	Work	Link to Concert
Argento	*Jonah and the Whale*	2001 Concert 3
Bach	*Saint Matthew Passion*	2000 Concert 3
Bacon	*Ecclesiastes*	1998 Concert 1
Beethoven	*Choral Fantasy*	2000 Concert 2
Beethoven	*Ninth Symphony*	2004 Concert 3
Bernstein	*Chichester Psalms*	2003 Concert 2
Brahms	*Ein Deutsches Requiem*	2001 Concert 1
Brahms	*Liebeslieder Walzer, Op. 52*	2005 Concert 2
Britten	*Saint Nicholas*	2003 Concert 1
Convey	*I Have a Dream*	1998 Concert 2
Copland	*Old American Songs*	1999 Concert 3
Csonka	*Concierto de Navidad*	2004 Concert 1
Dello Joio	*A Jubilant Song*	2002 Concert 2
Effinger	*Four Pastorales*	2002 Concert 2
Finzi	*Magnificat*	2004 Concert 1
Handel	*Alexander's Feast*	2002 Concert 1
Handel	*Messiah*	1999 Concert 1
Haydn	*Creation*	2004 Concert 2
Haydn	*Creation Mass*	2000 Concert 2
Haydn	*Harmoniemesse*	1999 Concert 3
Haydn	*Lord Nelson Mass*	1998 Concert 3
Haydn	*Mass in Time of War*	1998 Concert 3
Haydn	*Mass No. 14 in B-flat Major*	1999 Concert 3
Haydn	*Missa Brevis*	2000 Concert 2
Haydn	*Missa brevis Sancti Joannis de Deo*	2001 Concert 2
Honnegger	*King David*	1999 Concert 2
Kroeger	*Pax Vobis*	2003 Concert 3
Mathias	*Ave Rex*	2005 Concert 1
Mendelsson	*Elijah*	2002 Concert 3
Mozart	*Mass in C minor*	2001 Concert 2
Mozart	*Requiem*	2003 Concert 3
Orff	*Carmina Burana*	2005 Concert 2
Parker	*Sermon from the Mountain*	1998 Concert 2
Persichetti	*Winter Cantata*	2003 Concert 2
Pinkham	*Christmas Cantata*	2004 Concert 1
Poulenc	*Gloria*	1998 Concert 1
Ray	*Gospel Mass*	1998 Concert 2
Rutter	*Gloria*	2004 Concert 1
Rutter	*Requiem*	2003 Concert 2
Schickele	*Concerto for Piano and Chorus*	2002 Concert 2
Schumann	*Five Hunting Songs*	2002 Concert 2
Schumann	*Paradise and the Perl*	2005 Concert 4
Scott	*Ring Out, Ye Chrystal Spheres*	2005 Concert 1
Shostakovich	*Symphony No. 2*	2005 Concert 3
Stravinski	*Four Russian Peasant Songs*	2002 Concert 2
Thompson	*The Peaceabl Kingdom*	2001 Concert 3
Verdi	*Requiem*	2000 Concert 1
Walker	*Rejoice!*	2005 Concert 1

Last Updated 2005-09-15

Assessment (Prototype) User Testing

Exploratory user testing, documented in Section 2 of this paper, revealed some difficulties in using the site. The heuristic evaluation documented earlier in this Section also shows that improvements can be made. These two sources of information were used to make some incremental changes to the web site. The changes were applied to the web site because they are low risk and can be easily reversed if necessary. Prototype testing of these changes can be used to confirm that the changes are an improvement over the existing site.

Test Approach

Since the prototype could be integrated into the existing web site without disruption, it was possible to perform the same tasks that were performed during exploratory testing. One of the original three exploratory users participated in this assessment so a direct comparison of results between the two tests is possible. The other two users for this test have a similar profile to the two exploratory test users who were not available for this test. The user profiles of the testers are shown in Appendix C

In this test, users were asked to perform the ten tasks shown in Appendix A. A stop watch was used to record the time required to perform each task. Testers were encouraged to make comments during the test and these were recorded.

The same consent form, user testing scripts and task lists that were used in exploratory testing were used again in this test. These can be found in Appendix A.

Assessment (Prototype) Testing Summary Results

In the initial exploratory test, the three users scored 26 successes on 30 attempts (10 tasks times 3 users equals 30 attempted tasks). In this second test, the three users scored 30 successes. They were able to complete all assigned tasks. The total time required by the three users in the initial test was 47 minutes. The total time required by the three users that tested the modified web site with the modified home page and the two additional pages was 27 minutes. The details are shown in Table 4 below. Note that Robert participated in both tests. He successfully completed 8 tasks in the first test and all 10 tasks in the second test. None of the testers were members of the North Shore Choral Society.

Table 4 - Comparison of Test Results - All times in minutes

User	Exploratory Test	Prototype Assessment	Improvement
Barb/Jean	17.15	10.50	6.65
Jim/Jim2	14.83	6.50	8.33
Robert	14.67	9.62	5.05
Total	46.65	26.62	20.03

Table 5 shows the tasks that the three users performed in this test. In some cases the users took different approaches than they took in the exploratory test because of the new and changed pages in the prototype. This is documented in the fourth column of the table.

Table 5 Prototype Assessment Results

Task Number	Task Description	Summary of Observations	Change in User Behavior?
1	When and where will the concert take place?	All easily found the Concerts navigation link.	No
2	How much would it cost you to buy a ticket to the concert you found?	Users with monitors set to low resolution (800 by 600) have difficulty finding navigation areas	No
3	How would you buy the ticket?	No problems but users expect to be	No

		able to buy tickets over the web.	
4	What are the names of the Music Director and Accompanist?	All users found the about page and seemed to find the information on it useful.	Used relocated search box typing in the string "Accompanist"
5	Where and when is the next rehearsal?	It was not obvious that this information is under Members.	Users did not go to "About" first this time. It is possible the new menu wording "For Members Only" helped
6	Who composed Pax Vobis?	One user successfully used the Search box on the home page.	Users found it easier to find this information using the Past Concerts link.
7	What is the minimum contribution required to be a Sustaining Member?	This was easy. All users found the Sponsors link.	No
8	Name one of the works performed in last year's (2004) December concert.	One user did not find the Past Seasons and instead used the search function to get the answer.	All users found the information this time. The new Past Seasons link helped.
9	Find the most current *Blue Notes*. What is the date of the current issue?	This is still a problem. It was not obvious that this information is under Members.	The wording "For Members Only" in the Navigation area seemed to help two of the three users.
10	What are the performance dress requirements or who can you ask to find		This time, only one of the three users decided to use the telephone. The other two users were successful using new facilities (Site

	out? Find one of these answers.		Map and relocated search box).

Conclusions that can be drawn based on the results above and the raw results in Appendix D include:

1. The relocation of the Search box increased the use of the search function and the success of the users in completing the tasks (Tasks 4 and 10).

2. Performance on tasks that required access to past concert information improved because the "Past Concerts" link was added and the Past Seasons drop down box was removed from the navigation area (Tasks 6 and 8).

3. The addition of the Index by Composer did not help in the performance of these tasks although one user commented positively on the page.

4. The new Site Map page was successfully used. (Task 10 above and Task 1 in Robert's raw results.)

5. Changing the wording in the navigation area from "Members" to "For Members Only" seemed to help. There were fewer trips to "About" when the information was located on the Members page. However, the newsletter *Blue Notes* remained difficult to find.

6. Users have an expectation that they can buy tickets over the web using the North Shore Choral Society web site. This is not the case.

7. User speed and effectiveness was better with the prototype changes on the web site. There is no reason to remove these changes.

8. The site was difficult to use on an 800 by 600 pixel monitor. The navigation information is not high enough on the page for this configuration.

Prioritized Recommendations

The exploratory test, the heuristic evaluation, and the prototype assessment have shown that the North Shore Choral Society Web site can be improved. This section of the paper lists the possible improvements in priority groups.

The recommendations marked high (H) should be implemented immediately. These are required to remove inconsistencies in site navigation that can confuse users. The high priority recommendations can be implemented in less than one day.

The recommendations marked medium (M) are not critical and should be implemented before the next season begins in September 2006. These recommendations can be

implemented as new material is being added. They can also be applied to existing pages if time permits.

The recommendations marked low (L) are important but require significant time. These can be done when time becomes available such as when a student volunteers to work on the site to gain experience. They projects in this category challenging enough to attract student interest.

Here are the recommendations in priority sequence:

1. (H) Complete the work that was done on the web site during the creation of this paper. Immediately update the navigation areas on the level 2 pages that were not changed during the prototype (tickets, sponsors, members, top2005, about and contact). Make sure to highlight the link corresponding to the current page to provide context for the user. This will implement most of the new Information Architecture described earlier in Figure 2.

2. (H) Make the *Blue Notes* easier to find by making the link on the Members page a standard color. Eliminate the blue background.

3. (H) Consider placing a special link in the body of the home page to *Blue Notes.*

4. (M) Place necessary information such as Concert Dress rules directly on the Members page instead of relying on the PDF Membership Guide.

5. (M) Indicate the PDF Concert Brochure is for printing and that the information it contains can be more easily read on the Concerts page.

6. (M) Indicate that PDF Program Notes will open in a separate window

7. (M) Mark the links that open separate windows (such as the links to other performing arts organizations.

8. (M) Add links to tickets along with the program notes link for each concert.

9. (M) Consider making the Concerts summary page (topNNNN.html) more compact for easier viewing and navigation.

10. (M) Implement an Index by Work to supplement the Index by Composer that was just developed. This will complete the implementation of the Information Architecture in Figure 2.

11. (L) Create a new template for the home page and all level 2 pages that will use smaller font. Create CSS definitions on this template that will be used on all pages. The reason for the smaller font is to make the site conform the font sizes used on most other sites. Users that want larger fonts will be able to change the font size in their browser.

12. (L) As an alternative to #11, implement the same function using PHP include files instead of a Dreamweaver Template.

Conclusion

This paper has carefully analyzed the usability of the North Shore Choral Society web site. There are no outstanding critical usability issues that could impair the business objectives of the North Shore Choral Society. However, the user testing showed that the user experience can be improved by implementing the high priority recommendations listed on the prior page. These recommendations can be implemented with about one day of effort and therefore should be implemented immediately.

Appendix A – Exploratory Testing Scripts, Worksheets and Consent Forms

Section 1: Original User Preparation Work Sheet

User Recruiting

Check that each of the following has been prepared:

☐ Recruiting ad

☐ Recruiting sign-up sheet

☐ Recruiting qualifier questions

Materials

Check that you have each of the following, as needed, for your test session:

☐ Testing script

☐ Experimenter notes pages

☐ Consent form

☐ Instruction sheet

☐ Task questionnaires

☐ Post-questionnaire and demographics sheet

☐ Follow-up sheet

Task list

To clarify the goals of this test, list the primary tasks that you'll be testing. The testing script should provide the exact wording for each of these.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

From *Usability for the Web: Designing Web Sites that Work* by Tom Brinck, Darren Gergle, and Scott Wood. Morgan Kaufmann Publishers, San Francisco

(Brinck, 2002, p. 424)

Section 2: Completed User Preparation Work Sheet

User Testing Project: North Shore Choral Society Web Site

Location: On Site Testing

Scheduled Dates and Times:
Sunday, September 4, (address omitted), Evanston, IL (User Jean)
Sunday, September 4, (address omitted), Evanston, IL (User Robert)
Monday, September 5, (address omitted), Elmhurst, IL (User Barb)

Observers: James Miller (the author of this paper)

Required demographic: Match the North Shore Choral Society membership and audience demographics: (Over 40, bachelor's degree or more).

Number of test users: 3

Payment (per person): None

Computer configuration(s):

Hardware: Any hardware that can run a browser.

OS and version: Any Operating System that support specified browsers.

Browser and version: Netscape 4.0+, IE 5.0+, Firefox 1.0+

Other software: Java Virtual Machine (to display scrolling message on home page). Part of the test will be to see if the lack of this software presents a problem.

Videotaping and audiotaping: None

Other equipment: Notebook and pen, personal watch with timer.

Preparation

Check when testing location and materials are prepared.
Check when pilot testing has been completed.
Check when sample results have been analyzed.

User Recruiting

Check that each of the following has been prepared:

Recruiting ad
Recruiting sign-up sheet
Recruiting qualifier questions

Note: Not used
Users were qualified and recruited over the telephone

Materials

Check that you have each of the following, as needed, for your test session:

Testing script
Experimenter notes pages
Consent form
Instruction sheet
Task questionnaires
Post-questionnaire and demographics sheet
Follow-up sheet

Task list

To clarify the goals of this test, list the primary tasks that you'll be testing. The testing script should provide the exact wording for each of these. (The script is found later in this appendix).

1. Find a concert in the current season
2. Find the rehearsal schedule
3. Locate information from the about page (Accompanist name)
4. Find a past performance given the composer name
5. Find a specific ticket price
6. Find a phone number to call to purchase tickets
7. Locate information about donor classifications
8. Find a specific past performance (given a date)
9. Find required concert dress for members
10. Find the current announcements for members

From *Usability for the Web: Designing Web Sites that Work* by Tom Brinck, Darren Gergle, and Scott Wood. Morgan Kaufmann Publishers, San Francisco

Note: The original of this form (see Section 1 above) was copied from (Brinck, 2002, p. 424). The formatting has been changed and the information for this project has been added.

Section 3: Consent Form

Consent Form

The purpose of this user study is to evaluate the design of web sites we've developed. As a volunteer in this study, your participation will be anonymous. You will fill out some questionnaires while using the web site to work through specific tasks. As you work, you will be observed by an experimenter who may take notes on your activities. The entire study should take no more than an hour. If for any reason you are uncomfortable with the study, you may end it at any time.

I, _____, have read and fully understood the extent of the study and any risks involved. I sign here acknowledging the above information.

Participant Signature _____

Date _____

Tester _____

Project _____

(Brinck, 2002, p.431)

Section 4: Testing Script for the North Shore Choral Society Web Site

(http://www.northshorechoral.org)

You will be testing the existing web site of the North Shore Choral Society. The purpose of this test is to evaluate how easy (or difficult) it is to use this web site. To do this, you are being given a list of tasks to perform on the site. When you complete a task, I will record how many steps and how much time it took to complete the task. If you cannot complete the task, tell me and move on to another task. Remember, it is the web site and not you that we are evaluating. If you cannot complete a task, this is a sign that the web site needs to be improved so that other users like you will not encounter problems.

Reading from Notes

I will be reading the following from my notes to make sure I remember to say everything and keep consistent.

Purpose

We're testing this web site to identify strengths and weaknesses in its design.

Anonymity

What you do in this study will be kept completely anonymous.

Voluntary Participation

Your participation in this study is voluntary. You may choose to skip any of the questions in this study or quit the entire session at any time.

Procedure

This entire session should take about 30 minutes. We'll be working through several tasks on the web site. During each task I'll be observing you and taking notes. If you encounter problems or difficulties, those are exactly the problems with the design that we are trying to identify and improve. When this happens, I can't give you any help, because we're interested in how you would solve such problems on your own.

Think Aloud

As you work through the tasks, I would like you to think aloud. This means saying any thoughts or reactions that come to mind as you work.

However, don't feel that you need to elaborate or explain what you're saying— we'll have an opportunity to discuss it when you've completed each task. If you remain silent for a while, I may occasionally prompt you to start speaking again.

Do you have any questions?

This script is based on the outline of the typical testing script in Usability for the Web (Brinck, 2002, p. 429).

Section 5: Detail Task Instruction Sheet

	Point your browser to the home page of the North Shore Choral Society (http://www.northshorechoral.org)
1	You want to attend the first concert of this season. When and where will the concert take place?
2	How much would it cost you to buy a ticket to the concert you found in the previous task?
3	How would you buy the ticket?
4	Assume that you have joined the North Shore Choral Society and have just attended your first rehearsal. You would like to learn the names of the Director and the Accompanist before the next rehearsal. What are their names?
5	Where and when is the next rehearsal?
6	You met an interesting person at a party last week. He told you that he was a composer and that his work Pax Vobis was performed by the North Shore Choral Society. What is his name?
7	Your friend has told you that she is a Sustaining Member of the North Shore Choral Society. You are curious about what donation level is required to be called a Sustaining Member. What is the minimum contribution required to be a Sustaining Member?
8	Name one of the works performed in last year's (2004) December concert.
9	You were told at the last rehearsal that the weekly *Blue Notes* announcements can be found on the web site. Find the most current *Blue Notes*. What is the date of the current issue?
10	You are a new member of the North Shore Choral Society and you were told at the last rehearsal what the dress requirements are for all concerts. You forgot the details and would either like to know what the details are or who to talk to. Find one of these answers.

Section 6: Users Tested

Name	Information
Barb	Female, Age 54 Barb was selected because she it a fairly close fit to User Profile 3. She is retired and a very infrequent computer user. She lives with her husband in a condominium. She has a Master's degree in business. She is connected to the internet by dial up. The monitor resolution is 1280 by 1024 and the Operating System is Windows 98.
Jim	Male, Age 55 Jim was selected because he approximates User Profile 3. He uses computers in his work as a project manger. He lives with his wife in a condominium and has a Master's degree and is a Certified Public Accountant. He uses a desktop that is connected to the internet by dial-up. Monitor resolution is 1280 by 1024. The Operating System is Windows 98.
Robert	Male, Age 84 Robert fits User Profile 1. He is retired. He has a PhD and owns a single family home with his wife. He attends concerts about one per month. He recently had a cable modem installed and bought a new desktop with Windows XP. In order to see better, he has set the monitor resolution down to 800 by 600 to make the text larger on all sites that he visits.

Appendix B – Exploratory Testing Raw Results

Raw Results for Barb

Task Number	Task Observations	Success Y or N	Stop Watch
1	Clicked immediately on Concerts	Y	0:00
2	"Tickets are hidden". Expected a link from the concert summary directly to tickets. (Wanted link right with the concert description. Did not see link to tickets in either of the navigation areas)	Y	0:26
3	Expected to be able to buy on the Web. (NSCS only supports tickets by phone)	Y	1:14
4	Went to "Members" first instead of "About"	Y	1:41
5			3:45
6	Looked first in Concerts for the current season. Clicked many times in the current season concerts. Finally went to Google search area and searched on the name of the piece and found the composer.	Y	3:49
7		Y	7:40
8	Was not sure how to find past seasons concerts. Used the Google search feature again.	Y	8:12
9	Again used search on "August 2005" to find the Blue Notes. (Did not go to the Members page)	Y	10:34
10	Searched on "Dress". Did not find the membership guide that contained the information	N	12:00
Done			17:09

Raw Results for Jim

Task Number	Task Observations	Success Y or N	Stop Watch
1		Y	0:00
2	Difficulty finding tickets link at left but found it. Spent time reading the ticket prices to see if the season ticket was a good deal	Y	0:44
3	Did not want to email. The phone number did not stand out as much as Jim would have liked	Y	2:16
4	Spent time reading information about Director and scanning the list of Officers	Y	3:44
6	Found drop down box for past concerts and went to "All seasons"	Y	4:55
7	Liked list of advertisers on Sponsors page and spend some time reading it	Y	6:32
8	Went to past seasons and scrolled	Y	7:01
9	Used members to link to Blue Notes	Y	8:05
10	Went to concerts brochure. Noticed that PDF took a long time to load over dial-up. Never did find membership brochure but answered the question successfully by going to contact us and deciding to call the Executive Director for information.	Y	8:41
5		Y	14:40
Done			14:50

Raw Results for Robert

Task Number	Task Observations	Success Y or N	Stop Watch
1	Monitor set to 800 by 600. Therefore, navigation info at left scrolls out of the viewing area fairly quickly. Bob used the bottom navigation information to reach concerts	Y	0:00
2	Found tickets but selected $22 instead of the senior rate of $20 (Hence Success = N)	N	1:09
3	Wanted to buy on-line but since feature is not provided, would use telephone	Y	2:33
4	Went to about	Y	3:28
5	Did not know where to look for rehearsals	N	4:21
6	Did not find past seasons and managed to close browser. Had to restart. Found after restart	Y	6:44
7			10:58
8	Noticed a bug. 2004 is missing from past seasons	Y	11:37
9	Was not clear that Blue Notes is under members		12:25
10	Went to new members first but then decided to call Executive Directory	Y	13:27
Done			14:40

Appendix C - Assessment (Prototype) Testing Scripts, Worksheets, and Consent Forms

User Profiles

Name	Information
Jean	Female, Age 57 Jean was selected because she it a fairly close fit to User Profile 3. She is retired and a very infrequent computer user. She lives with her husband in a single family house. She has a BSN and a Nurse Practitioner degree. She is connected to the internet by wireless at home. The monitor resolution on her laptop is 1280 by 800 and the Operating System is Windows XP.
Jim2	Male, Age 56 Jim2 was selected because he approximates User Profile 3. He uses computers in his work as a software developer. He lives with his wife in a single family home and has a Bachelor's degree. He uses a desktop connected to the internet by a Digital Subscriber Line. Monitor resolution is 1280 by 1024. The Operating System is Windows XP.
Robert	Male, Age 84 Robert fits User Profile 1. He is retired. He has a PhD and owns a single family home with his wife. He attends concerts about one per month. He recently had a cable modem installed and bought a new desktop with Windows XP. In order to see better, he has set the monitor resolution down to 800 by 600 to make the text larger on all sites that he visits. Robert participated in both the Exploratory Testing and the Prototype Assessment

Consent Forms

The consent forms used for this assessment are the same as the forms used for exploratory testing. See Appendix A.

Prototype Assessment Scripts and Task List

The scripts and task list used for this assessment are the same as the script and task list used for exploratory testing. See Appendix A.

Appendix D – Assessment (Prototype) Testing Raw Results

Raw Results for Jean (replaces Barb)

Task Number	Task Observations	Success Y or N	Stop Watch
1	Clicked Concerts	Y	0:00
2	Scrolled around Concerts looking for Tickets. Scrolled up and found the Tickets link on the left side of the screen	Y	0:23
3	Surprised that you could not order over the web	Y	1:12
4	Clicked Members before About	Y	1:55
5	Suggested Highlighting the names of the Director and the Accompanist	Y	2:50
6		Y	2:55
7	Clicked on Past Concerts	Y	4:17
8		Y	5:08
9	Finding Blue Notes was difficult. User was frustrated	Y	5:33
10	Decided fairly quickly to call or email the Executive Director.	Y	7:52
Done			10:30

Raw Results for Robert

Task Number	Task Observations	Success Y or N	Stop Watch
1	Went to PDF concert brochure from site map instead of clicking on Concerts. Had trouble with small font and did not know where to change zoom % on a PDF.	Y	0:00
2	Took a while to get out of brochure and find tickets page.	Y	0:06
3	Would buy ticket by phone.	Y	2:45
4	Found names on About page with no trouble	Y	3:00
5	Found special message on home page with date of next rehearsal.	Y	3:58
6	Scrolled through Past Concerts to find answer. This went much better than when there was no Past Concerts link.	Y	5:33
7	No problem finding Sponsors	Y	6:05
8	No problem with Past Concerts	Y	6:21
9	Went to members (correct place). Did not see the link to the Blue Notes at the top. Scrolled around before finding it.	Y	7:18
10	The font size in the Membership Brochure PDF was a problem.	Y	8:40
Done			9:37

Raw Results for Jim2

Task Number	Task Observations	Success Y or N	Stop Watch
1	Entire home page is visible on large monitor	Y	0:00
2	Easy to click on Tickets after viewing first concert because it was visible in the left navigation area (unlike on small monitors)	Y	0:08
3	Would buy ticket by phone.	Y	0:36
4	Type "accompanist" into search box. Viewed Google list and went to about page. Scrolled on about page to find Music Director	Y	0:44
5	Clicked on Members. First rehearsal appeared on screen without scrolling	Y	1:38
6	Went to search box and typed Pax Vobis. Saw composer's name on Google listing	Y	2:16
7	No problem finding Sponsors	Y	3:02
8	Went to Past Concerts. Clicked on index. Did not see answer. Liked the page. Returned to past concerts and saw answer.	Y	3:29
9	Went to Site Map and clicked on Blue Notes	Y	4:32
10	Typed "Concert Dress" into the search box. Saw Membership Guide on Google list with "Concert Dress" in bold and clicked through to the Membership Guide. Clicked the PDF forward arrow once and saw the Concert Dress paragraph.	Y	5:07
Done			6:30

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