Usability Test Report for *From the Air: Florida Photography*

Date of Report: September 30, 2010  
Period of Testing: May 13, 2010-September 14, 2010  

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Executive Summary

The University of Florida Digital Collections (UFDC) is a research tool that enables a user to find resources held at the University of Florida (UF), learn about the physical collections and use online full content of that resource. The University of Florida Digital Library Center (DLC) developed this digital library to house the digital resources (e.g. monographs and serials, maps and other images) and to provide open access to remote and local users. The online aerials collection, Aerial Photography: Florida, is a sub-collection of the UFDC that is used for education, historical evaluation, general planning purposes and aerial photograph preservation.

The Aerials Collection was previously searchable through a GIS interface (http://smathersnt13.uflib.ufl.edu/fta2/viewer.htm) that runs on the ArcGIS server. In an effort to increase use and accessibility by middle and high school students and the general public, a more user-friendly search interface was developed that incorporated a new Google Maps-based search option (http://ufdc.ufl.edu/aerials). Google Maps allows searching by address, point, or area to access the aerial photographs that cover a selected point or area. The new Google Maps search option offers more flexibility for location searching and that functionality may be integrated throughout UFDC. Because the option may impact other sub-collections of UFDC, user testing was written as a requirement of the From the Air: the photographic record of Florida’s lands – Phase III grant.

As with other evaluations of UFDC sub-collections, such as the Florida Digital Newspaper Library and Digital Library of the Caribbean, user testing provides feedback on the ease of use of a specific sub-collection and specific functionality that may impact function throughout UFDC. This particular report calls for few recommendations that may impact location searching within UFDC. However, actual changes implemented are subject to the limitations of the technical capability of the open source Greenstone Digital Library System currently used for its metadata storage, retrieval, and search engine.

In early spring 2010, the Aerials Usability Manager worked with the UFDC programmer to remove extraneous information and search features of the initial Aerials Homepage using Google Maps. From the resulting toned-down interface, she developed and administered usability testing to groups of middle school children and their teachers in late Spring/Fall 2010 and to a group of university participants in summer 2010. The testing examined how well the Google Maps location search allows for ease of use, navigability and learnability. Key areas of concern were identified prior to testing:

- Is the main aerials homepage intuitive?
- Are the multiple search options usable and intuitive?
- Are users able to understand the relationship between the Google Maps search interface and the aerials themselves based on the interface text and search options?
- Can users properly modify a search to find more precise locations?
- Can users download aerials from the aerial page view?
- Can users locate aerials for a particular date or range of dates?
The testing resulted in feedback with the following overall findings:

- The Aerials Google Maps interface, while an improvement over the GIS-ARC interface, is not intuitive
- Users who are not familiar with aerials often do not understand the relationship between the Google Maps result pages and the aerials page view
- The search options on the Map Search interface need clarification and additional instructional tools
- More self-paced educational tools are needed

The following report will provide a summary of findings, including:

- User difficulties and frustrations with the resource
- Significant usability findings and recommendations

**Methodology**

Prior to testing, the Assessment Team Usability manager submitted a University of Florida Institutional Review Board Protocol (IRB). After submitting the documentation and the survey instruments that focused only on testing of middle school and high school participants, the manager was informed by the IRB Office that the protocol was expedited. In order to test, parents/guardians of minor participants were required to sign a copy of the approved informed consent document (see Appendix A, Informed Consent).

The Team determined that testing of university participants would supplement and provide a complete look at aerials searching than the IRB-covered participants alone.

Minor changes occurred to the resource between the testing administered at Roosevelt Middle School, The University of Florida, and P.K. Yonge Developmental Research School, including:

1. Deletion of the “Flights By County” Tab
2. Deletion of list of years available in “Flights by County”
3. Addition of filtering “Narrow Results” tool

These changes seemed to have no effect on the level of usability of the resource, as this report will demonstrate through statistical and analytical evidence.

**Who and Where We Tested**

The individual usability test was administered to three groups:

1. Roosevelt Middle School in West Palm Beach, FL (henceforth known as *Group One*): 141 participants, May 13, 2010
2. University of Florida in Gainesville, FL (henceforth known as *Group Two*): five participants, August 11, 2010
3. P.K. Yonge Developmental Research High School in Gainesville FL (henceforth known as *Group Three*): 24 participants, September 14, 2010
Testing observation and discussion, in all cases, was conducted in a computing environment.

Faculty and student participants from Group One and Group Three were recruited by email to personal contacts of the Library’s grant manager at the University of Florida prior to the award of the grant. Participants from Group Two were frequent library users who responded to an open invitation by the Usability Manager. The participants reported the following profile characteristics:

<table>
<thead>
<tr>
<th>Group One-Roosevelt Middle</th>
<th>Group Two-University of Florida</th>
<th>Group Three-PK Yonge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>Undergraduate</td>
<td>Faculty</td>
</tr>
<tr>
<td>Students</td>
<td>Graduate</td>
<td>Students</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Staff</td>
<td>TOTAL</td>
</tr>
<tr>
<td>Number of Groups</td>
<td></td>
<td>Number of Groups</td>
</tr>
</tbody>
</table>

Self-reported Web Usage and Skills

Searching skill levels and frequency of web usage are all self-reported values gathered from pre-test questionnaires.

<table>
<thead>
<tr>
<th>Group One-Roosevelt Middle</th>
<th>Group Two-University of Florida</th>
<th>Group Three-PK Yonge High</th>
</tr>
</thead>
<tbody>
<tr>
<td>No online search experience</td>
<td>No online search experience</td>
<td>N= 5</td>
</tr>
<tr>
<td>Novice user</td>
<td>Novice user</td>
<td></td>
</tr>
<tr>
<td>Proficient user</td>
<td>Proficient user</td>
<td></td>
</tr>
<tr>
<td>Highly experienced user</td>
<td>Highly experienced user</td>
<td></td>
</tr>
<tr>
<td>Expert</td>
<td>Expert</td>
<td></td>
</tr>
<tr>
<td>No Response</td>
<td>No Response</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>TOTAL</td>
<td>TOTAL</td>
</tr>
</tbody>
</table>

N= 5
For Group Two participants, 100% of the respondents reported using the World Wide Web and Google Maps or another map service daily.

Among all groups (N=170) participants reported the following preferences with regards to online features and preferred resources used to locate information:

**Resources Used to Locate Information**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library Database like Factiva or LexisNexis</td>
<td>3</td>
</tr>
<tr>
<td>Google</td>
<td>103</td>
</tr>
<tr>
<td>Another WWW search engine</td>
<td>76</td>
</tr>
</tbody>
</table>

**Important features of online resources as reported by all participating Groups**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of truncation and wildcards</td>
<td>11</td>
</tr>
<tr>
<td>Use of Boolean operators</td>
<td>9</td>
</tr>
<tr>
<td>Simple navigation of resource</td>
<td>73</td>
</tr>
<tr>
<td>Saving items to a basket</td>
<td>93</td>
</tr>
<tr>
<td>Help screens</td>
<td>46</td>
</tr>
<tr>
<td>Consistent navigation</td>
<td>53</td>
</tr>
<tr>
<td>Ability to search specific fields</td>
<td>87</td>
</tr>
<tr>
<td>Ability to retrieve a variety of formats (e.g. images, PDF, text)</td>
<td>92</td>
</tr>
</tbody>
</table>
What data we collected

The assessment team members collected data that would address the major elements of the Aerials Photography Collection including homepage design, navigation, ease of use of searching features, the result pages, and the aerials view.

Initial Resource Impressions

At the beginning of each scenario-based test session, participants were allowed to preview the resource. Participants were instructed to answer the following questions:

- What do you think this resource will provide?
- What years do these maps cover?
- Why might you use this resource?

Among participants of Group One, the most common responses (N=109) indicated that the resource will provide useful information to locate addresses, find directions to places, old pictures, as well as information about an area and how to get there. A small number of participants (N=29) reported that the resource could provide information on aerial photography, history, and information on historical places based on homepage text and access to maps using the Google Maps interface.

Similar to Group One, participants from Group Two reviewed the interface of the Google Maps view and used the features within it, such as the map, satellite and terrain features. Among Participants of Group Two, three participants indicated that the resource provides information on aerial photography, geographical information that can be useful for boundary disputes, and historical information with regards to changes in landscape. Two participants believed that the resource can be used to find directions to places, information with regards to roads and about different maps using the Google Maps view.

Among Group Three participants, the most common response (N=20) indicated that the resource will provide information about maps, the landscape of Florida, history of the changes in the topography of Florida, and information about aerial photography (students seem to report mainly the description provided on the homepage of the resource). Only two students reported that the resource would provide directions to places and maps of specific locations. Two students refrained from answering this question.

The overall assumption among the majority of participants regarding resource content emphasized that the function of Google Maps is to cover directions to places, specific known addresses, and an overall view of an area.
### What are your initial impressions of this resource?

<table>
<thead>
<tr>
<th>Group One</th>
<th>Group Two</th>
<th>Group Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Self-reported initial impressions of the resource by Group One were not available due to time constraint</td>
<td>▪ Excitement about the existence of the resource</td>
<td>▪ Self-reported initial impressions of the resource by Group Three were not available due to time constraint</td>
</tr>
<tr>
<td>▪ A resource that seems fairly easy to use</td>
<td>▪ An improvement over the aerial database (GIS) originally used</td>
<td></td>
</tr>
</tbody>
</table>

### What did you like about this resource?

<table>
<thead>
<tr>
<th>Group One</th>
<th>Group Two</th>
<th>Group Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Participants did not report anything specific that they liked about the resource</td>
<td>▪ Ability to use searching options such as year and county</td>
<td>▪ Participants did not report anything specific that they liked about the resource</td>
</tr>
<tr>
<td>▪ Ability to use searching options such as year and county</td>
<td>▪ Variety of years available</td>
<td></td>
</tr>
<tr>
<td>▪ Instructions improve usability of resource</td>
<td>▪ Instructions improve usability of resource</td>
<td></td>
</tr>
</tbody>
</table>

### What did you dislike about this resource?

<table>
<thead>
<tr>
<th>Group One</th>
<th>Group Two</th>
<th>Group Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Resource needs to have additional instructions for students to follow</td>
<td>▪ Search cannot be easily modified</td>
<td>▪ The Resource is rather complicated and difficult to utilize</td>
</tr>
<tr>
<td>▪ Search cannot be easily modified</td>
<td>▪ Unclear instructions</td>
<td></td>
</tr>
<tr>
<td>▪ Resource can be mistaken to be Google Maps</td>
<td>▪ Resource can be mistaken to be Google Maps</td>
<td></td>
</tr>
<tr>
<td>▪ Instructions are not readily provided on the map search page</td>
<td>▪ Instructions are not readily provided on the map search page</td>
<td></td>
</tr>
<tr>
<td>▪ Search instructions lead users to believe that resource is limited to searching only addresses</td>
<td>▪ Search instructions lead users to believe that resource is limited to searching only addresses</td>
<td></td>
</tr>
<tr>
<td>▪ Aerial photography is not simple to understand</td>
<td>▪ Aerial photography is not simple to understand</td>
<td></td>
</tr>
</tbody>
</table>

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8
What type of information would you expect to find on this site?

<table>
<thead>
<tr>
<th>Group One</th>
<th>Group Two</th>
<th>Group Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions to places</td>
<td>Directions to places</td>
<td>Information about the landscape of Florida</td>
</tr>
<tr>
<td>Pictures of locations such as houses</td>
<td>Information about Florida history</td>
<td>History of the changes in the topography of the state of Florida</td>
</tr>
<tr>
<td>Images of the world</td>
<td>To locate a place</td>
<td>Information about aerial photography</td>
</tr>
<tr>
<td>Maps with directions to places of interest</td>
<td>To find better information and directions related to getting to an address</td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>Aerial photography</td>
<td>Historical information about Florida and the world</td>
</tr>
<tr>
<td>Stuff</td>
<td>Knowledge about geography, boundary lines and geographical features</td>
<td></td>
</tr>
<tr>
<td>Aerial Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information useful for projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Florida information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Historical information about Florida and the world</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scenario-Based Testing

The Scenario-Based questions were utilized to test the navigation intuitiveness through the Aerial Photography Collection. Participants were presented with scenarios in which they were to provide answers with specific steps to reach the desired results. Participants of Group One (N=138) were broken down into groups of five people each, (N=33 small groups for Group One), while participants from Group Three (N=24) were broken down into groups of two people each (N=12 small groups for Group Three). Participants from Group Two were tested individually.

Limited assistance was provided to the participants by the Assessment Team when necessary. Participants were asked to complete simple tasks such as determining the years of photography available for Palm Beach County and reporting the number of flights taken during specific years. The questions were presented in order on a list format to ensure that participants explored most features of the resource. Difficulties experienced by participants while using the resource are addressed in the Initial Resource Impression and the Findings and Recommendations section of this document. All questions used in the testing can be found in the following section of this document.
<table>
<thead>
<tr>
<th>Question</th>
<th>Function/Feature Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) How many years of aerial photographs are available for Palm Beach County?</td>
<td>▪ Homepage</td>
</tr>
<tr>
<td>1a. How many flights were taken in 1953?</td>
<td>▪ Item Searching</td>
</tr>
<tr>
<td>1b. Who is the creator of those images?</td>
<td>▪ Tab Navigation</td>
</tr>
<tr>
<td>2) What was located at the 1900 N Australian Ave., West Palm Beach in 1953?</td>
<td>▪ Map Search Feature</td>
</tr>
<tr>
<td>2a. Download the item</td>
<td>▪ Link Location/Navigation</td>
</tr>
<tr>
<td>3) Was the Palm Beach Mall in existence in 1953?</td>
<td>▪ Map Search Feature</td>
</tr>
<tr>
<td>3a. What structures appear in the 1968 aerials at that location?</td>
<td>▪ Tab Navigation</td>
</tr>
<tr>
<td>4) How many tiles cover the Palm Beach Mall in 1968?</td>
<td>▪ Tile Identification</td>
</tr>
<tr>
<td>4a. What are the tile numbers that include a picture of the Mall’s location?</td>
<td>▪ Results Page Navigation</td>
</tr>
<tr>
<td>4b. Modify your search to cover Clear Lake to discover what tiles include images of the Lake?</td>
<td>▪ Resource Navigation</td>
</tr>
<tr>
<td>4c. How many tiles cover Clear Lake in 1968</td>
<td>▪ Tile Recognition</td>
</tr>
<tr>
<td>4d. What are the tile numbers?</td>
<td>▪ Results Page Navigation</td>
</tr>
</tbody>
</table>


Findings and Recommendations

The following findings and recommendations provide information from user testing and the individual post-test discussion that concluded the testing of Group Two participants. The full comments of the post-test discussion are located in Appendix B.

Participants from Groups thought the resource was overall difficult and cumbersome to utilize. The site requires some modification to increase ease of use. The following are specific issues and recommendations:

- Participants had trouble locating the answer to the question “What year do these maps cover?” as most of them reported years such as the 2000s, an answer that is consistent with images from Google Maps rather than an Aerial picture provided by the database.
- Participants who provided answers located on the website seemed to have a difficult time distinguishing between the years documented by the photos and the years available by county, as both answers lead participants to believe that either one of the dates available could be the appropriate answer for the years of aerial photography available.
- Some respondents reached a reasonable level of success with completing the scenario-based questions. However, most participants were unable to easily navigate the Aerials Website. The small groups that comprised Group One (N=33 small groups) refrained from answering the questions, possibly due to the level of difficulty of the task or lack of a user-friendly interface. Evidence of the difficulty of usage of the resource can be observed as students explicitly stated that they either could not locate the answer or found the answer but reported that it was difficult to locate. Very few participants from the Groups tested provided the steps taken to complete the task, and out of those that did, most of them were able to locate the right answer and complete the task successfully.

### Findings and Recommendations

- **Homepage Navigation:** describes the ability of the user to navigate the Homepage to locate basic information regarding the resource.
- **Item Searching:** question prompts user to locate specific items in the collection.
- **Tab Navigation:** tests intuitiveness and usability of the navigation tabs located on the resource.
- **Map Search Feature:** tests the usability and intuitiveness of the “Map It” feature and the usability of the Google Maps interface for locating and finding an aerial view of an address in question.
- **Recognition of Results Page/Aerial Photograph:** tests whether users can access the aerial photographs and the results page pertinent to the information they are trying to locate.
- **Link Location/Navigation:** tests the intuitiveness and ease of recognition of links available to users in the resource.
- **Navigation of the Results Page/Aerial Photographs:** tests the intuitiveness of the navigation feature of the results page, including whether users are able to recognize that the results page includes Aerial Photographs.
- **Tile Identification:** provides information with regards to user’s familiarity and recognition that the Tiles are Aerial Photographs.
- **Resource Navigation:** tests whether or not users can successfully navigate the entire resource to perform tasks, such as modifying a search to include additional landmarks.
**Resource Identification**

Participants were asked to provide the years covered in the collection. Most participants from Group One and Two were able to readily identify the answer located on the Aerials Homepage. The majority of participants from Group One and a sizable minority of Group Three participants often reported the documented years (1937-1990) instead of the current available years (1937-1970), as the information reported on the homepage seems to be easily interchangeable.

**Comments/Supporting Evidence**

Fifty two students from Group One believed that the Images provided by Google Maps were Aerial Photographs based on the initial impression of the resource. One participant from Group Two could not identify aerial photographs. Four participants from Group Two could not readily locate the instructional/help tools. Seven participants from Group Three could not report the current available years of aerial photography due to lack of clarity of information on the Homepage.

**Recommendations**

- Create new tab on the Homepage labeled “Help” to provide users with information on terminology, images of the expected results and instructions on what is contained in the resource
- Provide a more thorough distinction on the Homepage and on the Map Search page between Aerial photographs and Google Maps images
- Clarify the actual years available of Aerial photography by providing the information in bulleted format

**Flights by County**

Participants were asked to report the years of Aerial Photography available for Palm Beach County. Most participants from Group One and Three were able to successfully report the answers to some of the required tasks. Participants had difficult time determining which tab to use (i.e. Map versus Flights by County Searches). Participants from Group One were exposed to the resource prior to changes, such as the elimination of the table format of the number of years of aerial photography.

**Comments/Supporting Evidence**

Among participants from Group One, 70 students reported the wrong answer to the years available for Palm Beach County. Three participants from Group Two were partially successful in searching/locating the required information. Participants used features of website such as links, tabs, and quick-links available under the “Narrow Search” options. Two participants in Group Two attempted to utilize the “Narrow Results” box on the “Flights by County” screen. Filtering options provided in the “Narrow Results” box were inconsistent with the results on the Flights by County Tab (i.e. years did not match). Two participants from Group Three mistakenly accessed the GIS search system as a means to complete this task, reporting the wrong answer.

**Recommendations**

- Use the brief view as default
- Develop an instructional tools for Flights by County searches (create a new tab on the Homepage labeled “Help” that will readily provide users with instructions on how to distinguish between search options)
- Clarify on the Homepage the use of GIS as an alternate tool to search for Aerials

Known Location Searches

By Address. Participants were asked to report what was located at 1900 N Australian Ave., West Palm Beach in 1953. Participants from Group Two utilized the zoom features of Google Maps to report an answer of a “building” based on the current images provided by Google Maps; they did use the aerial view to answer the question. One participant used the “Select an area” option on the search map but was unable to select the area without considerable problems (e.g. click-drag issue). Six Group Three groups performed the search by typing the address in the address bar on the “Map It” tab, while the other six groups did not complete the task. The answer, if the search is performed appropriately, is that a field (or “nothing”) was located at that address in 1953.

Comments/Supporting evidence
Two Group One groups reported that they could not find the answer, while 11 groups reported the wrong answer. Among participants from Group Two, two participants provided the right answer to the question by searching the address and using the aerial. Three participants from Group Two did not reach the aerial, remaining in the Google Maps view. Five of the six Group Three groups utilized the “Map It” tab as intended but did not reach the aerials, as they reported an answer that is consistent with the images of Google Maps (namely, Lincoln Park). The lack of success in completing this task can be attributed to the fact that users are not aware that they must click the “Search” button after they perform the address search.

Recommendations
- Provide directions on using the known location search by address, including the need to use the “Search” button located on the map to access the actual aerial of interest
- Clarify the difference between flight lines and all volume-related flights (see brief view for example)
- Continue to use map view as default since it includes years in result title, but change Google Maps image to aerial image
- Consider the removal of the “Press to” button on the Google Maps interface in the Map It view immediately after a search for an address has been performed

By Name. Participants were asked to report whether the Palm Beach mall was in existence in 1953. The correct answer indicated by the aerial photograph is that the mall was not in existence. Detailed steps taken to find the answer were not provided by the participants from Group One or Group Three. Among Group Two, all participants were uncertain in how to proceed, as the address bar specifically says ‘type an address.’ One participant used the navigation links to go back to the home page, clicked on map Search and attempted to search the address of the mall, eventually deciding to type in Palm Beach mall on the address bar and successfully accessed the aerial picture. Once result came up, the participant used the zoom tool to try to locate the mall.
Three participants proceeded to search for the mall by accessing the flights by county link, locating Palm Beach County and choosing the aerials of 1953. Participants proceeded to click on available aerials and used zoom tools to locate the mall by scanning the picture and/or comparing satellite images provided on the map search page to the aerials from 1953.

One participant used the map search page and attempted to type in Palm Beach mall in the address bar. The participant expressed concern in typing the name of the mall as the address bar indicates the user to type in an address instead of a landmark and/or location. Once aerials were located, the participant proceeded to browse through all available pictures of 1953 by using the zoom tool.

Among Group Three, only two groups successfully completed the task out of the possible twelve; one group reported that they utilized the “Map It” feature to determine whether or not the Palm Beach mall was in existence in 1953.

Comments/Supporting Evidence
Most participants from Group One and Three provided no answer to the question. Out of those who provided answers from Group One, only 30.3% of small groups provided the right answers, while 6.1% provided the wrong answer. Three participants from Group Two reported that the mall was in existence in 1953. Furthermore, participants from Group Two expressed confusion over the use of “Find Address” and “Search” buttons on the map search page, as the functions of each of the buttons are not explained. Out of the participants from Group Three who provided answers, only 16.7% were able to complete the task and provide the right answer.

Recommendations
- Address bar suggestions should be modified to include “Type an Address or Name of a Landmark”

“Select a Point” or “Select an Area” Search
Very few users attempted to use this search option. Participants attempted to use this search option to modify their search. Participants expressed confusion over the use of the options and the difficulty level in selecting an area accurately. This selection refers to choosing a particular area from the “red box” that overlaps the entire map.

Comments/Supporting Evidence
Participants from Group Two commented that the features were difficult to use due to lack of instructions and changes in the text of the feature when it is used.

Recommendations
- Improve the sensitivity of the “Select a point” or “Select an area” options
- Further explanation of the “Select a point” or “Select an area” is necessary, as it will allow users to utilize the Map Search feature in a more intuitive way
**Aerial Tile Identification**

With the use of Google Maps, the search result page is able to provide the outline of the aerial photograph so that area of coverage is readily seen.

Once participants located results page, they were asked to identify the tiles and numbers that cover the Palm Beach Mall in 1968. The correct answer is six tiles. Detailed steps were not provided by any participants from Group One and Group Three.

Two participants from Group Two counted the number of tiles reported by the resource, one counted the tile numbers reported on the “Map button” located on the map screen while another participant reported the number located on the menu with the tile numbers on the top left side of the screen. One participant attempted to identify the tile numbers by navigating back to the home page, clicking in Flights by County, choosing 1968, and browsing through most of the available tiles to locate the mall.

One participant used the back button on the internet browser to come up to the Google Maps image with the available tiles for the entire Palm Beach County and used the zoom feature to locate the mall and determine the number of tiles that included the mall. Participant clicked on each tile that included the mall and looked at aerials. Another participant did not know what a tile was. Participant attempted to go back to the aerials Home Page, clicked on GIS site to try and locate answer. Participant followed to go back to home page, clicked on Map Search tab and typed in Palm Beach mall, examined image provided by Google Maps and tried to locate tiles. Participant readily recognized that the Google image was not an aerial; however, they were not able to locate the aerials and/or the Tiles. Participant reported that it was difficult to find because the Map search function readily calls for an address.

The great majority of participants from Group Three were not able to complete the task at hand due to time constraints. Only one group out of the possible twelve was able to complete the task.

**Comments/Supporting Evidence**

Two participants in Group Two did not know what a Tile was or how to locate it. Furthermore, only three groups (out of thirty three) from Group One readily understood what a Tile was, as observed by their answers to the task. Among Group Three groups, only one group (out of twelve) was able to identify the tiles and successfully completed the task at hand.

**Recommendations**

- Clearly define a tile on the result page (e.g. by use of a legend)
- Create a help section that describes the differing parts of the aerial view, including tile types, and the relationship between Google Maps and an aerial
- Make tile numbers larger on the result page
- Highlight the brief view box that shows the aerial photographs
Search Modification
Participants were asked to modify their search to include Clear Lake. Successful participants from Group One recognized tiles, the results page, and were able to navigate the resource. Among Group Two, one participant utilized the “Modify Search” link within the results page to modify the search to include Clear Lake. Three participants did not utilize the Modify Search option within the results page to include Clear Lake in their search. Two of the three participants used the zoom tool in the “Map It” tab to locate the number of tiles that cover both Clear Lake and the Palm Beach Mall; using this method resulted in the apparent retrieval of tiles that matched which did not actually include the location desired.

The third participant utilized the “Thumbnails” tab, selected flight corresponding to Palm Beach Mall and Clear Lake, counted and identified the number of tiles that included both landmarks. Another participant did not know how to modify the search to include Clear Lake. The participant browsed through the aerials available for 1968, used the “find” feature available in web-browsers to try to locate Clear Lake, and searched through citations and thumbnails in an unsuccessful attempt to modify the search.

Comments/Supporting Evidence
One group out of the thirty three participating groups from the Group One sample was able to successfully modify their search and provided the right answers to the task at hand. Furthermore, three participants from Group Two and all participating groups from Group Three were not able to modify their search.

Recommendations
- Make the “Modify Search” option more visible
- Provide instructions on how to modify searches on the results page
- Deemphasize the “Map It” tab after results have been retrieved to prevent users from inaccurately counting those as correct results
- In the modified search, only highlight the tiles with the desired location

Aerial Download
Among the new functionalities of the Google Maps search is ease of downloading aerials in JPEG2000 file format. Once a participant has located the requested aerial, the download option is available for all tiles in two locations on the aerial result view. The hyperlink for downloading is nested in the functions bar located at the top of the aerial, along with a download tab also available for use. The question sought to see how intuitive it would be for a user to locate it.

Comments/Supporting Evidence
Most participants from Group One did not provide an answer to the download feature with regards to the location of the link or how to download the item. All participants from Group Two could find the download option; participants clicked on the download tab located at the top of the results page or on the ‘Download This Tab’ hyperlink. All participants from Group Three were unable to download the Aerial due to technological difficulties with the computers or because “they did not know how to or could not do it,” as reported by them.
Recommendations

- Indicate in the Homepage of the FAQ tab the available option to download items
- Make the Download link more visible to users by changing the size and/or location

Conclusion

Participants were generally not successful in navigating/locating resource features. Some of the features of the resource that seemed more difficult to participants included:

- Map Search and use of the Address Search Bar
- Identification of an Aerial Picture and Tiles
- Modification of Search

In general, participants from both groups had a difficult time identifying and utilizing aerials. Participants attempted to utilize the aerial photography as interactive resources such as Google Maps. After being exposed to the resource and asked to complete the tasks, participants self-reported that the resource, while originally thought to be easy to use and interactive, is rather cumbersome and difficult to use. Evidence of this finding is reflected on the answers provided by participants with regards to the usability of the Aerials Resource. Some of the comments provided by the participants include:

- Resource is not user-friendly
- Resource is not intuitive
- Resource is not easy to utilize and navigate
- Resource lacks appropriate instructions with regards to its usability
- Resource lacks appropriate orderliness for participants of all ages to easily follow

Overall, participants were not successful at navigating the resource and thought that it was difficult to utilize.
Appendix A, Informed Consent

Dear Parent/Guardian,

I am a faculty member in the George A. Smathers Libraries at the University of Florida, conducting research on the Aerial Photography: Florida Historical collection (Aerial collection) which provides access to Florida aerial photographs documenting changes in Florida's land use from 1937 to 1975. The purpose of this study is to examine information discovery and retrieval using this specialized online resource. The results of the study may include development of a more effective resource with intuitive homepage, search interfaces, practical search capabilities, and effective result pages. With an improved interface, we hope to ensure broader access and increased use by middle and high school students and the general public. These results may not directly help your child today, but may benefit future students. With your permission, I would like to ask your child to volunteer for this research.

Students participating in this research will be asked to complete a pre-test questionnaire about their experience with using the World Wide Web. The research involves a full class group exercise, scenario-based tasks exercise to evaluate search behavior, and a group focus/discussion session. The first group exercise will consist of participants reviewing and commenting on the resource. The scenario-based testing completed by small groups will consist of structured exercises using the Aerials collection. A follow-up full participant focus session will be used to review the tasks exercise and will gather additional information from the participants including feedback about their experience using the Aerials collection. This research is scheduled during a school period.

The children will not be asked to write their names on their pre-test questionnaires; their identity will be kept confidential to the extent provided by law. Results will only be reported in the form of group data. Participation or non-participation in this study will not affect the children's grades or placement in any programs.

You and your child have the right to withdraw consent for your child's participation at any time without consequence. There are no known risks or immediate benefits to the participants. No compensation is offered for participation. Group results of this study will be available upon request. If you have any questions about this research protocol, please contact me at (352) 273-2627. Questions or concerns about your child's rights as research participant may be directed to the IRB02 office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.

Marilyn N. Ochoa

I have read the procedure described above. I voluntarily give my consent for my child, ____________________, to participate in Marilyn N. Ochoa's study of the Aerial Photography: Florida Historical collection. I have received a copy of this description.

______________________________
Parent / Guardian Date

______________________________
2nd Parent / Witness Date

The Foundation for The Gator Nation
An Equal Opportunity Institution

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2010-U-0283
For Use Through 03-22-2011
Appendix B, Post-Test Discussion

Some of the recommendations in the previous section are based on the answers in this section. Upon completion of the Usability tests, the Assessment Team encouraged a facilitated discussion to gather further information about the participants and their reactions to the resource. The following questions were addressed during the facilitated discussion:

- **What were your initial impressions? Did your attitude about the resource change as you used it?**
  - a. Attitude changed from excited to frustrated
  - b. In general, participants thought resource would be easy to use
  - c. Participants concluded after using the resource that it is rather complicated and cumbersome to utilize.

- **What do you like about the resource? Why? What do you dislike about the resource? Why?**

<table>
<thead>
<tr>
<th>Liked</th>
<th>Disliked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Searching options such as year and county</td>
<td>Search cannot be easily modified</td>
</tr>
<tr>
<td>Variety of years available</td>
<td>Unclear Instructions</td>
</tr>
<tr>
<td>Instructions improve usability of resource</td>
<td>Similarities with Google Maps</td>
</tr>
<tr>
<td></td>
<td>Instructions are not readily provided on the map search page</td>
</tr>
<tr>
<td></td>
<td>Instructions lead users to believe that resource is limited to searching</td>
</tr>
<tr>
<td></td>
<td>only addresses</td>
</tr>
<tr>
<td></td>
<td>Aerial Photography is not simple to understand</td>
</tr>
</tbody>
</table>

- **Did you find anything particularly easy to complete? Did you find anything confusing?**

<table>
<thead>
<tr>
<th>Easy</th>
<th>Confusing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typing in address, as the search option recognizes anything</td>
<td>Finding structures and landmarks</td>
</tr>
<tr>
<td>Finding aerials by year and county</td>
<td>Lack of information in certain links located on the resource</td>
</tr>
<tr>
<td></td>
<td>Finding addresses on the Map Search</td>
</tr>
<tr>
<td></td>
<td>Looking for a specific destination</td>
</tr>
</tbody>
</table>

- **Was this resource easy or difficult to use?**
  - a. On a numbered scale from one to five, with five meaning very difficult to use, participants rated the resource an average of 3.5, indicating that participants consider the resource difficult to use in general.

- **What do you wish you could do with this resource? Common answers included:**
  - a. Search for specific landmarks like highways (an Atlas)
  - b. Perform research, find addresses.
  - c. Nothing, as I am not interested in the resource
What could be changed to make the Map search interface easier to use? What do you think about having multiple search options on the Map search?

a. Making navigation simpler  
b. Comparing current addresses with previous addresses  
c. Have the option to search by Highway, location, etc.  
d. Explicitly state directions instead of having to search for them on the resource.  
e. In general, participants agree that having multiple search options on the Map search would be helpful.

[Review of result pages] What do you think of the current initial result view? Which of the views (brief, table, thumbnail or map) is easiest to understand?

a. Out of Group two, which provided answers to this question,  
   i. Two participants thought Thumbnails are easier to understand  
   ii. Two participants thought the map view was easier to understand  
   iii. One participant thought the brief view was easier to understand

What could be changed to make getting to the aerial you want easier? What modifications, if any, do you think the result pages need? Common answers include:

a. Provide help screens while utilizing the resource  
b. Provide more information in thumbnail images  
c. Provide a marker to denote specific landmarks like highways.  
d. Provide the option to perform a more specific search  
e. More search options, such as city, neighborhood, etc.  
f. Provide a regional labeling of the aerials.

Did you use help tools throughout the site? Was the legend useful? The terminology page?

a. Most participants used the help tools through the site but found them not explicit/useful enough to make their experience with the resource easier.  
b. Participants found the legend useful.  
c. Most participants did not locate the terminology page, as it is not readily available.