

The OSCAR Redesign Project  
Part 4 Evaluation  
CS3750 User Interface Design

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## **Description of the Evaluation**

Our evaluation procedure consisted of four parts. First, we solicited participation, explained the general purpose of the evaluation, and directed the participant to fill out the consent form.

Second, we instructed the participant to perform, and the participant then performed, the following tasks: searching for a non-conflicting class by keyword and adding it to the current schedule, searching for a conflicting class by keyword and adding it to an alternative schedule, and searching for a class by time slot. Instruction and performance of each task were interleaved; that is, the instructions for the succeeding task were given following the participant's completion of the previous task. Due to limitations of our prototype implementation, we disallowed the use of keyboard input and instructed the participant to use only the mouse. Textual entry of the keyword search was simulated by having the system automatically fill in the correct keywords when the participant clicked on the text box. We recorded each test using a camcorder aimed at the computer screen.

Third, after all tests were completed we had each participant fill out a survey. The survey consisted of two sections, a series of Likert scale questions followed by a series of short-answer questions.

Finally, after the participant had been dismissed, the survey results were tabulated and the video was analyzed to determine task duration and error rates.

## **Rationale for Evaluation**

We chose the particular use cases (searching by keyword, resolving a time conflict, and searching by time slot) for two very simple reasons: they are the most important functions of the system, and they are the functions whose implementation differs the most from the preexisting system (OSCAR).

Each evaluation technique used was chosen for a particular reason. Recording the test with the camcorder maximized the quality of objective performance data collected while minimizing interference with the test, to the extent that was feasible. Other alternatives, such as instrumenting the prototype itself, were not possible because of the technology chosen for the implementation. The combination of Likert scale and short answer questions in the survey provided a good balance of both quantitative and qualitative subjective data, respectively.

## **Results of the Study**

We had 15 participants evaluate our prototype.

### **Survey Results**

Likert scale question results (ranked 0 through 4):

4: Strongly Agree    3: Agree    2: Neither Ag/Dis    1: Disagree    0: Strongly Disagree

I liked this interface better than the current implementation of OSCAR.

**3.7: Strongly Agree**

I became frustrated trying to use this interface.

**1: Disagree**

This interface helped me focus on the task of registering for classes.

**3.4: Strongly Agree**

I would like to have the "multiple schedule worksheets, accessed by tabs" feature in OSCAR.

**3.4: Strongly Agree**

I would like to have a calendar-centric interface in OSCAR.

**3.6: Strongly Agree**

I found it easy to search for classes by name.

**3.1: Agree**

I found it easy to search for classes by time.

**3: Agree**

I found it easy to resolve schedule conflicts.

**3: Agree**

The color scheme chosen was helpful.

**2.4: Neither Agree nor Disagree**

I made errors when using the interface.

**1.9: Neither Agree nor Disagree**

I was able to complete the task quickly enough.

**3.3: Strongly Agree**

Open-ended questions (common or insightful answers are in **bold**):

What aspect of this interface did you like the most?

**Calendar/Visual View**

**Multiple Schedule worksheets**

Mouse-over intractability

What aspect of this interface did you like the least?

**Click to access the search box**

**Colors**

Search by time

What single thing would you ADD to the interface?

**When searching, provide more details or a link to additional information (Maps, GPAs of Professors, Way to check degree requirements)**

**Optional search parameters (Teacher search, Search by class type, Box on the calendar to quickly add courses by number)**

Multiple class search

What single thing would you REMOVE from the interface?

**Nothing**

Details about me

More neutral colors

Time Search

What single thing would you CHANGE in the interface?

**Nothing**

**Color Scheme**

**Show the entire calendar (zoom out a bit)**

More options

**Search box be not hidden**

What was the easiest part about using this interface?

Viewing the schedule

Calendar

Visual options

**Searching**

Knowing there would be a time conflict

**Hover feature with class details**

Search by time

Not much typing required

What was the hardest part about using this interface?

**Nothing**

**Search by time**

Getting used to it

Search

Viewing the entire schedule at once

What did you like/dislike about the search function?

**No comment**

**Like fuzzy search**

Disliked hidden search box

Very focused and simple

Search was good

**Disliked only type in search**

**Like how it was easy**

What did you like/dislike about the multiple schedules/tabs?

**No comment**

Like how it showed schedule conflicts w/ each schedule

**Great idea**

**Did not like strict limit of four schedules**

I wouldn't use it

This was one of the most useful features

What did you like/dislike about the calendar view?

**No comment**

**Great idea**

**Liked easy to visualize schedule**

Disliked less focus on class details

**Disliked how the calendar was small**

What other thoughts/suggestions do you have?

**No comment**

Needs Prereq notification

Keep working on it and streamlining it

Want automatic schedules

**Color scheme needs to be revised**

Compared to OSCAR, this is the greatest registration app ever made

Would like walking distances

More schedule tabs

**Overall liked it**

### Action Times

Action	Average Time (Seconds)	Standard Deviation
Task 1		
Click on schedule 1	5.496	3.777
Click on class search	6.976	5.139
Click in search box	3.401	1.839
Click on search button	8.759	9.678
Mouse over search result	2.148	1.628
Click on class to add	14.147	12.102
Total	40.926	16.157

Task 2		
Click on class search	3.690	1.982
Click in search box	2.959	2.074
Click on search button	2.110	2.612
Mouse over search result	1.329	0.457
Click on conflicted class	4.334	3.550
Click on schedule 3	6.957	3.810
Total	21.379	6.531

Task 3		
Click on time slot	5.984	2.796
Mouse over search result	2.074	1.059
Click on class to add	2.797	1.384
Total	10.856	4.522

Task 4		
Click on alternate schedule	3.274	0.962
Click on register button	1.403	0.742
Total	4.678	1.537

### Error Rates

Action	Average Error (Count)	Standard Deviation
Task 1		
Click on schedule 1	0	0
Click on class search	0.333	1
Click in search box	0	0
Click on search button	1.333	2.693
Mouse over search result	0	0
Click on class to add	0	0

Task 2		
Click on class search	0	0
Click in search box	0.111	0.333
Click on search button	0	0
Mouse over search result	0	0
Click on conflicted class	0.556	1.014
Click on schedule 3	0	0

Task 3		
Click on time slot	0.778	0.972
Mouse over search result	0	0
Click on class to add	0	0

Task 4		
Click on alternate schedule	0	0
Click on register button	0	0

## Interpretation of the Results

### Implications

From the results of our surveys, we saw the majority of the users liked the user interface more than the current OSCAR interface. Most users noted the calendar schedule was the feature they enjoyed the most. From this, we can imply that a visual of the schedule was useful and important in registering for classes. Also, most users noted that the multiple schedules would be useful considering time-conflicts and multiple sections that could make several possible schedules with the same courses. Opinions of search engine were neutral. Considering that it never tested the accuracy or ease of it (the prototype required testers to click the text box that would automatically type in a set of words that we already selected), the accuracy of the search engine could not be tested correctly. Opinions of the color scheme were the same. Several testers recommended a color scheme reflecting those of Georgia Tech's. After reviewing the videos and marking the time it took for each user to execute certain parts, we calculated that it only took an average of a few seconds for each execution to be completed; we concluded that the majority of the testers did not have trouble locating and interpreting the buttons, actions, and results displayed on the interface.

### UI Changes Made

During the testing process, we made a few minor changes to the user interface. One of the most noticeable changes was the search engine. Instead of offering several parameters to search for class (i.e. course number, professor, time, etc.) we opted for a simple type in search engine that can search in various ways. For example, having MATH 1501 courses as a result can be done by typing "calc 1", "math 1501", "1\*", or a professor teaching the course, to name a few. Another change we made was adding a small tab below time-conflicted courses that allows the option to add the course to another schedule. This change was done to allow more space to fit the information we wanted to display. Another minor change was the font color for certain aspects of the interface; it was noted that some of the first users had trouble reading or recognizing text. In concern of the testing process, we blocked out the keyboard to discourage the participants from using it, since the only inputs we allowed for the prototype were moving the mouse and the left hand click. Another change implemented during the testing process was the wording of the instructions made. This was done because the first few users had trouble understanding exactly what they needed to do; it should be noted that the rewording of the instructions still did not give away the methods in completing the tasks.

### Future UI Changes



Had given more time, there were several changes and additions we would have considered for the interface. One of the most significant changes was adding more features we described in previous parts of our project, but never implemented into the prototype, due to the fact that the prototype was on PowerPoint; the slides were hyperlinked and changing one slide or moving it for the benefit of more features would make the entire prototype unusable had we rushed to put those other features in on time. Some of these features included adding a map link showing the location of the class, how permits and overloads were implemented, and how prerequisites were displayed. In addition, it would have been better had we had enough time to learn Flash to create a more stable and less complicated interface. Also, incorporating real data from the OSCAR instead of using Wizard of Oz techniques for class searching would have made the testing process more realistic and test the reliability of our search engine.

### **Reflections**

Our project was unique because we were redesigning a specific product. This created unique challenges in trying to break free from the ideas that OSCAR ingrained in us. For example, when we asked users in phase one regarding class registration, most of our questions and most of the answers were based around OSCAR instead of class registration in general. We were able to come up with a few ideas that were quite different from OSCAR in the end. Because of the time-boxing we were challenged to find the most important features of class registration instead of trying to design and/or implement every feature we felt was necessary or beneficial. Our team functioned fine except for our missing group member, Jason. He left Georgia Tech for personal reasons after spring break so our work responsibilities were increased. One thing we learned was that if your group member disappears, check for his parents' phone number in the phone book. We didn't feel we could decrease quality or quantity of the work we submitted so we had to pick up all of the slack. We felt our prototype was well received by users. All of them like most of the UI features we tried to show. Everyone agreed that our design was better than OSCAR and would prefer to use it to schedule for their classes. As far as UI design, we learned that it is a very slow process. We learned that UI design needs to take place a long time before coding begins because the UI design can significantly change. We also learned the value of extensive brainstorming. We felt we didn't have many good concrete ideas until we really sat down and organized all of our brainstormed ideas. One of the things we didn't like about this project was these reflection sections. We never felt they were helpful to us. Overall, if we had to do it all again, we wouldn't change the way we did things much.