Human Computer Interaction: SIS Final Paper

12.05.2017

Chris DiMaio, Jishnu Menon, Ting Li Shen, and Vivek Kumar
University of Massachusetts Lowell
220 Pawtucket St
Lowell, MA 01854

Introduction

Problem Statement

The UML Student Information System also known as SIS is a web portal used by UML students to sign up for classes, pay bills, retrieve important documents and grades. We find that navigating SIS is cumbersome and confusing, the class schedule isn't integrated into SIS so students have to leave the system go to the class schedule, find the class they want then return to SIS to sign up for it.

We have concluded from anecdotal evidence based on our own experience, testimonies from friends and family who are past and present UML students, as well as from the general consensus around campus that the Student Information System SIS is not pleasant to use.

Related Work

1. We have observed the interface and the usability case of the same system at the North Eastern University.

2. We have observed students in the University of Northern Iowa may have some problem with their SIS. However, they have organized common Q&A and students are able to use the online comment form to submit their questions.
3. Creatrix Campus SIS

Creatrix Campus delivers a complete Education Management System that includes a fully integrated Student Information System to support intelligent data-driven decisions. Creatrix Campus is automating and streamlining academic and administrative processes with a new ERP system for engineering and arts colleges which offers improved tools for administrators and advanced data analytics.

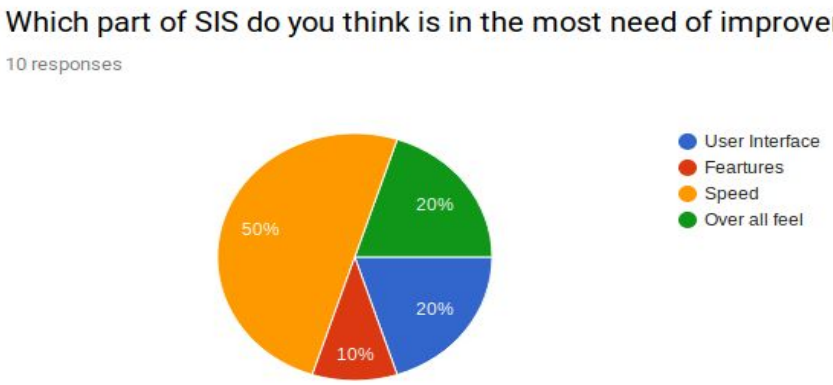
User Research

Our user research comprised of 2 stages. Stage 1 we made a questionnaire of about 10 questions and made a google form and asked people to answer those questions.

We had asked people from all kinds of majors ranging from engineering to management to arts. The questions were all formulated carefully such that it is a good combination of questions that ask the subject to rate a feature in SIS or specific reasons for why they liked or disliked a feature in SIS. We carefully gathered the data and analysed it thanks to the intuitive visualisation tools of the google forms platform.

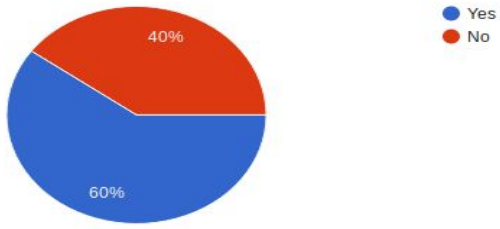
All the questions in the questionnaire were designed to be a good fit for the questionnaire mode of user research.

Some Questions that we used in the Questionnaire and the data we gathered.



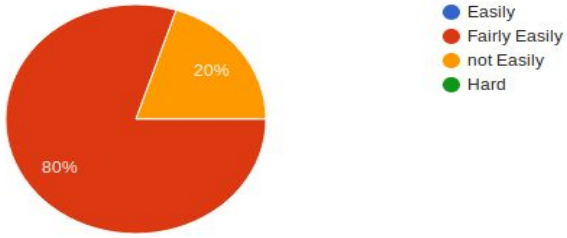
Do you find SIS to be responsive i.e. is it slow?

10 responses



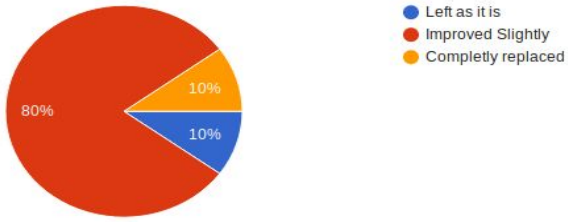
Would you say you are able to complete these task [Easily, Fairly Easily, Not Easily, or Hard]?

10 responses



Would you like to see SIS left as it is, improved slightly, or completely replaced?

10 responses



According to our analysis of the data gathered from the questionnaire, the most important aspect of SIS that needs improvement is the speed of the platform. A good percentage of participants have the opinion that the platform is slow. The user responses to the question regarding how easy it was to get a task done was also quite an eye opener. Most people said it was fairly easy or hard. Nobody said easy or very hard. We believe that this is because the users are now used to the interface, and have learned everything the hardway. We were able to test this assumption during our next stage of user research during the Interview. Also an overwhelming number of participants said they like to see it slightly improved.

Interview

The second part of the user research data gathering was done by interviewing a group of users. We did a structured interview with some predefined questions targeting specific features of the system and also some general queries about the user experience and ease of use.

Before we conducted the interview, we wanted to get the consent of the participants, agreeing to use the data that we collect in the following interview to be used for academic purposes as part of a project for the Human Computer Interaction Class. So we got all the participants to sign a consent form which explains their right as a participant of the interview and what the information collected from the Interview may be used for.

We recorded the interview using a voice recorder and have kept digital copies of it that were submitted along with the consent forms of all the people that we interviewed.

Inferences from the interview

The Structured interview turned out to be a really useful tool to collect user data and clear our doubts that we had after analysing the data we collected from the questionnaire. We wanted to know the reason why 80% of the people who took the questionnaire had the opinion of modifying the platform slightly as opposed to any major changes or no change at all.

We learned that people had that opinion not because the SiS platform was really easy to use but because people were used to its interface and workflow. People who did not have enough experience with the platform were finding it really unintuitive and hard to do even the simple tasks without help from someone who have done it before.

The inference we had after analysing the user research data was that the SIS interface was lacking design principles like Learnability, Memorability, Efficiency. It also revealed that the platform did demonstrate Effectiveness Safety and Utility since the experienced users were able to do all the tasks they would need to for any academic or administrative requirements securely.

Usability Testing

Usability Tasks

We asked our participants to complete four usability tasks that emulated problem areas that we found in SIS. These areas came up during interviews and questionnaires as particular bad spots for users of SIS. One participant, Andrew, said logging in was difficult because "*...every time I log in or try to login it says there's something wrong and that I have to log out first so I log out then back in...".* Despite being problem areas for SIS we thought these areas to be well established across the internet so we decided to asked our participants to test them on Amazon.com and UML's Blackboard system. These platforms are mainstream, trend setters and considered by many to be benchmarks for their fields.

It was decided to stray from the norm and use two sites instead of one because it was thought to be unlikely that

one site would adequately demonstrate all the problem areas that needed to be tested. There's is also the added benefit of getting two representations of GUIs rather than one.

The problem areas we had participants test on Amazon.com were finding a bill/receipt and logging in/out/in. While on UML's Blackboard participants tried checking a calendar and finding their grades.

We found that most people were quickly able to navigate Amazon to find receipts and to log and logout. There were very few complaints. Three people opted to not use their personal orders when they did they found it simple to order an item.

People found Blackboard less intuitive but still with a little looking around were able to find both their grades and the calendar with relative easy.

Usability Interviews

Participants were also ask a series of interview question about the usability tasks. The following shows a summary of the results.

How was your overall experience completing the tasks?

Answers were unanimous. Everyone found these easy to complete.

Did you find interface to be interactive and enjoyable?

Unanimous again, for Amazon but some found Blackboard to give them some trouble.

Which task took more time to complete and why?

Results were inconclusive but seemed to lean towards nothing taking very long.

Do you think there can be better interface to complete that task?

No suggestions or very minor suggests.

Is completing these tasks easier in comparison to completing the same tasks on SIS?

Most people found these tasks easier to complete with some saying maybe.

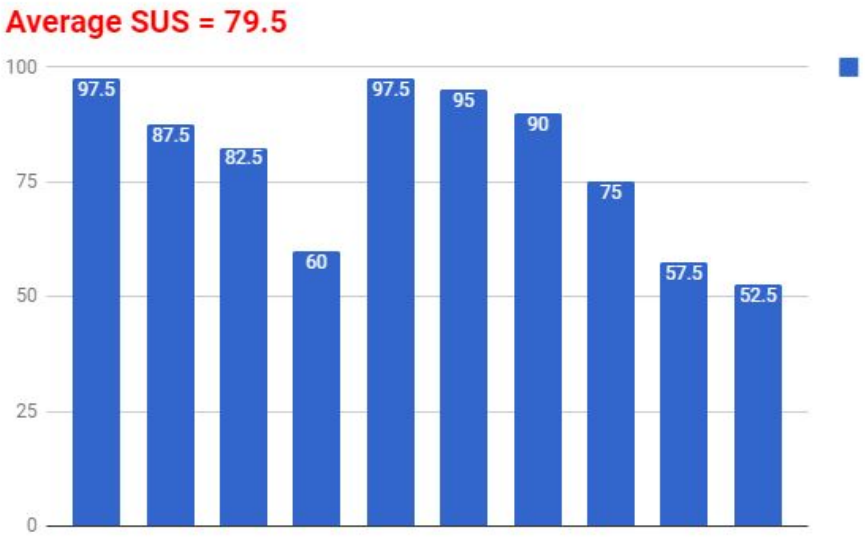
SUS Survey

Participants then filled in a SUS survey followed by a 5 question semi-structured interview.

Raw Survey Data

#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	SUS score
4	1	5	1	5	1	5	1	5	1	97.5
4	2	5	1	4	1	5	1	5	3	87.5
4	3	4	1	5	1	5	1	4	3	82.5

3	3	4	2	4	4	3	2	3	2	60
4	1	5	1	5	1	5	1	5	1	97.5
5	1	5	1	4	1	4	1	5	1	95
3	1	5	1	5	1	4	1	4	1	90
3	2	4	2	4	2	4	1	4	2	75
4	3	4	4	4	3	4	4	4	3	57.5
3	4	3	2	3	2	2	3	4	3	52.5



Survey Results

Participant surveys scored an above average SUS score of 79.5. This suggest they found both UML Blackboard and Amazon.com to be fairly usable.

Conclusion

Our assumption was that the UML student information system SIS is not Interactive and user – friendly to use.

To find out whether or not our assumptions matches with the users using the application, we first performed a questionnaire survey where 80% of the people who took part in the questionnaire said that there is a need of improvement in SIS.

Next, we conducted interview with real user of the application and asked question about their user experience with SIS. About 70% of the people we interviewed told that they find it difficult to complete their task on SIS.

Our User research and interview result supported our assumption. Hence, We conclude that UML student information system SIS needs to be updated to be more user interactive, user – friendly and fast.

Reflection

Things that we learn during this project can be listed as follow,

- General process to go about researching a product or an application.
- Data Gathering focusing on the key issue related to the project.
- Creating questionnaire for surveys.
- Identifying right participants for the interviews.
- Framing questions for the interviews that can address real issues related to the project.
- Extracting data from the interviews and surveys.
- Converting gathered data into useful information using qualitative and quantitative methods.
- Form gathered information, Identifying Positives and negatives of the application.

Things that we would do differently

- We would try to have more participants for surveys and Interviews
- We would have different levels of users for user research. For example, experienced user, A user who is completely new to the product.
- We would have used different types of quantitative analysis on gathered data.