

FINAL CREU REPORT

Human Computer Interaction

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I. Goals and Purpose of the Project

The goals of this year's CREU funded research were to prepare and implement a set of human computer interaction guidelines for security software. It was also our ultimate goal to implement a tutorial that would be given to random university students, faculty, and staff in order to analyze the usability of some common security tools. However, this portion of the research was unable to be completely finished, due to the extensive IRB process that the University mandates for research using human subjects. The inability to test their hypothesis on the usability of common security tools upset the group members. The main aim of this particular research was based on two papers that were written by Whitten & Tygar¹ entitled "Usability of Security" and another by Ross, S.² titled "Security through Usability." They found out that the main purpose of Whitten & Tygar's case study was to figure out if the average user would be able to use PGP 5.0 and if the PGP interface was not in violation of Kerckhoff's sixth law which stated that the system had to be very easy to use without too much stress.

One of the researchers, Melissa Karolewski also added her own personal goal of making the department and university better well aware of the achievements and successes that the women in the Computer Science Department at IUP have attained. Her achievements in this area are noted below in the Publications area of this report.

The CREU research group at IUP would like to thank the generosity of the CREU project in enabling them to do research at the undergraduate level. Because of one of the student researches access to both faculty and research support, she has decided that she would like to pursue graduate school, upon her graduation from IUP in May 2007. She is still deciding whether she would like to teach computer science, or become a member of the industry. Both the student and her advisor, Dr. Shumba contribute this students decision to pursue graduate school, in part from her experiences as an undergraduate researcher.

Once again, the purpose of this project was to bring young women in the undergraduate program at IUP to not only be exposed to research experiences, but also to help the young women to think about pursuing a higher degree in the field. The students in this research group offered enthusiasm and a great interest in the subject. However, the path to finishing the research was not an easy one.

II. Account of the processes used in Completing Research

In completing this year's research on Human Computer Interaction, the research team faced many obstacles in the road. Early in the fall semester, the busy schedules of three upper level students made it hard to find one time that it was easy to meet. Because of this, the researchers decided to break up their initial research on the best practices of Human Computer Interaction and then compile the data. However, this did not happen. One researcher ended up doing the first report on the current practices and guidelines on HCI. When the researchers submitted their report for the Fall semesters work, there was trouble between the researchers. It seemed that only two of the researchers were making a conscience effort to complete the work required. At the end of the semester, the research group became two instead of three.

Putting the Fall semesters troubles behind them, the two researchers left strived to once again find a time that was good to meet. Again, this was slightly difficult for the researchers. Luckily, the two researchers had a 1 credit class together, so they saw each other every week, and kept themselves updated in weekly half hour meetings with their advisor, after their class had ended. The researchers continued to struggle to balance their work load and their research responsibilities. The researchers analyzed a paper “Usability of Security” by Whitten and Tygar on the best practices for a security tool, using PGP 5.0 against their own formal definition of usability. From their report the researchers began to compile both of their information into a single report. When the researchers finally compiled their findings it was already mid March and the week before spring break.

After a restful spring break, the researchers started to decide what they wanted on a tutorial that would be implemented to the IUP student, faculty and staff. Once, the researchers finished their tutorial and were ready to move on to the next step it was already mid April. With less than a month left, the CREU researchers were informed that they would be unable to test their tutorial as planned due to the extensive IRB process at IUP that requires about a month for approval for the testing to be conducted. The researchers were upset that they could not thoroughly complete the research they had begun that semester. However, they were astonished of all the work they had completed.

III. Conclusion & Results Achieved

At the writing of this final report, the women were wrapped up in preparation for finals, seeing that finals week had commenced. Yet, the women feel as if they truly offered their best to the IUP community with their dedication in promoting women in Computer Science at IUP. They also believe that their experiences will be with them for the rest of their undergraduate career.

Although the women could not completely finish the research they set out in September the experiences and problems associated with working on a team have helped these women to better themselves and the women around them. The results achieved were surprising to not only the researchers, but also their advisor. Despite all the bumps in the road the researchers still pushed on and in the end achieved their dreams for the project.

Even though, they could not complete human trials for their project, the women achieved much more than research on paper, they achieved friendships, bonds, and a better understanding of the complications and pluses to being an undergraduate researcher. Again, on behalf of both Tuté and Melissa, I would like to thank CREU for funding the 2005-2006 research at IUP.

IV. Publications

In addition to their current research the young women were completing, they also found time to present on their research from their previous year of CREU funded research. Tuté and Melissa in addition with Sarai (the fallen researcher from the fall semester) and Alicia, a researcher that was unable to continue research in the Fall semester, due to an internship presented a poster on Computer Security Awareness’ at the First 2006 Undergraduate Scholars Conference in April 2006 and the first annual Women in Science, Math and Technology Poster session. The girls were well received at both sessions. In addition to their poster presentations, the women also presented their findings at the 2006 PACISE (PA Association of Computer and Information Science Educators) Conference.

The women’s works was so well received, and they were invited to present at Slippery Rock University of PA in the Fall 2006 semester. These young women’s work has also been submitted to the 2006 Grace Hooper Convention, to be held in California. The young women are yet to hear if they were accepted, as of May 1, 2006. Also, Tuté, Melissa and their advisor Dr. Rose Shumba,

submitted a panel to the Grace Hooper Convention on the difficulties and benefits to undergraduate research. They will be accompanied by a faculty from another school that experienced many difficulties in advising the undergraduate research at her institution.

In addition to maintaining both their grades and completing the research they have began to implement a web page, solely devoted to the women in Computer Science. This website is intended to not only highlight the funded research by CREU, but also attempt to showcase other female students in the Computer Science Department at IUP. At this reports writing the website was on its way to the department's webmaster for uploading. Please have a look at the pictures, the PowerPoint presentations, papers, and publications done by these young women.

The link to the website is:

Enjoy!

References

- ¹ Whitten, A. & Tygar, J. (1998). *Usability of Security*, Carnegie Mellon University Computer Science Technical Report. CMU-CS-98-155.
- ² Ross, S. (2003). *Security through Usability* [Online Version], Securius Newsletter, Vol. 4, No. 1. retrieved on April 30th from www.securius.com.