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Assignment 1
HCI Journal Report

by

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Introduction

Computers are tools designed by humans to help humans complete a work-related or recreational task. In Human-Computer Interaction (HCI), practitioners analyze current systems for problems or design flaws and attempt to devise better systems to meet human needs. With the advent of the Information Age, computers affect every aspect of daily life. A study by the Computing Research Association (CRA) predicts that the integration of computer products will continue requiring more trained Information Technology (IT) workers (Freeman & Aspray, 1999, pp. 39-40). The study of how humans can interact more favorably with these systems benefits society.

While the author does not consider herself a computer novice, computer systems are so complex that no single user can be proficient with every aspect of every computer product. The following journal entries recorded over a four-week period document encounters with various computer related systems. While there were many positive experiences during this time, many areas for improvement were also evident. The frustrating problems that even an experienced user encounters demonstrate the need for more HCI studies on the part of industry before computer related products are placed in the market or on the Internet. Such studies would be beneficial to companies by preparing products that satisfy users and therefore increase sales.

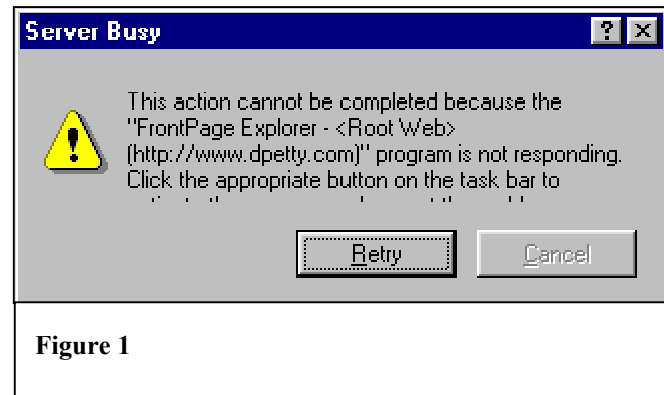
Appendix A contains the addresses of the names and addresses of web sites referred to in this document.

Journal Entries

Week 1, March 5 – 11, 2000

Journal Entry #1, March 5, 2000 The “Mystery” Error Message

In attempting to update a web site using Microsoft FrontPage 2000, the author received the error message shown in Figure 1. This message appears approximately once a week in daily use of the program and cannot



be connected to a specific time of the day. When this message appears, the application freezes and the only alternative is to use the keyboard escape sequence, Control – Alternate – Delete, to end FrontPage. After this problem occurs, the web site remains locked for at least thirty minutes making access impossible.

Equally frustrating to the author is that part of the error message shown in Figure 1 is obviously missing. Does this missing text contain the information that explains what is triggering this exasperating problem? Gagne, Briggs, and Wager (1992) stress that users need informative feedback whenever errors occur within an application.

Journal Entry #2, March 5, 2000 Inaccurate Message to User

The United States Postal Service web site is an example of a good web site that is easy to navigate. Specific locations are listed on the main index page. The site also provides useful information allowing customers to track and confirm delivery of Express Mail or Priority Mail items for a nominal fee.

The author has frequently used this site to track the delivery of messages and print confirmation messages. However, on March 5 a problem occurred. Figure 2 shows that the package was delivered in Indianapolis, IN.

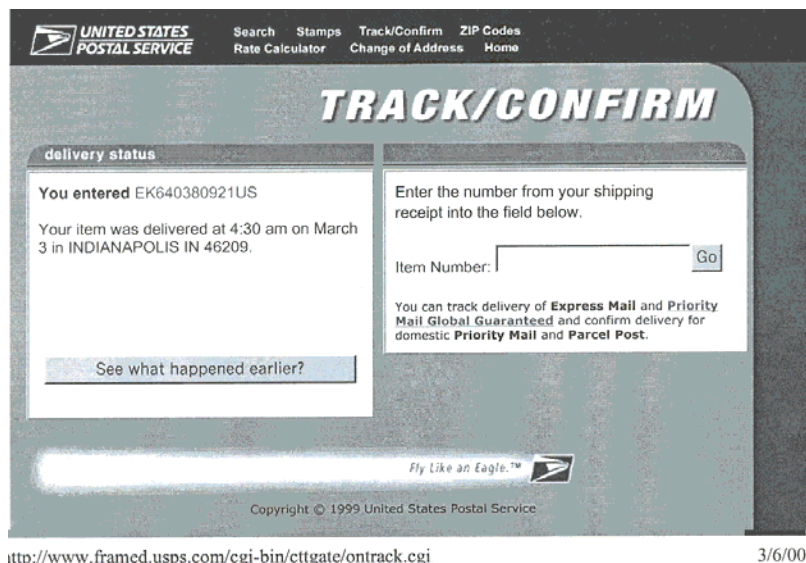


Figure 2

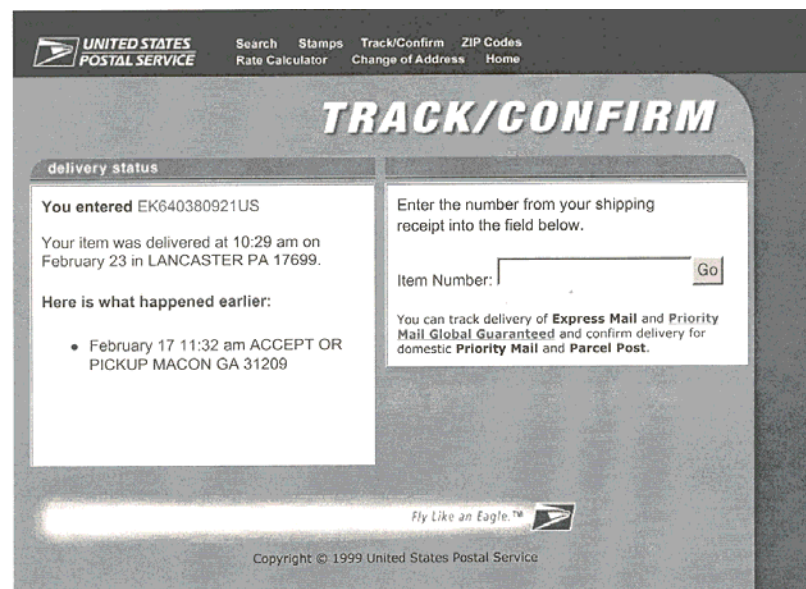


Figure 3

However, when the author clicked on the command button “See what happened earlier?” Figure 3 shows an entirely different message with the same confirmation number! The

original package was sent from Dothan, AL to be delivered to Indianapolis, IN, not sent from Macon, GA to Lancaster, PA.

Potentially, this problem could prove very serious for customers relying on this service to track important shipments. In this instance, the information displayed was only partially correct.

Do users have the right to expect software to work correctly every time? Users expect brakes to work, smoke detectors to work with fresh batteries, why not software? Shneiderman (1998, pp. 12-13) states that it is vital for users to have confidence in the reliability and the integrity of the information received from a computer system.

Journal Entry #3, March 7, 2000
Communications Problems with Software Users

This night the author carried 1999 financial records to an accountant in order to have yearly taxes calculated. Each year this involves filing tax forms in multiple states. On this night, the totals were calculating correctly for every state *except* the author's home state of Alabama. The accountant contacted the software company that supplied his tax package. The support person the accountant finally reached explained that the files had been updated earlier in the day and the email messages notifying users of the change had not been sent out yet. After downloading and installing a program update, the problem was solved and Alabama taxes calculated correctly.

The software company explained that the problem resulted from the accountant's use of the antiquated operating system, Microsoft Windows 95. This greatly irritated the accountant who had just purchased the company's tax package update. According to Raskin (1997), such problems do not contribute to customer satisfaction or to loyalty to

the company. A company whose products do not consistently meet the user's needs will have difficulty surviving in a competitive market because users will stop using the product. This allows the company no opportunity to regain credibility (Tseng & Fogg, 1999).

Week 2, March 12 – 18, 2000

Journal Entry #4, March 13, 2000 Difficult to Read Command Buttons

The Wilson Web OmniFile: Full Text Mega web site, available through the NOVA Southeastern University Electronic library, contains a vast amount of informative reference material. Searches are easy to conduct using keywords. The main problem the author experiences with the web site lies in reading the text descriptions on the command buttons. The dark green color of the command buttons along with black text makes the purpose of the buttons difficult to distinguish. Weeks (1997) states that black text should always be placed on a light-colored background for easy readability.

Journal Entry #5, March 15, 2000 Mismatched Directions/Labels on the ACM Digital Library Web Site

The ACM Digital Library provides an excellent collection of documents. However, the author did not find the interface intuitive. After searching and locating a number of very good articles, the author wanted to use the "Add to Binder" option to store the specific results of the search. On moving to the binder window, the command buttons are of varying sizes which the author found disconcerting. In addition, certain commands were unclear. What is the purpose of the command button "Drop"? Does it delete the files? Does it move files to a binder for subsequent use? Shubin and Meehan

(1997) stress that information must be carefully arranged on a web site and that navigational aids should remain clear and consistent.

Later on trying to return to the binder, the author found no link from the Digital Library main page. To get to the binder from the main page, a user must click on the command button “My Bookshelf.”

While the site is extremely useful, consistency in naming pages/windows, consistency in the sizing of controls, and clearer descriptions on command buttons would provide a more “user-friendly” site. Shneiderman (1998, p.80) stresses consistency of data display. He further states that function and fashion should be carefully balanced in interface design (Shneiderman, p. 373).

Journal Entry #6, March 17, 2000 Inaccuracies in the NOVA Accounting System

Imagine the author’s surprise on opening a student loan check from NOVA Southeastern University to find the check was much larger than anticipated – exactly \$4, 180 larger in fact.

Earlier in the term, students had received email as shown in Figure 4 that discussed problems with the new accounting system transactions and students were not

From: "SCIS Doctoral Programs" <odpinfo>
To: <pettydon>
Subject: ATTENTION CLUSTER STUDENTS
Date: Wednesday, February 09, 2000 3:54 AM

Attention all Cluster Students!!

Do not be alarmed if you check your student information online and notice that you are being billed twice. We are in the process of reprogramming and upgrading the University billing system. During this process, duplicate charges are arising.

We are fully aware of this situation and we are in the process of correcting this during the reprogramming stage. At the time that the corrections take place, the duplicate charges. Please do not be alarmed; there is no need to call and notify us. All duplicates will be erased once the correction is made. Thank you, and have a wonderful day!!

to be alarmed if their accounts were double billed.

On finally contacting the NOVA Bursar's Office the next day, the error was confirmed as a double billing for the author's tuition and the problem was attributed to the new billing software. The NOVA Bursar's office suggested that if the school had direct access to the author's checking account, problems could be quickly corrected. Now a double billing of a credit card is inconvenient; a double billing of the author's checking account would be a major catastrophe!

The problem identified in this situation seems to be no human control or oversight within this system. A double billing occurred, but rather than crediting the credit card account, a check was cut and mailed. Equally disturbing, no explanation was sent to the author notifying her that a problem existed. Fogg and Tseng (1999) discuss the effects that errors can cause on user perceptions of computer credibility. While user perceptions vary depending on a wide range of factors, even small errors were found to have disproportionately large effects on presumed credibility.

Journal Entry #7, March 17, 2000

Misleading Messages in the VISA Credit Card Voice Mail System

Before the author was able to reach a human being in the Bursar's Office about the billing problem, a number of telephone messages were left on the author's home phone referring to declined credit card transactions. In attempting to discover the basis for this problem, the author contacted the automated billing system of VISA. This system stated that only \$500 remained to be charged in the user's account, however the system also stated that no transactions had been posted since the previous billing date. According to the previous month's invoice, roughly \$6,000 remained. On reaching a

customer service representative, the representative informed the author that new transactions had started to be counted the previous night at midnight.

In this instance, including in the voice message the beginning date when new transactions were posted could have prevented a misunderstanding. Adequate user testing of the system could have identified this problem.

Week 3, March 19 – 25, 2000

Journal Entry #8, March 19, 2000 Difficult to Follow User Interface at NOVA CAT

NOVA CAT, the NSU library catalog for books, periodicals and other items, is another extremely useful source of information. However, the interface design lacks consistency. The navigation buttons appear across the top of the frame and are duplicated across the bottom. However, these buttons sometimes vanish or the locations of individual buttons will change as the user moves from screen to screen. This means that the user must constantly search for a button that was “just there a moment ago!”

Zimmerman (1997) discusses the importance of maintaining consistency in creating effective web sites. Consistency is important so that users can concentrate on the information being supplied rather than the changing interface.

Journal Entry #9, March 23, 2000 Automatic Order Confirmation from Dell Computer

On this date, the author received a shipment from Dell Computer. This was surprising because the author had registered with Dell’s Order Watch system. This system is designed to send an email message to the purchaser when an item is shipped.

Because no message was received from Dell, no one was available to sign for the shipment causing an irritating delay in receiving the merchandise.

Four days after receiving the shipment, an email message arrived dated March 27 stating that the merchandise had been shipped and arrangements should be made to pickup the shipment within one day of March 20.

The Dell Order Watch system is an excellent idea. However, in this instance, the system was not timely or accurate.

Journal Entry #10, March 24, 2000
Inconvenient Interface Location for Microsoft Calendar

One of the convenient features included within the Microsoft Windows 98 Operating System is the Microsoft Calendar applet. However, when the focus moves to a different application, the calendar automatically closes. Giving the user control of closing as well as opening the calendar would enhance the usefulness of this application.

Another feature that could be included would be an option that allows the user to select an “Always on top” option similar to what is available with help dialog boxes. These are improvements that one user would find beneficial!

Usability testing of the calendar applet in the way that users actually use the product would have identified these annoying features.

Week 4, March 26 – April 1, 2000

**Journal Entry #11, March 27, 2000
Inaccurate Error Message in Dialog Box**

Users of the main computer lab at Wallace Community College are plagued by the error message shown in Figure 5. This message appears *every time* a

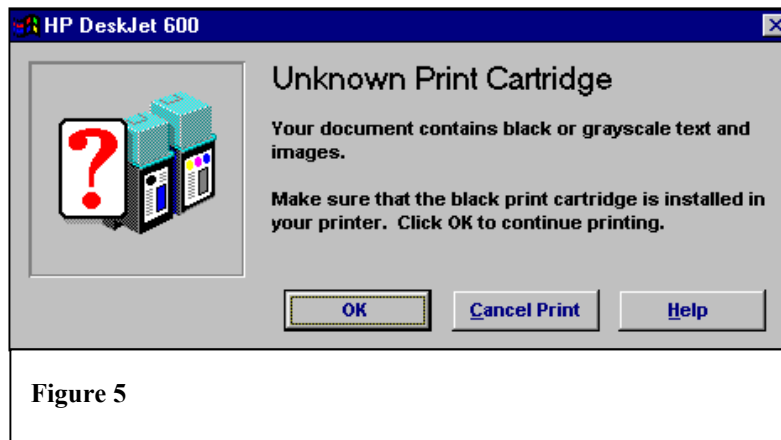


Figure 5

user attempts to print. The

frustrating part to instructors is that the error message appears regardless of the type of printer cartridge installed! Students enrolled in computer classes quickly discover this idiosyncrasy on the part of the computer system and learn to click the “OK” command button. However, the error message will sporadically appear only as a button on the Windows taskbar or will occasionally “hide” behind the window currently open on the desktop. The printer *will not print* until the user clicks the “OK” button within the error dialog box and sometimes the user must search to find this message.

This message causes undue distress to new users and to students or faculty who are unfamiliar with this problem in the network. Some students have stated that they will not purchase HP printers because of the problems with printers in the lab. According to Shneiderman (1998, p. 374), “Improving the error message is one of the easiest and most effective ways to improve an existing system.”

Journal Entry #12, March 29, 2000
Incomplete Help Message with Siemens Computerized Phone System

A new telephone system installed in the author's home incorporates an intercom, voice mail, call forwarding, call conferencing, caller id, and other features. On accessing messages, the author was pleased to successfully recall messages left for her, but found herself frustrated on being unable to delete the messages after playing them. On accessing the built in help system, the helps correctly identified every possible option with messages *except* how to delete one. By trial and error, the author discovered that to delete a message a user presses the number six (6) on the telephone keypad. This is a very useful phone system, but additional usability testing would have identified the problem within the audible help section.

Journal Entry #13, March 29, 2000
Problem Reinstalling Office 2000

Naturally, on the day that an assignment is due at NOVA, Microsoft Word 2000 installed on the author's computer experiences problems. This software does include the helpful feature "Detect and Repair" found under the Help Menu options. Unfortunately, after running this option the problems persisted. Therefore, the author attempted to use the Microsoft Word "Option to Repair by Reinstalling Office 2000." Regrettably, this feature did not restore the Office applications to working order. Finally, the author attempted to evaluate the integrity of the operating system files by running the tool System File Checker included with Microsoft System Information. Although this evaluation identified several corrupted systems files that were subsequently restored by the operating system, the problems remained with Word 2000.

Searching Microsoft user group information on the Internet resulted in locating hundreds of errors but most had many contradictory solutions. Berghel (1997) lists this information overload as one of the significant problems of present day computing.

When problems of this nature arise, users need to know whether the problem is occurring within the software or the hardware of the computer system. Receiving an error message stating that, “An error has occurred in your application...” is not very beneficial to a user who is aware that something has gone wrong! Additionally, such a message does not address the underlying problem with the application or hardware. Nor does this give the user any feedback on methods to prevent the problem from reoccurring in the future.

Summary

“Users may remember the one time when they had difficulties with a computer system rather than the 20 times when everything went well” (Shneiderman, 1998, p. 377).

In the preceding journal articles, HCI problems were identified in the following categories:

- problems with interface design,
- problems with user help systems/error messages, and
- problems with program accuracy.

Problems with the interface design were present in Wilson Web, ACM Digital Library and the NovaCat web sites. These problems ranged from the colors used to lack of consistency in navigational design. In “Designing Icons and Visual Symbols” (1996), Horton proposes development of a standard iconic language that will save developers time while allowing all users an internationally recognizable standard interface. In contrast, others propose that web designers be educated in the principles of creating effective web sites (Zimmerman, 1997). Usability testing would have identified these problems in either case.

Problems with user help systems and error messages were found in Microsoft FrontPage 2000, the Siemens phone system, the VISA automated help message, the HP printers in the Wallace College computer labs and the Microsoft Word 2000 application. Most help systems are storehouses of information but the user must still initiate and control access. If the answer cannot be found, the user has no way to solve the problem. One possible solution to this dilemma has been developed by the Alexandria Digital Library (ADL). The ADL has developed a prototype online help desk. While containing information online help information in a traditional database, this system

incorporates two additional features that help users: a data log built into the application records user actions/system responses, and access to a human information specialist. This help specialist can do a better job providing assistance because of the data log storing the user's and system's actions to the point of the problem (Prince, Su, Tang, & Zhao, 1999).

Problems with program accuracy are critical errors. Such mistakes were present in the accounting system used by the author's accountant, the NOVA Southeastern University accounting system and the United States Postal Service tracking system. Corporations should realize that that managing information is as critical to the success of an organization as managing the products/services produced (Wang, 1998). Errors diminish the credibility of the system and therefore the trustworthiness that users believe the system holds. Once credibility is lost, it is very difficult to regain (Tseng & Fogg, 1999).

In the preceding journal entries where problems have appeared, the human factor seems to be missing. This human factor is crucial when one attempts to analyze how computers are used. Usability testing with actual users and human oversight within the designed systems would have allowed interactions that are more productive. Harris and Henderson (1999) suggest that a new mythology for system design should be developed. Under this new mythology, systems would "...help people be smart and make machines better vehicles for human intelligence" (p. 94). Designers need to remember that computers and computerized seems are tools to help people.

Appendix A

The following list provides the locations of web sites referred to in this journal:

Association for Computing Machinery. ACM Digital Library.

<http://www.acm.org/dl/>

Dell Computers. Dell Order Watch. <http://support.dell.com/us/en/ordstat/>

NOVA Southeastern Universities Libraries. NovaCat.

<http://137.52.46.25/screens/opacmenu.html>

United States Postal Service. Track/Confirm site.

<http://www.framed.usps.com/cttgate/welcome.htm>

[WilsonWeb OmniFile: Full Text Mega](#), [WilsonWeb Education Abstracts Full Text](#), [WilsonSelect](#) Accessed through the Nova Southeastern University Electronic Library. <http://www.nova.edu/library/dbs/dbaseaz.htm>.

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