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USE ALL CAPS AND PUT THE SUBTITLE ON THE SECONDLINE

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Submitted to the faculty of the School of Informatics  
in partial fulfillment of the requirements  
for the degree of  
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**Master's Thesis  
Committee**

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Sammy Student

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Dedicated to my parents.

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## ACKNOWLEDGEMENTS

A sincere wish of gratitude for all who have supported me through these years of study.

## ABSTRACT

Student Name (as it appears in One Start)

TITLE OF THESIS IN ALL CAPS AGAIN.

In this document, I have attempted to create a thesis template to give students an example of the formatting style that must be followed. Obviously, all the sections would be longer than one page (*as shown in the document*), but this should provide a general guideline. Keep abstract to one page, around 200 words max. The abstract should give a brief overview of the literature review and each section of the thesis, especially the findings and their implications. The thesis should be NO more than 20,000 words, including the reference section. If you are less than 10,000 (not including the reference section), you may want to reconsider some places that may need more depth in the literature review, methodology, or discussion section. For example, make sure you adequately outline why your research findings are relevant and contribute to your field in the way of new knowledge. Ultimately, the length of your thesis should be discussed and agreed upon with the chair of your committee. You must follow the Table of Contents page for the order of your thesis content. However, you may have additional subsections than listed here. This depends on your research. Also, follow this document for page formatting, pagination, footnotes, and margins. The entire thesis must be in Time Roman 12pt type. Font and font size may be varied for symbols or emphasis when appropriate (e.g., for scientific or mathematic terms).

**[READ THIS ABSTRACT ABOVE.]**

## CHAPTER ONE: INTRODUCTION & BACKGROUND

### Introduction to Subject<sup>1</sup>

The use of web-based email has become mainstreaming since the user can access the inbox from any computer that is connected to the Internet. Moreover, email software is vulnerable to computer viruses. For example, worms attach themselves to an email attachment. It is safer to use web-based email, which allows the users to choose whether or not to download an attachment rather than other email client software that downloads the attachment automatically.

The amount of emails has burgeoned due to the fact that many users use mail in a wide range of activities. Although email was originally designed as a communication application, it is wildly used for additional functions for managing personal archiving (Whittaker & Sidner, 1996).

.....*continued*.....

### Importance of Subject

Email usage has become overloaded because users use email service to perform a wide range of activities. Email inboxes typically contain many messages that relate to future tasks and events. These messages cannot be simply deleted since they contain important information of current and future activities to get overlooked or “lost” in archives (Whittaker & Sidner, 1996). As a result, the users tend to fail to ...

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<sup>1</sup> This is your first sub-head under the main CHAPTER HEADINGS. Take note that is how footnotes should appear, i.e., at the bottom of the same page as the note.

## CHAPTER TWO: LITERATURE REVIEW

### Email Overload

This section of the literature review will be an introduction to the concept of email overload. As email becomes part of our daily lives, there are millions of email users spending a significant amount of time managing emails. Mackay (1988) started the study on the diversity of email use and stated that email provides a mechanism for supporting a variety of activities. Whittaker and Sidner (1996) defined the term “email overload” as the use of email for functions that it was not designed for. The authors stated that email applications were originally designed for asynchronous communication, but it is now being used for additional functions, such as task management and personal archiving. Gwizdka (2000) supported the idea of email overload and found that email is...

### *Email Overload<sup>2</sup>*

This section of the literature review will be an introduction

Even though email is not designed to handle personal task management, Bellotti et al. (2004) presented that 35.8% of the number of total to-dos were recorded in the users email (other to-dos are recorded in PDA, notes, planners, online folders, etc). Their work also pointed out that people are not unskilled at prioritizing. Rather, they have well-honed strategies for tacking particular task management. See Figure 2.1.

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<sup>2</sup>This is your second level sub-heading.

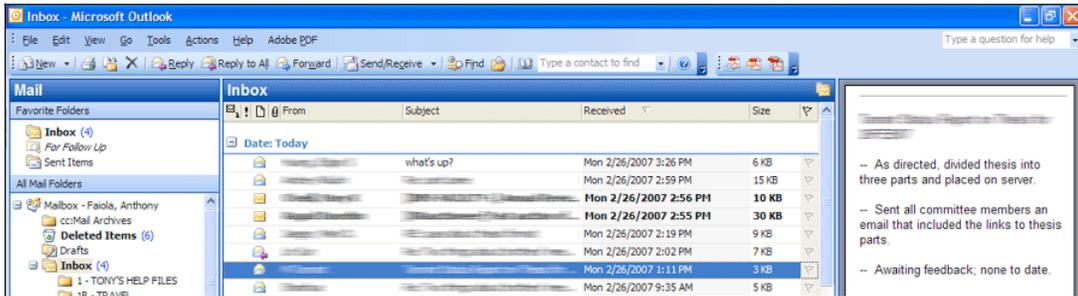


Figure 2.1. Example of Outlook email.

Whittaker and Sidner (1996) defined the term “email overload” as the use of email for functions that it was not designed for. The authors stated that email applications were originally designed for asynchronous communication, but it is now being used for additional functions, such as task management and personal archiving.

### Research Hypotheses (or Research Question(s))

An email overload problem occurs when users try to utilize email service in the way it was not designed for. Moreover, web-based email services such as Gmail, Yahoo! Mail, and Hotmail tend to provide large email storage space (250MB – 1GB). The assumption is that more storage capacity encourages the user to keep more unused emails. The Hypotheses are as follows:

- H1: Categorization using views allows users to manage email more efficiently than categorization using folders.
- H2: Grouping together emails in the same conversational threads allows users to locate emails in the same conversational thread faster than not grouping them together.

## CHAPTER THREE: METHODOLOGY

### Participants

The participants in this study were selected as average web-based email users. There were 15 participants for each of the chosen email services which evaluate the new email prototype. Each participant was assigned to evaluate only total amount of participants in this study was 45 persons. The entire population of web-based email users in general is diverse, in terms of experience, age, amount of usage, or even culture. In this study, all of the participants were Indiana University–Purdue University Indianapolis (IUPUI) undergraduate students and graduate students. According to the IUPUI Web site, there are over 29,000 students attending IUPUI representing 49 states and 122 countries.

.....*continued*.....

### Treatments

Each participant was given a selected web-based email service to complete the time-on-task testing. One selected web-based email service was the new prototype created after the evaluation of the existing web-based email services. Due to the time and budget limitations, the web-based email evaluation focused on two selected email services, which were Yahoo! Mail and Gmail. These two email services provide different inbox interfaces that should be evaluated and compared.

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## Procedures

The methodological approach consists of the following steps:

Phase 1 – Evaluation of Yahoo! Mail and Gmail:

1. Questionnaire
2. Time-on-task and think-aloud technique
3. Follow-up interview session

Phase 2 – Development of the new email prototype:

1. Analysis of the users' performance and preferences
2. Development of the web-based email prototype

Phase 3 – Evaluation of the new email prototype:

1. Questionnaire
2. Time-on-task and think-aloud technique
3. Follow-up interview session
4. Post-task questionnaire

The users were involved only in Phase 1 and 3. Phase 1 was for collecting data from users to support the design of the new web-based email prototype. Phase 3 was for testing the new prototype. Terms used in the questionnaire were different according to the service the user was testing. For example, Gmail used the term anytime and users' private information such as name, actual email messages, and actual email screens were not seen or recorded. Since email is an activity that requires privacy, all of the steps that involve users were conducted in individual sessions. ....*continued*.....

## Data Analysis

The analysis of results from usability testing provided significant information that supported the design of the new web-based email prototype. The same analysis was applied for the evaluation of the new prototype. The analysis Statistics methods used in this study consisted of basic descriptive statistics (Mean, Median, and Standard Deviation) and Mann-Whitney U Test.

### *Mann-Whitney U Test*

The Mann-Whitney U Test is the nonparametric test employed with ordinal data in a hypothesis testing involving a design with two independent samples indicates the groups are different. The Mann-Whitney U Test is based on the following assumptions: 1) Each sample has been randomly selected from the population it represents, 2) The two samples are independent of one another, and 3) The original variable observed (which is subsequently ranked) is a continuous random variable.

### *Details Concerning the Mann-Whitney U Test<sup>3</sup>*

Unlike other methods such as t-test and Analysis of Variance (ANOVA), the Mann-Whitney U Test does not require normal standard deviation for the analyzed data. Based on the assumptions of the Mann-Whitney U Test, it was appropriate to use this method to determine whether differences exist

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<sup>3</sup> This is the third level of sub-head. The fourth level should be the same except it should be indented the same as each paragraph.

## CHAPTER FOUR: RESULTS

The results are reported in three main sections. The first section presents the results from Phase 1, the second section presents the results from Phase 3, and the last section presents a comparison of performance from the time-on-task studies in Phases 1 and 3. Phase 1 was the user study on Gmail and Yahoo! Mail. Phase 3 was the user study on the new prototype. No results are reported from Phase 2 because it involved only the development of the new prototype. The development of the new prototype is discussed in the Treatment section in Chapter Three. Detailed comparison of the time-on-task performance and Mann-Whitney U Test results are discussed in the last section...

### Phase 1

Phase 1 was designed to study the interface of Gmail and Yahoo! Mail. Users' performance and preference results from phase one were analyzed before creating the new prototype in Phase 2. Phase one users had to finish the user profile questionnaire (reported in Participants section in chapter three), a time-on- related to the user's experience from the time-on-task study and the user's personal preferences related to using web-based email services.

### *Time-On-Task Results*

After finishing the questionnaire, users participated in the time-on-task session. Each user performed five tasks related to email categorizing, email searching, email prioritizing, conversational thread and task management. Results are displayed in Table 4-1. *continued*.....

<b>General Internet Experience</b>		<b>Users</b>	
		<b>N</b>	<b>%</b>
<b>Internet Usage ( Years )</b>			
	1-2	15	50
	3-4	9	30
	5-7	4	13.3
	8-9	2	6.7
	More than 9	0	0
<b>Computer Usage at School (Hours/Day)</b>			
	Educational	14	46.7
	Games	11	36.7
	Different type of Entertainment	1	3.3
	Movies & Music	4	13.3

Table 4.1 User's General Internet Experience

## CHAPTER FIVE: DISCUSSION

This section discusses the results reported in the previous section, beginning with the explanation of outcomes from the user studies on Gmail, Yahoo! Mail, and the new prototype. Then there is a discussion of the implications from the results on email overload and the hypotheses proposed in the research question.

### Explanation of Outcomes

The comparison of Gmail and Yahoo! Mail provides significant results that support the development of the new web-based email prototype. There are both advantages and disadvantages of Gmail and Yahoo! Mail.

Gmail users performed well in the time-on-task study. It might be due to Gmail developers try to apply many new email features such as conversational perform useful features, it is difficult for the Gmail developers to keep the interface as user-friendly as current web-based email services like Yahoo! Mail.

### Implications of Results of Outcomes

Yahoo! Mail interface was considered user-friendly by most of the Yahoo! Mail users. Buttons and menus are easy to understand. Users are familiar with the use of folder structure since it is the same as a computer's file structure. While Yahoo! Mail designers keep the interface easy to use, they miss the opportunity to apply some new useful features. Since Yahoo! Mail users in the real world are very broad, Yahoo! Mail designers cannot make many changes and adjustment in a short period of time. Gmail is still in beta version so that the ...

.....*continued*.....

## CHAPTER SIX: CONCLUSION

The email overload problem occurs because users use email service in ways for which it is not designed. One cause of email overload is that there are too is not full. Solutions for this issue include the good email categorization strategy and the utilization of a search function. Conversational threads in email also cause the overload problem.

.....*continued*.....

### Limitations

Due to the limitations of time and budget of this study, participants in this representing email users in this study were 45 IUPUI undergraduate and graduate participants in this study. With a larger sample, more reliable statistical techniques could have been used to draw generalized results. ....*continued*.....

### Future Research

A number of potential investigations present themselves. First, if there is not much limitation on time and budget, there should be more .....*continued*.....

### Summary

The study addressed causes and results of email overload, and then measured the email user study data with qualitative and quantitative approaches. The data were then analyzed using various methods. Finally, the new prototype was developed to show how the web-based email can handle the email overload problem

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(APA format must be use for ALL HCI thesis. However, all other informatics disciplines should follow their departmental requirements.)

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- .....*continued*.....

## APPENDICES

## Appendix A: Pre-Test Questionnaire

*For the Participants, actual online questionnaire can be accessed at  
<http://www.chatreez.com/hci/questionnaire.php>*

FIRST NAME (only): \_\_\_\_\_ User Code: \_\_\_\_\_ Date: \_\_\_\_\_

### General Information

---

1. Age             $\Delta$  18-25             $\Delta$  26-35             $\Delta$  36-45             $\Delta$  56-65
2. Sex             Male             Female
3. Occupation    $\Delta$  Undergraduate student    $\Delta$  Graduate student    $\Delta$  University Faculty

### Computer and Internet Experience

---

4. What kind of computer system do you use?     $\Delta$  Microsoft Windows  $\Delta$  Apple Macintosh
5. How long have you been using computers (years)?     $\Delta$  1-3     $\Delta$  4-6     $\Delta$  7-9     $\Delta$  10+
6. How many hours each day do you use a computer?     $\Delta$  1-3     $\Delta$  4-6     $\Delta$  7-9     $\Delta$  10+
7. How long have you been using the Internet (years)?     $\Delta$  1-3     $\Delta$  4-6     $\Delta$  7-9     $\Delta$  10+
8. How many hours each day do you use the Internet?     $\Delta$  1-3     $\Delta$  4-6     $\Delta$  7-9     $\Delta$  10+

### General Email Experience

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9. How long have you been using email (years)?             $\Delta$  1-3     $\Delta$  4-6     $\Delta$  7-9     $\Delta$  10+
10. How many times each day do you check your email?  $\Delta$  1-3     $\Delta$  4-6     $\Delta$  7-9     $\Delta$  10+
11. How long does it take you to access your mailbox each time (minutes)?  
       $\Delta$  1-5     $\Delta$  6-10     $\Delta$  10-15     $\Delta$  15-20     $\Delta$  20-25     $\Delta$  25-30     $\Delta$  30+
12. Do you use email client software?                             $\Delta$  Yes  $\Delta$  No
13. If yes, please specify:                                         $\Delta$  Outlook     $\Delta$  Other
16. How long have you been using your current web-based email (years)?  
       $\Delta$  1-3  $\Delta$  4-6  $\Delta$  7-9     $\Delta$  10+
17. Which area you use web-based email for?  
       Personal     $\Delta$  Study     $\Delta$  Work     $\Delta$  Other \_\_\_\_\_

.....continued.....

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## Appendix B: Usability Test Script

More stuff...

## Appendix C: Other

More stuff...

## Appendix D: Other

More stuff...

VITA

(Keep the Vita to one page)

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Etc.....