Chapter 11
User Perceptions and Employment of Interface Agents for Email Notification: An Inductive Approach

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ABSTRACT
This study investigates user perceptions and employment of interface agents for email notification to answer three research questions pertaining to user demographics, typical usage, and perceptions of this technology. A survey instrument was administered to 75 email interface agent users. Current email interface agent users are predominantly male, well-educated and well-off innovative individuals who are occupied in the IS/IT sector, utilize email heavily and reside in an English-speaking country. They use agents to announce incoming messages and calendar reminders. The key factors why they like to use agents are perceived usefulness, enjoyment, ease of use, attractiveness, social image, an agent’s reliability and personalization. The major factors why they dislike doing so are perceived intrusiveness of an agent, agent-system interference and incompatibility. Users envision ‘ideal email notification agents’ as highly intelligent applications delivering messages in a non-intrusive yet persistent manner. A model of agent acceptance and use is suggested.

INTRODUCTION AND LITERATURE REVIEW
The purpose of this study is to empirically investigate how people utilize and perceive interface agents for electronic mail notification. Interface agents are software entities that are continuous (long-lived), reactive (adapt their actions depending on an external environment), collaborative (collaborate with users, other agents or electronic
User Perceptions and Employment of Interface Agents for Email Notification

processes), and autonomous (independent). They act as an intermediary between a user and a system, and communicate directly with the person by offering assistance in computer-related activities (Detlor, 2004; Lieberman & Selker, 2003; Serenko, 2007a; Serenko & Detlor, 2004; Serenko, Ruhi, & Cocosila, 2007). Interface agents may be included in most software applications, including email systems (Maes, 1994; Serenko, 2006).

Email has turned into one of the most successful computer applications ever designed (Lucas, 1998; Sproull & Kiesler, 1986). However, as the volume of communication and the variety of tasks grow, today’s email systems fail to provide an adequate level of user support for many routine tasks, especially for message searching and filing. People feel overwhelmed with the volume of textual information received. For example, when a person receives a new message in Outlook, he or she has to interrupt the current task to screen or read the message.

There are ways to improve email systems. One viewpoint is that a conventional text-based direct manipulation interface is a major source of users’ dissatisfaction with their email tools (Ducheneaut & Bellotti, 2001) and that interface agents may provide a possible solution to address email challenges. Interface agents may potentially address some shortcomings of the contemporary email systems by meeting actual user needs, offering value-added services, implementing new approaches, automating complex or routine tasks, improving system interfaces, and enhancing an individual’s experiences with email applications.

There are at least five categories of email related assistance which may be provided by agents (Gruen, Sidner, Boettner, & Rich, 1999):

1. Pre-Processing – an agent processes a message to present it in the most efficient way to the user;
2. Filtering / Prioritizing – an agent filters out incoming mail and ranks it in order of importance;
3. Adding Relevant Information – an agent supplements a message with additional relevant information; for instance, the sender’s affiliation;
4. Delegating Complex Tasks – an agent performs a series of complex or repetitive steps in response to a single high-level request by directly manipulating the system; and,
5. Inferencing – an agent makes suggestions and recommendations which are based on a user’s profile; for example, points out information a user might consider significant.

In addition to these types of support, agents may help users integrate their email systems into various computer applications, facilitate the use of email with new devices, trace the status of all messaging and work related activities, generate automatic responses, and add interactivity and emotions to convey equivocal information.

In spite of a number of initiatives that aimed to develop interface agents for email, there are very few end-user applications that are actually available on the software market. Most previous projects focused on the creation of models and prototypes of email interface agents rather than on the development of ready-to-use commercial products. Even though there are several successful applications, for example, CoolAgent (Bergman, Griss, & Staelin, 2002) or SwiftFile (Segal & Kephart, 2000), very few products were made freely or commercially available to all email users. Interface agents for email notification represent one of the earliest applications that have already been commercialized. The goal of these systems is to inform individuals about the current state of their email (Libes, 1997). Recently, developers have started designing add-on interface agents for some email clients.

There are several challenges that all email agents researchers currently face (Dehn & van Mulken, 2000). First, most research initiatives in this area are disparate and independent from one another which often results in the duplication of