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Severity and impact of computer user frustration: A comparison of student and workplace users

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Abstract

User frustration with information and computing technology is a pervasive and persistent problem. When computers crash, network congestion causes delays, and poor user interfaces trigger confusion there are dramatic consequences for individuals, organizations, and society. These frustrations, not only cause personal dissatisfaction and loss of self-efficacy, but may disrupt workplaces, slow learning, and reduce participation in local and national communities. Our exploratory study of 107 student computer users and 50 workplace computer users shows high levels of frustration and loss of 1/3–1/2 of time spent. This paper reports on the incident and individual factors that cause of frustration, and how they raise frustration severity. It examines the frustration impacts on the daily interactions of the users. The time lost and time to fix problem, and importance of task, strongly correlate with frustration levels for both student and workplace users. Differences between students and workplace users are discussed in the paper, as are implications for researchers.

Keywords: User frustration; User interface design; Training; Helpdesk; Computer experience; Computer anxiety

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1. Introduction

Everyone is familiar with computer problems and the ensuing frustration that results when, yet again, your program crashes with no warning, taking the last 30 min of work with it. Pop-up advertisements that mimic typical error messages can be both misleading and frustrating. Dialog boxes that are written in a confusing manner can also lead to lost work. Frustration can be defined as when the computer acts in an unexpected way that annoys users and keeps them from reaching their task goals. Frustration is a common theme among computer users who must deal with many annoying delays, incompatible files, and indecipherable menus. Frustrating experiences could be alleviated if more attention was paid to designing interfaces that typical users can understand.

These challenges are well-known by individual users, but less is known about the causes and effects of these frustrations. How much time is lost on a daily basis as we struggle with our machines? How do these experiences affect our mood, our days, our being? What role does our prior experience with technology play? Which factors reduce the level of frustration? In addition, how do these frustrating experiences impact on family, community or workplace?

We believe that user frustration is a significant issue that is closely tied to the digital divide. Even if universal access to technology is attained, users will still have to struggle with poorly designed computer interfaces (Kling, 2000). For the effective use of technology, careful attention must be given to documentation, tutorials, training, online user assistance, and helpdesk support (Lazar and Norcio, 2001). Kling (2000) recognizes that easy-to-use interfaces, user support, technical skills, and a network of people who can help, are part of the *social access* to technology, as opposed to technological access. Even with the most up-to-date hardware, software and network connections, users may still find poorly-designed technology hard to use (Kraut et al., 1996). Simply providing the technology to economically disadvantaged individuals is not enough; successful bridging of the digital divide requires improved designs (Kling, 2000). In addition, previous research has shown that the quality of the network connection plays a role in causing or reducing frustration (Ceaparu et al., 2004; Lazar et al., in press).

The community networking and software project developed at MIT for the residents of Camfield Estates, a low-income housing community in Roxbury, MA, is a good example of using technological resources to improve the economic situations and overall lives of people (Pinkett, 2002). Successes can only occur when users have well-designed systems that are not frustrating, and support to utilize the technology effectively.

This exploratory study examines the factors that influence the experience of frustration in computer usage. The computer frustrations of 157 users (107 students, 50 workplace users) are examined through modified time diaries. Individuals' prior experiences, psychological characteristics, level of computer experience, and social system are all examined to determine how they influence the frustrations that users face with their computers. In addition, factors such as the importance of the task that was interrupted, the frequency of occurrence (both of same and different frustrations), and the amount of time or work lost as a result of the problem are also examined to determine how they affect