

Understanding Physicality on Desktop: Preliminary Results

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ABSTRACT

This paper describes the functionality of desktop from users' perspectives. The preliminary results update and extend earlier studies carried out in 1985 and 1995. The study is aimed at investigating users' organizational habits across their workspace by comparing the structure of their document, email and web bookmark. We found that desktop serve more functionality such as availability, permanent location as visibility and security and safety.

Keywords

Desktop, functionality, organizational habits, users' perspectives.

INTRODUCTION

The desktop metaphor whilst presenting digital objects also clearly borrows from the users understanding of the physical. Ghazali and Dix [3] discuss various properties of physicality: directness of effect, locality of effect and visibility of effect, some of these are preserved in the desktop whilst others are violated (e.g. transferring of the main documents folder to 'Trash'). In addition other aspects of physicality, in particular spatial location and layout, are critical for the desktop. Through its visibility and availability the desktop acts as an area for rapid access to applications and documents, and as a reminder prompting action. However, also it has the potential for clutter and where issues of privacy and security surface.

In order to study these issues, we conducted interviews discussing with people how they work, organize and retrieve their information on the desktop, in folders, in emails and in web bookmarks. In this paper, we present selected results of these user interviews that showed why the 'physical' properties of digital objects are important in performing their tasks in the desktop metaphor.

A variety of studies exist that address aspects of paper based (e.g. [4, 6, 7] and electronic office organisation (e.g. [1]). In addition studies about refinding information in three important domains such as folders, emails and web bookmarks are growing (e.g. [2, 5]), however, these have not addressed the relationship between each of the domains and the broader information lifecycle.

We report on selected results of our interview study, focussing on the following points:

- i. Confirmation of previous results relating to the reminder and temporary holding area function of the desktop.
- ii. Whether desktop clutter is a problem.
- iii. Individual user preferences relating to 'physical' features of the desktop.

APPROACH AND PARTICIPANTS

We conducted a semi-structured interview on 17 computer users with different backgrounds. The average time taken was 45 to 60 minutes. During the interview sessions, we prompted the users to show us and guide us through their desktop screen, folders, emails and web bookmarks. In the case of email many of the users used several email clients for different purpose; they were asked about all, but focused on the most heavily used client. The interviews addressed several sections:

- the description of their job, age and area
- their computer skills (how well they used popular applications and Internet) by giving a ranking from 1 (low skill) to 5 (high skill)
- description of the OS and browsers
- the description of their management and organization of their desktop, folders, emails and web bookmarks
- methods and strategies they named their folders, methods and strategies retrieval process
- the usage of their search tools in desktop, emails and web bookmarks
- problems and wish lists of what they would like to make their tasks easier
- relationship of information inside desktop, folders, emails and web bookmarks.

In order to help them articulate their answers, we helped the users when they got stuck on certain questions by asking them to clarify certain information or offering examples.

Table 1 shows the distribution of users' backgrounds. All users are in the age range 20 to 40 years old. They have been using computers for more than five years. All the users are highly skilled in using MS Office applications. All users use Windows XP as their OS. However, none of the users used other tools to help them manage their

information (except for what was provided by the system 'out of the box'). All users use XP as their OS.

Area	Phd	Master	Researcher	Academician
Computing	8		2	1
Management	2			
Quality and Reliability		1		
Linguistics	2			
Total	12	1	2	1

Table 1 Distribution of participant main area.

PRELIMINARY RESULTS

The interviews are now completed and transcripts have been made out of the data. We have found several interesting results from our preliminary analysis of the data and have identified several exciting answers to analyze in more detail.

When asked why the folders are on their desktop, our results confirmed previous studies [1, 6] that showed the desktop is used for its reminding function and as a temporary holding area.

All users reported that the most frequently used applications are on the desktop. This served not only as a temporary holding area, but a permanent area at permanent location. As one user commented that *"I like the computer to lock the position where I arrange my icons before. I hate to see it back to the default position, because I know where the things are before."* Note that this user is borrowing from understanding of real space, but is frustrated when the virtual objects do not behave 'physically' when the computer crashes and their positions are reset.

Users varied in the balance they drew between the visibility of folders and icons on the desktop and the level of clutter they would tolerate, just as with physical desktops. One user reported that she used different areas of the desktop for applications, for things waiting to be printed, for work in progress. However, she also used different ways to keep the desktop relatively uncluttered. As reported by another user *"...all my icons application will be on my left side, and somewhere not in the middle but in between I put my documents to be printed out, and quite in the middle is current folder which I am working at the moment"*. In contrast another user had virtually every file on the desktop despite high degree of clutter, although like the first user above he was able to know where files were based on location. He commented *"...I just want all my files to be there, my current folder and my long term folder for me out of sight out of mind syndrome will occurred..."*.

Another interesting answer as to why we put things on desktop is that users prefer to act based on single click activity. They do not want to click on too many programs as commented by one user. *"...I like about one click concept,*

for example I put my Working folder on my desktop so that when I want to do my work in that folder I just easily click on it, rather than select Start, chose My Document and so on...." This use of the desktop space to make commonly used things available was also mentioned by another user *"...I have two types of application on my desktop. One which I always use such as IE, Real Player and et cetera...."*.

The same user continued *"... the other one which I consider not important and for me If somebody putting something on desktop, they want other people to see too, I do not feel so insecure about my information."* Here the user had concerns about security and privacy as the machine in question was used by other members of the family and house guests, she therefore did not want her document folders to be on the desktop and easy to open, view or corrupt.

This desire for security and privacy is clearly in conflict with availability, just as in the physical world. However, the above user said that on her laptop, where other users did not have (real) physical access to the machine, the virtual 'physical' space of the desktop was used for folders with work documents in them.

Whilst many users exploited the virtual 'physicality' of the desktop, answers from two users without a computing background revealed that they didn't know that the desktop could be used to store folders etc. Whilst for experienced users these are 'natural' for these users the properties of the desktop were not clear and so they were not able to appropriate it to serve in its reminding and temporary holding function. When, as part of the interview process, we told them and showed examples putting documents on the desktop, they could immediately recognise the potential benefit. In both cases they reported that another member of the family was the organiser of the desktop *".... I am afraid to delete anything on desktop, and my husband or my son who will organize things on my desktop. I only know it is there and that is it..."*

CONCLUSIONS

Physicality on desktop does not only suffice as reminder and temporary holding area. It functions as fast easy access and sharable application and folders among others. On the other hand, these two other factors need further investigation. Majority answers about physicality of their folders act as reminder and the temporary holding area which we think that physicality on desktop need to be improve to serve more function to users. At the same time the physicality must be able to trade off with other factors such as cluttered and effort which user take to manage their desktop. Surprisingly, users in Linguistics area who are not fully exposed to computing skills need to be educated about the function of the application. Technology is not only for technical people but also serve all human kind.

Desktop 'physicality' based on our study, highlight several issues such as availability of most frequent icons and working documents, the balance between cluttered and visibility of icons, security, and privacy of information appeared on desktop.

There are several suggestions from users about desktop physicality. One was to make it easier to alter the appearance of icons relating to active work, for example larger icons for the working folder. Another suggestion related to the use of screen areas for different functions. Whilst very flexible the computer does not 'know' about them. It was suggested that if these could be explicitly defined, then the system could use this, for example to save different kinds of document to different areas. These highlights an interesting tension between flexibility allowing user appropriation and explicit semantics allowing the computer to share these meanings, just as another human might.

In future, we are going to analyse the visibility and 'physicality' of folder reside in My Documents or any other folders in the root directory. Among the questions that we like to ask are: How they relate to the one on the desktop? Why certain participants prefer this way and not the other way. What do they want from user interface to facilitate their work activities?

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