

Traditional vs. Pull-Down Menus

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INTRODUCTION

Human interactions with computers are often via menus, and “in order to make information retrieval more efficient, it is necessary that indexes, menus and links be carefully designed” (Zaphris, Shneiderman, & Norman, 2002, p. 201). There are a number of alternatives to menus, such as icons, question-and-answer formats, and dynamic lists, but most graphical user interfaces are almost entirely menu-driven (Hall & Bescos, 1995). Menu systems have many advantages. For example, Norman (1991) identified low memory load, ease of learning and use, and reduced error rates as advantages of menu-driven interfaces. They frequently form the main part of a WYSIWYG (What You See Is What You Get) interface, providing most of the functionality in the more common operating systems such as Microsoft Windows. Consequently, familiarity also can be added to the list of advantages of using menus when accessing computer systems. These aspects are particularly important when considering public-access technologies, where individuals from across the population exhibiting a range of ages, skills, and experience levels will attempt to use the systems. Further, training or the opportunities for training will be minimal and, most likely, non-existent.

BACKGROUND

Two main types of menu designs are commonly found: traditional and pull-down. Traditional menus occupy the whole screen. Secondary and further menu levels also appear and, again, take up the whole screen. Once the final option choice has been taken, the screen is cleared for work. This type of menu is common in public access technologies such

as cash points and multimedia information kiosks. Traditional menus are thought to be easier for first-time/novice users, because they are explicit in terms of operation. This is in contrast to pull-down menus, where operation is usually via a mouse or the enter and cursor keys. Pull-down menus have an initial main menu in the form of a bar at the top of the screen from which further lists of options may be seen and selected, thus leaving the majority of the remaining screen area for other purposes. This comprises their primary advantage: the user is able to stay in the same workspace/screen. However, this form of cascading menu hides information until the user activates the menu item, which can be viewed as a disadvantage (Walker, 2000). Pull-down menus form the main method for option selection in the most commonly available packages from Microsoft and Macintosh. There are a number of variations of pull-down menus. For example, horizontal and vertical menus (Dong & Salvendy, 1999) and split and folded menus (Straub, 2004). Split menus present frequently accessed items at the top of the menu, while folded menus give the high frequency items first and on their own. After a short delay, the complete menu appears.

The comparison of traditional and pull-down menu types has been a somewhat neglected area, with much work focusing on the comparison of menus with other styles of interface, such as command languages (Mahach, Boehm-Davis & Holt, 1995). As a further example, Benbasat and Todd (1993) compared icons with text and direct manipulation with menus. Direct manipulation was defined in this context as the “physical manipulation of a system of interrelated objects which are analogous to objects found in the real world” (Benbasat & Todd, 1993, p. 375). These objects are usually represented as icons. Benbasat and Todd (1993) found no differ-

ence between the use of icons and text, and a speed advantage of direct manipulation over menus. This advantage, however, was diminished when the task was repeated for a third time, indicating that there may be a learning effect occurring in menu interactions. However, studies such as this do not serve to indicate the basic type of menu layout that is most beneficial to the user.

Given the importance of navigation in computer-based tasks, many studies have been carried out on menu design. For example, Yu and Roh (2002) investigated the effects of searching using a simple menu with a hierarchical structure, a global and local navigation menu, and a pull-down menu. They found search speeds differed significantly, with the pull-down menu being faster than the other two.

Carey, Mizzi, and Lindstrom (1996) compared traditional and pull-down menu formats and found that experienced users completed menu search tasks faster than novice users, regardless of the menu style used, although there was no significant difference between the two user groups in the number and type of errors made. The traditional menus elicited fewer errors than the pull-down menus for both experienced and novice users, but there was no time difference for task completion between the two menu types. Carey et al. (1996) also found that users preferred the traditional style menu, with this preference being stronger for novices than for experienced users. They suggested the fact that using a cash point application may have skewed the results in favor of the traditional menus due to a familiarity effect. A further bias in favor of the traditional menu condition lies in the fact that it required fewer key presses per transaction than the pull-down menus. This is an intrinsic feature of the two menu designs—the pull-down system by definition will require an additional action at the start to open the menu from the top of the screen, while the traditional menu would already be occupying the majority of the screen.

Bernard and Hamblin (2003) compared cascading menus in horizontal and vertical forms with a categorical indexed menu design. Although the terminology is different, the categorical indexed menu appears to be equivalent to the traditional menu, and the cascading menus seem to be pull-down menus. They found that searching was faster using the

indexed menu than the cascading, pull-down menus. Their results indicated that using a categorical menu would be 4.27 minutes quicker when accessing 40 pages on the Internet. (This figure was derived from Nielsen [2003], who suggested that a user accesses 40 pages of information in a typical surf of the Internet.) Bernard and Hamblin (2003) also found that the indexed menu was preferred by participants who chose this design more as a first choice over the two cascading menu designs.

In a study we conducted comparing traditional and pull-down menus with older and younger adults, time differences between the menu types were found for both age groups, with traditional menus eliciting shorter times than pull-down menus. Carey et al. (1996) found that traditional menus elicited fewer errors than pull-down menus and found no evidence for their hypothesis that experienced users would commit fewer errors than novices. The difference in error rates between the menu types was replicated in our work, although the effect was only present for the older age group.

In terms of participant opinions about the two menu types, younger respondents expressed a preference for pull-down menus; older adults preferred traditional menus. Both menu styles were shown to be easy to use by both age groups. There was one significant difference—young participants found the traditional menus hard to search by trial and error compared to their ratings for pull-down menus and to the older adults' ratings of both menu types. This may have been because younger participants are more familiar with pull-down menus. However, this finding is not supported by Bernard and Hamblin (2003). Their participants were relatively young with a mean age of 32.6 years ($SD = 8.2$) but indicated a preference in use for the indexed menu.

FUTURE TRENDS

These experimental studies have demonstrated a number of points. First, older adults were more disadvantaged in their use of pull-down menus compared to traditional menus, relative to younger adults. This was true of the time taken to complete the task, the number of errors, and the steps required. Secondly, the type of searching used by participants in

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