

Reading and searching information on small display screens

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Abstract

The presentation of books and Web pages in small screens is growing rapidly, even though there are several problems with input and output of pocket computers. With a continuous search tasks the effect on information retrieval of five factors was examined: computer type, character size, target position, method for list advancement, and direction of movement. Participants had to search for target characters among distracting characters on pocket and notebook computers. Response speed and accuracy were measured. Participants scanned faster from a laptop than from a pocket computer (a Personal Digital Assistant, PDA), and paging was a somewhat better method for text advancement. Several typographical manipulations are suggested that may improve reading and search performance on small display screens. The effect of six manipulations was tested. There were no differences in proof-reading accuracy between formats, but variably indented text was proof-read faster than normal text. Boldface text, vertical text, and five-line display format were preferred formats.

Introduction

Pocket computers (e.g., PDAs) are quite popular. This is not surprising as they have many useful properties (see, e.g., Harvey, 2000; Rodden *et al.*, 1998). They are small and weigh little, they start up quickly, and they have a longer battery life than laptops. In addition, pocket computers provide easy access to the Internet, when they are used during day-to-day activities, they open up new possibilities for collaborative work, and if they are linked to a GPS (global positioning service) unit, they can provide information that is relevant to the user's location.

However, these devices also have several limitations. For example, it has been shown that reading from PDAs is significantly slower than reading from notebook computers (Laarni & Kojo, 2001). Moreover, even though PDAs provide access to the Internet, interacting with Web pages is rather cumbersome. There are several factors that may deteriorate information retrieval on PDAs (cf. Muter, 1996): their

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