

Microscopic analysis of document handling while reading: Classification of behavior toward paper document

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ABSTRACT

We conducted a microscopic analysis of work-related reading to find ways to support reading in the workplace. We obtained empirical data from video recording, concurrent verbal reporting, and retrospective reporting of 18 participants in 10 target types of reading using paper. Using these data, we categorized the ways people interact with paper while reading in detail. We will discuss what kinds of support are required for work-related reading.

Categories and Subject Descriptors

H.5.m [Information interfaces and presentation (e.g., HCI):
Miscellaneous.]

General Terms

Experimentation; Human Factors

Keywords

Paper, Work-related reading

1. INTRODUCTION

Previous studies describe how operability of paper documents can effectively support work-related reading based on observation of work processes [2]. They also describe that electronic media did not support reading sufficiently and could even be a hindrance.

Based on the above, we analyzed in detail which types of behaviors are observed and what kind of functions each action has. By understanding the operability of paper, we can discuss some of its implications toward digital reading device design.

2. APPROACH TO BEHAVIOR CATEGORIZATION

In this paper, we systemized behaviors seen during reading paper

documents. We categorized document handling behavior in detail to understand the characteristics of behaviors that support reading. Details to follow.

Collecting Behavior Examples We did an experiment where we had participants read. We then collected data by observing the subjects' behaviors toward documents, but to categorize them, we also used the thought process and intentions behind the behavior as a reference.

Targeted Reading We selected 10 types of reading that are seen frequently in daily tasks [1].

Subjects This study had 18 participants who were in their 20's or 30's. Six participants were assigned to each of the experiment for 10 types of reading.

3. RESULTS AND DISCUSSION

In Figure 1, we categorized the various examples into behaviors. We observed that individual actions were adaptively used for different purposes or was used for achieving several goals at once. For example, finger bookmarking can be used to flip between two remote pages, as well as to return from over flipping. Also, some participants were using post-its as a bookmark, but also using it as extra space to take notes. These properties made handling paper efficient and intuitive. With this in mind, we should consider the possibility of using the same action for several different functions when applying them to electronic media design.

We will analyze which types of behaviors were frequently observed in each type of reading, based on these categories. By specifying which behaviors are frequently observed, we can identify how each type of reading can be supported.

4. REFERENCES

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