

THE EFFECT OF A CD-ROM INTERFACE ON CHILDREN'S RETRIEVAL PERFORMANCE*

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Since 1985, the number of CD-ROM databases has grown exponentially from a few to over four thousand titles. Different types of CD-ROMs have been produced to satisfy the information needs of various markets including the educational field. Many producers have created their own unique interfaces to retrieve information based on the needs of the targeted audience. One type of educational database is the electronic encyclopedia. Currently, there are several CD-ROM based encyclopedias on the market, one of which is *Compton's Multimedia Encyclopedia*. The unique interface designed for retrieving information from *Compton's* is the subject of this research project. This interface consists of a number of PATHS, including: Idea Search which allows the user to conduct keyword searches, Title Finder consisting of an alphabetical list of article titles, and Science Feature Articles providing a menu for retrieving 20 science articles.

Few researchers have focused their attention on children's retrieval performance. Marchionini and Borgman have recently conducted research in this area. However, since *Compton's* encyclopedia is directed toward the younger audience, it is interesting to examine the effect of its unique interface on children's retrieval performance.

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For the purposes of this study, 48 students from grade six of four public schools in Montreal were randomly selected. These students were divided into two equal groups: Group 1 used the print encyclopedia and Group 2 used the CD-ROM. Each student had to answer four queries. Queries ranged from one term to four terms designed to examine the relationship between the complexity of a query and retrieval performance. Each query may be retrieved by using one of the three paths in *Compton's* interface.

Results of the study show that:

1. Retrieval time distributions between the print group and CD-ROM group were similar and no significant differences between the mean, or median retrieval times were detected.
2. Complexity of the query had a significant effect on the amount of time required by a subject to retrieve a text. Retrieval times for the print group and the CD-ROM group were seven times longer for the four-term query than the one-term query.
3. The number of steps required to retrieve the queries was directly related to the complexity. While all the students in CD-ROM group retrieved the text for the one-term query in one step, only 33% used one step to retrieve the text for the four-term query.
4. No significant correlation was found for either group between retrieval time and the sequence in which the queries were answered.

The overall results indicate that 75% of students in both groups were able to retrieve the texts in under four minutes. While students in the print group relied heavily on the subject volumes, the CD-ROM group utilized a variety of paths available to them. Their choice, however, seemed to be based on the complexity of the query. This study suggests that eleven and twelve-year old children have the ability to use different retrieval strategies to access texts in a CD-ROM encyclopedia. For simple queries, they tend to use a menu-driven interface while for more complex questions the preferred choice is keyword

searching. These findings suggest that educational CD-ROMs designed for younger audience should have a variety of access points to information.

References

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