

POSITION PAPER

The Relationship between a Book's Genre and the Activities it Supports

submitted by

Barbara M. Wildemuth

School of Information and Library Science

University of North Carolina at Chapel Hill

100 Manning Hall, CB #3360

Chapel Hill, NC 27599-3360

wildem@ils.unc.edu

for the

SIGCHI Workshop on

Designing Electronic Books

May 16-17, 1999

Several authors (Yankelovich & Meyrowitz, van Dam, Hsu & Mitchell) have compared print and electronic books. Some of the major advantages of printed books are their portability, that they are cheap to produce, that they are easy to use (i.e., requiring little manual dexterity), and no special hardware or electricity is required for reading them. But electronic books offer some advantages not available in print media: the ability to alter the text, the ability to add animation and other novel displays/media, and the ability to include more sophisticated navigation aids.

These simple comparisons, however, do not take into consideration the tasks for which books are used. In the most simple terms, books are written and published so that an author can communicate to readers. This communication is generally assumed to be *one-way*, in the sense that there is no expectation that the reader will communicate back to the author. (Though it is possible for a reader to communicate with an author, the book as a communication medium does not support such communication.) This communication is also generally assumed to be a *one-to-many* communication, with one author (or a small number of authors) communicating to a large number of readers.

As the concept of the electronic book has developed, the assumption of the book as a medium supporting one-to-many communication from author to readers has come into question. Probably the most influential ideas about the restructuring of this communicative relationship have come from Alan Kay's development of the Dynabook, intended to be interactive through the reader's personalization of the document provided by the original author (Kay & Goldberg, Ryan). The Dynabook would include not only the document text, but also a suite of tools with which the reader could manipulate the text and create new artifacts to accompany the original text.

The development of hypertext systems created the possibility of a new genre of text, not represented in print media. Authors that viewed hypertext as a new step on the evolutionary path of the book include van Dam, who viewed the electronic book as a dynamic database, and Rada, who suggested that author and reader share the responsibility for authorship of hypertext. With the advent of the World Wide Web, through which "any person" could become an author, the variety of text structures has become ever more diverse. Our current conceptualizations of documents include the homogeneous item, i.e., a traditional document; linked heterogeneous items, e.g., several traditional documents linked together as a personalized library; the contextual display of related items, e.g., sets of retrieved documents ranked by subject similarity; and a homogeneous item created by a user, i.e., a growing, evolving hypertext document (Schamber).

I am assuming that the SIGCHI workshop on "Designing Electronic Books" will focus on more traditional genre. In other words, I assume that we will work on design issues associated with effectively representing fairly long sections of linear text. Even within this relatively narrow definition, differences in genre denote differences in the tasks that book users wish to carry out. Examples might be novels (or other fiction), textbooks, manuals, journals, conference proceedings, reports, catalogs, and newspapers (all genre studied by Dillon). In addition to the genre included in Dillon's study, reference books, popular non-fiction such as self-help books, and picture books (both children's books and coffee-table books) might come under consideration.

In his studies, Dillon found that readers did differentiate genre on a variety of attributes, including whether author selection is possible or not, the work is anchored in time or not, there are one or many topics discussed, the work is read serially or non-serially, reading it requires a large or small investment of time, it is objective or subjective, it is read for leisure or work, it has to do with information technology or not, it is navigated by graphics or text, and it is trivial or serious. Using these attributes, the results indicated that the texts can be grouped into three clusters: work-related material, personal reading material, and detailed lengthy reading material. If these are appropriate clusters across a wider range of genre and if they are generalizable to populations other than the professional researchers participating in Dillon's studies, then the design space for an electronic book will be simpler than if each genre has a very distinctive design space.

Another perspective on specifying the boundaries of the design space for electronic books is to focus more closely on the *tasks* being performed. Other results from Dillon suggest that reading encompasses two types of tasks: scanning and serial detailed reading. Findings from the field of reading comprehension (Guthrie & Mosenthal) suggest that locating information in documents (i.e., reading-to-do) is a skill that is distinct from prose comprehension. Annotating and highlighting text are tasks that are performed with print media, and are likely to be necessary functions performed with electronic books. In addition, most authors looking forward to an era of electronic books call for the ability to manipulate the text of the book.

By delineating the tasks performed when interacting with specific genre, the design space for the "electronic book" becomes more complex. If the book is to be a novel, the task involves serial reading, usually at a relatively fast pace and rarely skipping from place to place within the text. If the book is to be a textbook, the task involves serial reading of assigned sections, re-

reading portions of those sections, annotating and highlighting portions of those sections, and later referring back to particular highlighted portions. If the book is to be a manual, the task involves locating the relevant section of the text, skimming that section to locate the particular portion of interest, and careful reading of that portion, generally while interacting with some other artifact. Even this cursory examination of the variety of tasks involved in interacting with each of these genres implies a somewhat different design space for each.

I believe that our task during the workshop is to begin to define a design space that acknowledges the variety of tasks that people perform when interacting with tasks, yet does not become overly complex. To ignore the variation in the tasks to be supported would leave us with an electronic book that would quickly be found to lack support for necessary activities. Yet some abstraction or simplification of the design space will be necessary for general-purpose and flexible reading tools to be developed.

References

- Dillon, A. (1994). *Designing Usable Electronic Text: Ergonomic Aspects of Human Information Usage*. London: Taylor & Francis.
- Guthrie, J. T., & Mosenthal, P. (1987). Literacy as multidimensional: Locating information and reading comprehension. *Educational Psychologist*, 22(3&4), 279-297.
- Hsu, R. C., & Mitchell, W. E. (1997). Viewpoint: After 400 years, print is still superior. *Communications of the ACM*, 40(10), 27-28.
- Kay, A., & Goldberg, A. (1977). Personal dynamic media. *Computer*, 10(3), 31-41.
- Rada, R. (1989). Writing and reading hypertext: An overview. *Journal of the American Society for Information Science*, 40(3), 164-171.
- Ryan, B. (1991). Dynabook revisited with Alan Kay. *Byte*, 16(2), 203-208.
- Schamber, L. (1996). What is a document? Rethinking the concept in uneasy times. *Journal of the American Society for Information Science*, 47(9), 669-671.
- van Dam, A. (1990). Electronic books: User-controlled animation in a hypermedia framework. Paper presented in "User Interface Strategies '91: A Live, Interactive Satellite Broadcast," University of Maryland at College Park (organized by Ben Shneiderman).
- Yankelovich, N., & Meyrowitz, N. (1985, October). Reading and writing the electronic book. *Computer*, 15-30.