A Foundation for the Use of Hypertext-based Documentation Techniques

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Use of hypertext and hypermedia in organizations remains limited. Until hypertext is conceptualized in a workable way for users and developers, its functionalities will remain largely unexplored. In order to address this problem, hypertext is conceptualized as a pyramid with three successive levels of capability: the informational, the experiential (which includes the informational) and the collaborative (which includes both of the preceding levels). Capabilities, current uses, and limitations are discussed for each level. As one travels up the pyramid, fewer and fewer applications are found. In order to foster understanding of each level, case examples of hypertext applications are developed. For the experiential level, an original and innovative application called HyperCase is presented. On the collaborative level an original, internationally-implemented application called SOFTLORE is detailed.

Users are hesitant with hypertext. Hypertext authoring tools and hypertext systems have become widely available over the last few years (Conklin, 1987; Marchionini & Shneiderman, 1988; Minch, 1989; Nielsen, 1990; Ritchie, 1989; Shim, 1992; Straub & Wetherbe, 1989; Rada, 1991) yet use of hypertext in organizations remains limited and its workings are somewhat obscured. Unlike many other new technologies which are immediately seized upon and put to use, much of hypertext’s capabilities remain unexplored.

One possible reason for this lack of acceptance is that without an appropriate and imaginative way to conceptualize hypertext, users and information systems researchers alike have great difficulty envisioning what it is that hypertext enables them to do. In this paper we propose a pyramidal structure for conceptualizing three levels of hypertext: beginning at the bottom most level which is informational, going to the next level, which is experiential (including informational), and the top level which is collaborative (and includes the informational and experiential). Currently, as one travels up the pyramid, fewer and fewer applications are found. Most applications now exist at the informational level. There exists some general categorizations of hypertext systems (see for example, Leggett, J., Schnase, J. & Kacmar, Cleggett, 1990; and Rada, 1991). Because of the associative nature of hypertext, the specificity of the problem domain should be computerized in conceptualizing hypertexts. In our research the problem domain is meta-informational: use and development of consumer-based
information systems. In addition to the domain-specific framework of hypertext systems we provide examples of how each application is currently being used in an organization.

Our problem domain is information systems development and use. Our model is based on human-machine information accumulation (i.e. the FOLKLORE method of Kendall and Losee, 1986) and the experiential learning theory as discussed by Kolb (1984).

In addition, we provide examples of a specific application (some implemented internationally) within each level to facilitate understanding of the ways hypertext functions there. In this way, we hope to support the use of hypertext which is appropriate for many different organizational situations of information systems utilization. In the following sections we propose envisioning hypertext systems as a pyramid with three phases; and we discuss the specific applications which help users and researchers to visualize the capabilities of hypertext.

The Hypertext Pyramid

We propose that the three evolutionary phases of hypertext applications can usefully be conceptualized as a pyramid. Notice that Figure 1 depicts the base of the pyramid as informational applications, while experiential capabilities reside at the intermediate phase. The third phase shows hypertext applications which enable users to participate with each other on projects through collaborative capabilities. It can be noted that currently there are far fewer applications taking advantage of collaborative capabilities, which is one reason it has been depicted in the smallest space, at the top.

Informational Level

In the informational level, at the base of the pyramid, hypertext is used in its most basic, recognizable and widely-used form. Within this level, users query the system, asking for help. Hypertext responds by organizing text and linking multiple nodes of information together (Shneiderman, 1989; Woodhead, 1991). Hypertext allows users to make multiple associations, and to ask, “What is the meaning of a, given b and c?” and all iterations of that question. In the informational level, the capability for non-linear access to information emerges.

Another way to discuss this level is in terms of offering an elaborate help menu. Users then make their desired selections among pieces of stored information, whether they are text or graphics. Other characteristic actions the user can take in the informational level are that of browsing through material; getting on-line reference help; getting a briefing, and getting illustrations of queried material. Applications written for the informational level promote the goals of organization and efficiency for the user.

Experiential Level

In the next level of the hypertext pyramid, more capabilities are engaged. The experiential level enables users to step into a new set of circumstances and experience it interactively. No longer merely browsing, in this level users navigate through an experiential application.

The activities available in this level have been variously described as learning and analysis (Tazelaar, 1988), training (Horn, 1989), applying theoretical concepts (Barnes, Baskerville, Kendall & Kendall, 1992) as well as educating (Kendall & Kendall, 1992). Within the experiential level, users take an active part in discovery. The process and timing of interaction (how users make associations, when, and in what order), as well as which associations users make among graphics and text, be-
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