



EXPERIMENTAL USE OF CLEARFACE

In order to investigate the usability of ClearFace, we implemented it using several layout strategies: (1) fixed location windows (right side, left side, top) and (2) movable and resizable windows. Four subjects used these for the collaborative design of icons, prototype architecture, etc. Each layout was used for about 20 minutes, and the sessions were videotaped. These experiments confirmed that there is little difficulty in visually separating the overlaid video layers (face and drawing surface). When a subject looked at one layer, he/she found it easy to ignore the other. This ability of human perception is accounted for by the theory of "selective looking" [Neis75]. Another interesting observation is that all subjects hesitated drawing over the faces. When users looked at a drawn object behind a face, they did not experience any perceptual confusion. However, when they drew figures or wrote texts on the shared drawing space, they avoided any collision with the face images. Because of this behavior, we concluded that the movable strategy is the best. In the design session, since the drawing on the work window dynamically expands, it is necessary to provide users with the functions needed to move the face images in order to avoid collision.

CONCLUSION

This paper proposed a new multi-user interface design technique "ClearFace". In order to fully use the limited screen space, we devised the idea of overlaying translucent, movable, and resizable face images over a shared drawing window. Through experimental design sessions, the advantage of movable translucent face images was confirmed.

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USABILITY PROBLEMS OF RESIDENTIAL MULTIFUNCTION TERMINALS

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New electronic products touch many aspects of everyday life. With new features, new usability problems also come along. This can be observed in many cases and particularly so in recent equipments in the audiovisual and telecommunication fields. Two examples of this have been analysed through several sets of studies.

THE INTERACTIVE PAY TV TERMINAL & HOME AUTOMATION

With the development of D2MAC (new european TV transmission standard) and Eurocrypt (scrambling standard), access control to Pay TV becomes a telematic function. Provided services count: information on the program being broadcast and on the next ones, impulse and delayed Pay per View, credit and bill control, teletext magazines. The user dialogue is supported by a specific remote control unit and an on-screen display in the TV set. Part of this user dialogue is implemented in the terminal and the other part is transported with the TV signal itself.

In a fully functional residential network, all electronic equipments can be connected to a single home network and to external networks. This allows switching audiovisual and telecommunication flows among terminals. The occurring changes touch all of system levels: physical and functional connection, addressing, remote control and command, conflicts of resource allocation, and the related user dialogue aspects.

USABILITY PROBLEMS, ATTEMPTS TO UNDERSTAND AND SOLVE THEM

Numerous usability problems can be observed on these two examples, at physical, lexical and pictographic, syntactic, semantic levels. But, as the utmost reference for usability evaluation is "real users in real contexts", both the variety of general public users and access to real home situations raise difficulties in this case. Several approaches have been taken by CCETT to analyse these usability problems:

- assessments, in the field and in realistic contexts, of current domestic products such as VCRs and their related users' notices, MINITELs (French videotex terminals) with built-in local mail box and directory,

- assessments of CCETT prototypes at all R&D stages, such as the interactive Pay TV terminal for France Telecom (VISIOPASS),
- experimental study of a command language for home appliances.

Additional features, mixing of services, programmable memory, all generate complexity at user interface level. In some cases, the physical user interface itself is insufficient to support an efficient user dialogue. Most often current mistakes in CHI are to be noticed. However, numerous questions are still pending and being studied, among which: is it possible to leave the internal structure of these new systems completely transparent to the users? what sort of metaphor or mental representation is most appropriate for new multifunction and multiservice terminals?

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HYPERTEXT AND INFORMATION RETRIEVAL

CHILDREN'S USE OF A DIRECT MANIPULATION LIBRARY CATALOG

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The Science Library Catalog project is a component of Project SEED, a hands-on science project for elementary schools based at the California Institute of Technology. The Science Library Catalog has been implemented in the libraries of two elementary schools in Los Angeles and will soon be installed in the Los Angeles Public Library, each with location-specific databases of science and technology materials. Our primary interface is a graphical browsing structure, consisting of a hierarchy of bookshelves based on the Dewey Decimal Classification, implemented in HyperCard on the Macintosh.

We are pursuing two general research questions: (1) What are children's abilities to formulate searchable queries and to implement them in an interactive catalog? How can children's searching behavior be characterized in terms of queries, tasks, search time, and errors? How do characteristics such as age, gender, and computer experience affect a child's ability to complete searches successfully? (2) What are the design considerations in constructing a browsing interface for elementary school children? What developmental stages and learned skills must be considered?

Our methodology includes one-on-one experiments with children (aged 8 to 12) searching the Science Library Catalog and answering questions about its interface, monitoring records of usage both during the experimental sessions and when the system is in normal use in the libraries, and focus group interviews.

Early findings indicate that children are able to use the Science Library Catalog unaided, without prior instruction, and with speed and success rates much higher than anecdotal reports of children's usage of standard online catalogs and card catalogs. In a sample of 72 children at two schools, for example, we found that children found nearly 80% of the 6 topics they were given to search, with an average search time of less than 80 seconds, in databases of