5 EVALUATING INTERFACE DESIGN THROUGH USER DATA COLLECTION

A Study at the Minneapolis Institute of Arts

Lisa A. Nebenzahl
Multimedia Designer
Interactive Media Group
Minneapolis Institute of Arts
USA

This paper examines the effect of user interface and graphic design elements on the visitors use of a program. In order to study these effects members of the The Minneapolis Institute of Arts (MIA) Interactive Media Group (IMG) altered the interface of an existing program and compared user data before and after the change.

The MIA developed it's third in a series of interactive projects in early 1991. The project "From Silver to Silica: A History of Photography" was conceived as an interactive program about the museum's photography collection. Forty photographers and over 300 works of art are included. The project was intended to be located in the photography galleries in the close proximity to the works of art.

Audiences and goals

In 1989 the MIA adopted an extensive plan to integrate interactive, interpretive programs museum wide. One of the main objectives of the increased emphasis on interpretaive materials was to reach non traditional audiences. These audiences were defined as novice visitors with a moderate to high interest in art, but little or no formal education in art or art history (Layton, 1991 and Sayre, 1993).

The MIA defines interactive multimedia as a program which actively engages visitors in accessing audio and visual information. Among the agreed upon criteria is the notion that the interactive project is not an exhaustive survey of the holdings of the museum but rather an overview of the collections. Nor are these projects intended to replace the primary experience between a user and a work of art. The program "From Silver to Silica" was conceived to augment and enhance the other means of exhibition support such as wall labels and guided tours.

Using the positive attributes of multimedia, the photography project was designed to serve several learning styles. It was felt that the linear structure of a slide show was preferred by some users, while others might want to explore a visual database on their own. An interface was created to reflect the four areas of exploration that were identified during content development:

- an overview of the history of photography (**150 Years**)
- a database of the 40 photographers (**Photographers**)
- a timeline/historical metaphor in which to place the photographs (**Yearbook**), and
- an area devoted to exploring the technologies of the medium (**Technology**).

Design issues / interface and hardware

The Graphic Users Interface

The screen design process presented many major questions. Among them were two interface design questions that needed to be addressed: 1) how to keep ample "stage room" for the display of works of art and technical processes while; 2) keeping the "main menu" navigation tools (buttons) always available to the user (Driscoll, 1991). The left column was determined the best place for the navigation tools, the centre stage area determined to be used for both the display of works of art and secondary navigation tools (**Alphabetbook** and **Yearbook**).

Several questions arose about the arrangement of the four buttons. First, in what order should they be arranged? The Director of Education at the MIA felt the strongest about a linear "slide-show" experience and favored placing the **150 Years** button in the top left. This assumed that the user would first take in the linearly presented material before going on to the more interactive databases. The following button, **Photographer's,** was considered the next "logical" area to explore, with the **Yearbook** following and **Technology** being last.

To manage a large amount of text and image material in the photographer and yearbook sections a book metaphor was devised for presenting and imbedding text and image information. The **Photographer's** book contains an alphabetical listing of each photographer, each page corresponds to a letter in the alphabet. The **Yearbook** contains photographs by those photographers arranged chronologically.

Fig. 1 Main screen design

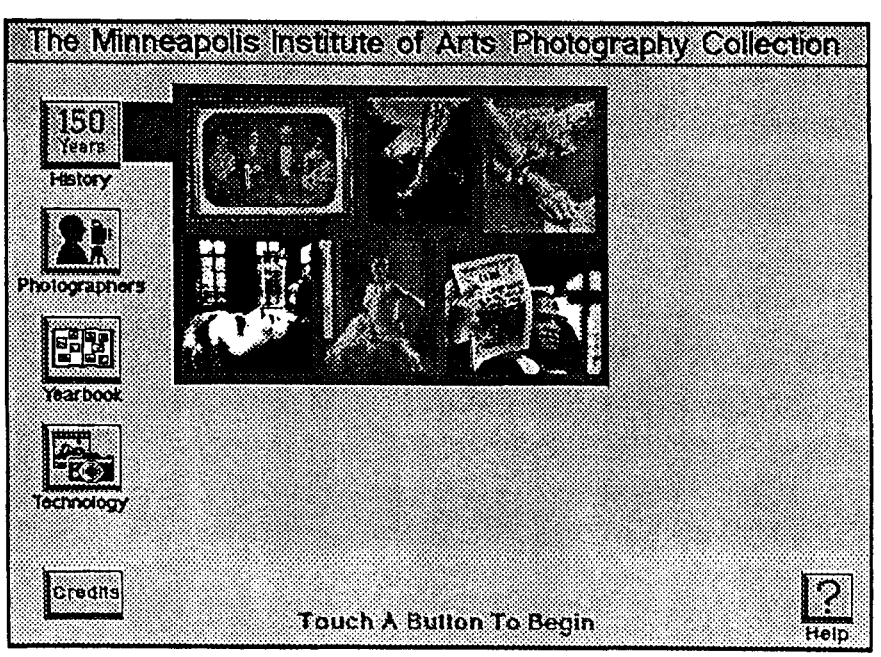


Fig. 2 Photographers Address Book

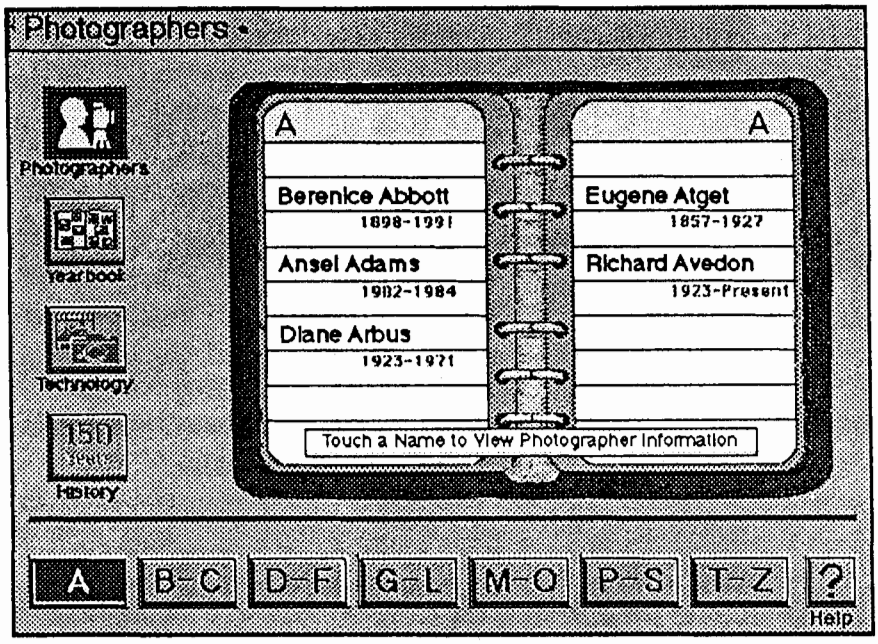
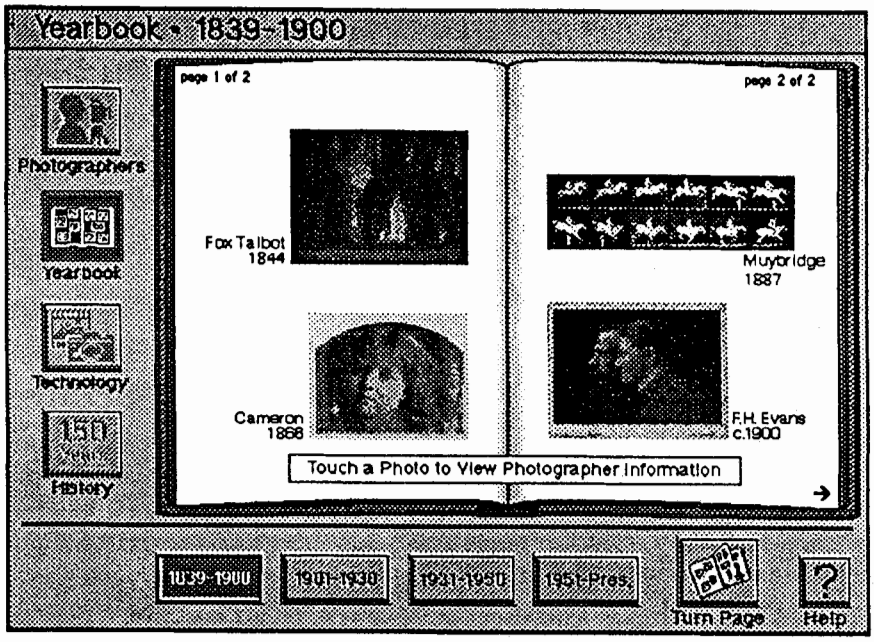


Fig. 3 Photography Yearbook



Hardware considerations

We have made a committment to use touch screen monitors in our installations in order to facilitate users who may not be comfortable using a mouse and/or keyboard. Because of this, screen size and scale design issues needed to be addressed: button size and placement (large enough "touch-areas") text size and placement and "stage-area" for presentations.

User record collection

Using *Authorware Professional* as our authoring software we developed custom scripts to track and retrieve user-data."Touch totals" are gathered on a weekly basis and are used on an ongoing basis to analyse user participation, areas of choice and time spent within each area.

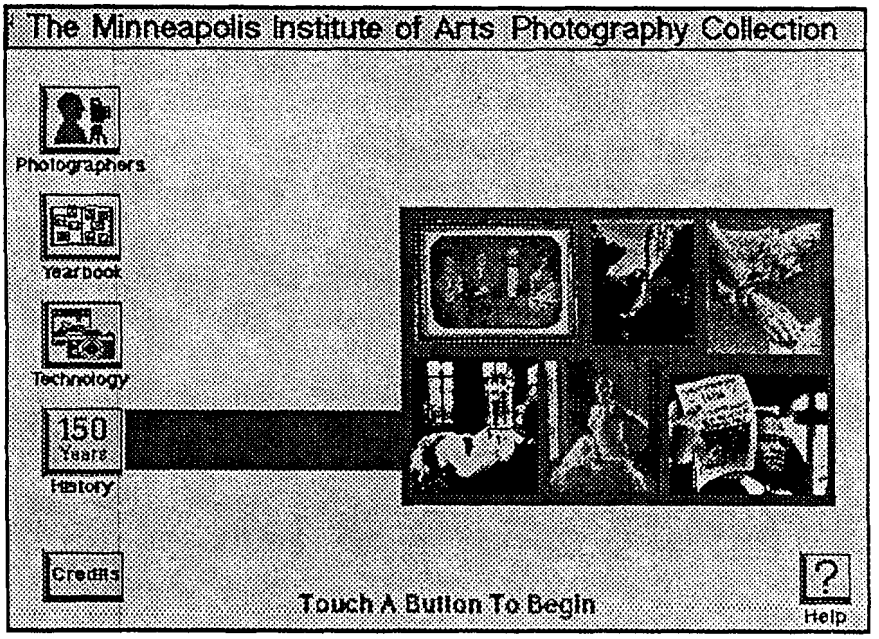
The question

I wanted to test if visitors perceive an information hierarchy related to the placement of interface buttons. Do users respond to buttons on the left part of the screen in a way similar to reading English text top to bottom, left to right?

The experiment

For the purposes of this study, two 30 day periods were compared. During the first 30 days the initial interface design was in place, (Fig.1). During the second 30 day survey period the interface was rearranged to reflect a reordering of the content (Fig.4). Both studies were conducted under the same museum conditions; during open hours and available to all visitors.

Fig. 4 New interface



The Results

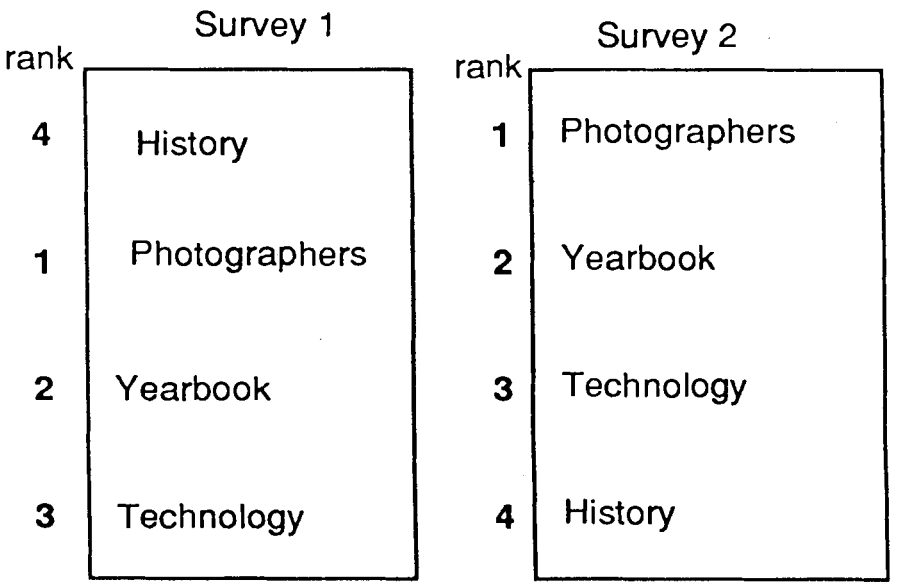
After analysing the touch totals from the four navigating buttons I found that the top button was not consistently accessed first, as had been widely thought. It's access rate fell from 3rd to 4th place after the second interface was in place. The **Photographers** button was accessed the most in both cases. The **Yearbook** was accessed the second most and **Technology** moved from 4th place to 3rd.

Other observations about our interface

When we look at the amount of times the text-based database (**Photographers**) is accessed we see that the farther into the alphabet the less times names are accessed. This might suggest that imbedded information is not as easily accessed.

A more difficult phenomena to interpret is that of the differing results seen when a user seeks information about a photographer through the text database (**Photographers**) and the visual database (**Yearbook**). On a consistent basis photographers whose names are quite well known (e.g. Ansel Adams, Alfred Steiglitz) are accessed significantly more often than the photographs made by them. On the other hand, when a photographers name is not neccesarily considered more recognisable (e.g. F.H. Evans, Fox Talbot) the photograph database is used most often.

Fig. 5 Graph



Questions for further study

- What effect does the name of a button have on the user's decision to try it? In this case one might think that user's are more interested in learning about real people (**Photographers**) than the telling of history. Perhaps the choice of an appropriate button title is the most important aspect for influencing a user's choice.
- Does the act of "ranking" or stacking buttons imply a heirarchy and does the user follow the heirarchy? This study has not conclusively answered this question. However, the combination of button rank, name and image together with the subjective needs and interests of the user all have strong influences on the users decision making.
- Do users prefer all of the information presented to them on the screen at all times rather than having to hunt for imbedded information, as is the case with "page-turning" metaphors? Both book sections appeared to illustrate this trend.

The ability to track the users path and make alterations to screen design allows interactive designers and developers the opportunity to not only learn more about the effectiveness of our work but also allows us to treat our projects as evolving experiments. With the abiilty to be responsive to our research and we can continually refine our products and polish them to best fit the needs of our users.