museum educators. All the Q/A data, including the nuggets, is added by non-technical museum staff with little or no knowledge of HyperCard. Each Q/A card has hidden objects available only to stack authors, for the purpose of adding new trivia ad/or evaluating visitor responses.

The game is very popular. Like "Trivial Pursuits", the original trivia board game invented by four Canadians, it teases the player with minutiae that one can almost remember, or want to remember. Unlike "Trivial Pursuits", it does not stop with the teaser. Once the question has been answered, the player can find out more about specific words or phrases that form part of the question and answer, and get directions to other exhibits that enhance this description—often the aircraft referred to in the question.

The second program, *Plan Your Visit*, is a more direct treatment of the exhibit material, although it too begins with an attempt to find familiar terrain; in other words, the onus is put on the program to find themes or ideas that attract the visitor. In this case, the hook is a series of animated advertisements, each one describing the essence of a particular theme or tour. The visitor can browse through the ads by simply "switching the tv channel," or stop and investigate a particular theme. For each theme there is a experiment, a tour of connected exhibits, hall maps, information about each exhibit, and associated keywords. The themes can tie in with existing physical groupings of exhibits, but in general tend to refer to more fundamental concepts that are inherent to exhibits spread throughout the 100,000 square feet of exhibit space; for example, machines, memories, favourites, materials, light, lifestyle, symbols and so on. The purpose of each theme is to provide a perspective so that the visitor can view some 20 to 30 exhibits from a familiar vantage point, one that may not be obvious from an initial perusal of the exhibits.

Although the default route through the material is via the ad, the repeat visitor or the visitor who arrives with specific interest, can search the database in several ways—hall maps, exhibit titles, and keywords—to find out about the exhibits. Alteratively, a visitor can bypass the routes that lead to the exhibit data and explore the theme itself by performing a simple experiment.

This system was originally planned to be a networked array of Macintoshes distributed throughout the Ontario Science Centre with laserprinters in staffed locations. The staff person in the exhibit maintenance booth would have been responsible for keeping the status of exhibits (out of order, removed, temporary show, demo time, etc.) current. Others were to be responsible for keeping the scientific and technical information up-to-date. This original design would have connected key development people with the most current information about exhibits and the visitor's use of the exhibit database. Unfortunately, budget cutbacks forced a redesign of the system, and the current configuration provides only for stand-alone stations in exhibit halls.

Both the examples described—*Plane Trivia* and *Plan Your Visit*—are geared to visitors who need some assistance in connecting the institution with their personal experience and interests. However, the flexibility of the computer makes it possible also to provide for visitors who have specific questions or want to see a particular exhibit. In short, the computer becomes a kind of personal tour guide shaping the material to individual needs.

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Computers in Exhibitions: Experiences at the Art Gallery of Ontario

To some, the thought of computers in an art museum exhibition is nothing short of heresy. The presence of such technology is seen by many as a direct threat to the "aesthetic" integrity of the art experience. Because of this, the museum community has been slow to develop computer-based learning systems for use in exhibit galleries. Those few institutions pioneering such systems have realized the untapped potential

of computers as well as the serious problems arising from misapplication.

But what are the "right" reasons for computers to be put into art exhibits? The answer to this question requires a critical examination of four different areas: the potential of art to affect people in a meaningful way; the current use of art exhibits by the public; the theoretical capabilities of computers to facilitate human thought processes; and the practical pitfalls of computer-assisted exhibits. This paper will summarize the current understanding, at the Art Gallery of Ontario, of these four areas. Further, a case study of the computer-based learning programs in the AGO's newly-renovated Group of Seven exhibit will offer insight into one institution's response to the challenge of computers in exhibits.

It should be understood from the outset that the AGO's experimentation with computers as educational tools is quite different from many other applications that have been developed recently by other museums. Whereas several institutions have utilized video-disks, CDs and computers to provide access to extensive informational and visual databases, these have not been integrated into the exhibit context, nor have they been designed to function in conjunction with the museum object. The Art Gallery of Ontario's emphasis has been to explore the potential of the computer as a catalyst within the gallery environment that stimulates the interaction between a visitor and an art object. In this way, computers are seen as secondary to the primary focus—the art.

Research into how audiences currently use art exhibits falls well short of providing real insight into what actually happens to visitors during a museum visit. "Why do people visit?" and "What do they get out of a visit?" are important questions that have not been fully answered. If audience research has revealed anything about visitors' experiences of art exhibits, it is that they are generally unfocussed and superficial. "Grazing" is one well-documented phenomenon of museum visitation in which people wander through exhibits, spending only a few seconds with each work of art before moving on to the next. It suggests that the potential for visitors to have personally meaningful experiences with art is largely unrealized. This superficiality appears to be closely linked to a lack of exhibit or object focus during the experience of a visitor. Computers are one means of encouraging this focus.

Computers can provide visitors with a responsive tool for various types of exploration into both the artworks and their own personal reactions to those works of art. When carefully utilized, modern computer technology can engage visitors in a focused looking experience by posing problems, asking questions, providing information, as well as allowing visitors to explore according to their own intuition and interest. Beyond this, text, graphic and audio capabilities of computers expand the potential for multiple interfaces far beyond any other educational medium. In this way, computers have the potential to meet the needs of the wide rage of people and learning styles that exist within the general populace. But computerized exhibits are no panacea!

Many potential problems accompany the use of computers in exhibit. Most significant among these are:

- upstaging of the works on display and leaving the art with even more competition than is the case in the traditional gallery environment;
- the difficulty of developing a useable interface and interactive programs for the full range of publics;
- public fear of computers—computerphobia; and
- anti-computer attitudes—some people believe that museums are one place that should remain untouched by computers.

With all of these considerations in mind, the Art Gallery of Ontario has developed numerous computer-based learning programs for use in a newly-enhanced Group of Seven landscape painting exhibit. Designed to fit discreetly into the exhibit environment, computers are only one of several educational devices (called animation) used in the display. All the animation, which also includes interactive labels, audio systems, signage, photographs and wall panels are non-intrusive and entirely optional. The computer programs are the most ambitious yet developed by the Gallery during the four years that the Adult Programs Department

has been developing computer-based learning programs.

Two Apple Macintosh computers installed in the Group of Seven exhibition, adjacent to the paintings, now offer visitors the choice of exploring a wide range of issues related to the Group's art. The computer programs are contained on IS Hypercard stacks. A trackball is used as the principal hardware interface, with a keyboard available for selected functions (such as an electronic comments book). Among the available options are:

- the examination of single paintings of interest;
- the comparison of pairs of paintings;
- access to information on artistic and literary sources for the Group;
- a electronic comments book;
- a electronic map detailing the sketching locations across Canada of Group members;,
- information on significant events relating to the Group; and
- biographical information on Group members.

Some of the programs are essentially databases with different ways of accessing the information. However, the most innovative parts of the computer initiative are those that direct the visitor's looking process—these are the "single painting" explorations and the "comparison/contrast" stacks.

There are two types of objectives relating to each of these directed looking programs. The first is cognitive and provided the basis for the actual program content. Me second is experiential and relates to the need for a visitor to look closely at the paintings and to see exactly what is there. Together these objectives have led to the selected program structure which aims to focus visitor attention, point out major features and raise central issues for consideration. These programs are not designed to provide information about the artworks as an unimplied prerequisite to viewing. Rather, the educational strategy is more inductive, encouraging visitors to use visual evidence to lead them towards drawing their own conclusions or hypotheses. These can then be compared to an AGO Interpretation that appears at the end of each exploration.

All the AGO programs will be evaluated over the next year to better understand the impact that they have on our diverse audiences. Preliminary evidence shows that visitors are not generally afraid to use computers if they can operate the programs easily, without feeling incompetent. Also, the early feedback from the public is that our experimentation thus far is welcomed with great enthusiasm!

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Guide

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