# The Museum of the Future

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The definition of  a museum is "a building or place where works of art or other objects of permanent value are kept and displayed."[1] It is my attempt in this paper to reveal how museums are currently using technology. From there, I would like to imagine what a "museum of the future" might be like.

Museums currently exist in many different formats. In fact, almost anything has been in or will be part of a museum. There are the museums of art, interactive science museums, natural history museums, photography museums, cartoon museums, and museums dedicated to a particular artist, time period or activity, just to name a few types. What makes a "museum" and why is the public interested in attending them? Conversely, what is it about museums that make visitors not want to attend? What is the role of technology in shaping user attendance?

I am of the opinion that there is a trend in museum design that is leaning towards the sensational. As if all of a sudden, simply "looking" at objects was not enough of an attraction for visitors. With the popularity of arcades and amusement parks, museums have had to compete for visitor dollars. My assumption is that visitors tend to go for the action: money spent for experiencing something entertaining. As the new sophisticated museum patron becomes more and more accustomed to controlling their viewing environment with remote controls at home and joysticks, etc., in arcades, simply reading an exhibit panel and viewing either art of artifact is not going to suffice.

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[1] Editor, Jeff Stein, "The Random House Dictionary," page 591

Museums are beginning to adapt to this new visitor, and have recently begun putting docent type tours on audiotape. Visitors purchase these “audio tours” separate from museum admission, and wear personal stereos as they tour the exhibits. These devices do not exactly enable the viewer to control what they see, but they can “fast forward “ to the painting or object that they want to learn about or rewind the tape and hear a particular lecture over again. I feel that these individual docent tapes are very popular, because they “enhance” the experience of the viewer. In this way, the visitor ends up learning more about the exhibit and is able to control the flow of information. Perhaps its merely the “aural” element combined with the visual that provides a more powerful learning experience for the visitor.

In “The Impact of Interactive Computer Software on Visitors’ Experiences: A Case Study,” the power and flexibility of computer technology in the museum was observed in three different museum environments. The pilot test was in August of 1986 at the Smithsonian Institution’s “Laser at 25,” exhibition. Among the standard wall-mounted panels with objects and cases, there was a display of holograms, a supermarket price scanner, a TV-sized laser light show, and a computer program. The computer program consisted of a tutorial module that explained how lasers function and a module that demonstrated four current uses for laser technology. Visitors would control the presentation by pressing a space bar to move on through the next screen. There were three places where visitors could take a more active part by entering data, setting certain ratios, or playing a game. The two remaining test sites were the Maryland Science Center in Baltimore, Maryland, and the Discovery Center in Fort Lauderdale, Florida. Researchers collected data based on observing visitor behavior during “computer on” and “computer off” conditions. At the computer, visitors showed a larger degree of cooperative behavior. It was found that “the fact that only one person could actually

operate the computer at a time did not make it an exclusively solitary activity.[2] In comparing behavioral profiles across all formats (cases, interactive experiments, visual units, and the computer) it was found that the panels and cases exhibited more looking and reading than any other behavior. It was determined from this that these panels discussed information and personal experience to mostly adult visitors, who did not choose to interact with each other as they absorbed this new information. When shown visual units, however, there was much discussion between visitors. At hands-on units, visitors read only enough to understand the purpose of the activity, then proceeded to interact with the exhibit. It was also found that verbal interaction between visitors was higher than at the case and panel exhibits, but lower than at the visual units. During "computer on" times, the computer attracted a higher proportion of the visiting public (29%) than any other exhibit, except for the introductory and conclusion panels. In summary, the results of the study suggest that the computer was an effective supplement to the overall exhibition. Visitors were attracted to the computer, and interacted not only with it, but also with other visitors. It was observed that visitors read, questioned and discussed exhibit topics more frequently when the computer was on. The data from the study reveals that a well-designed computer program with content that is also integrated into exhibition themes, contributed to a visitor's learning and experiences. In addition, it was found that the computer could also enhance visitor experiences at more traditional units.

There have been attempts to bring the museum to the home. Voyager, a popular publisher of laser videodiscs with the option of companion computer software, has published digital collections of Van Gogh, The National Gallery of Art, and The Louvre, just to name a few. There is also a Biology Science Videodisc, which is a visual collection of

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[2] Dr. D.D. Hike, National Museum of American History; Elizabeth C. Hennings and Myriam Springuel, Smithsonian Institution Traveling Exhibition Service, "The Impact of Interactive Computer Software on Visitors' Experiences: A Case Study," The A&A Monthly on Interactive Entertainment, adapted with permission from the IVLC Review, April 1991, page 5

still images, motion images, maps, charts and diagrams. Now, a person with a "sophisticated home" (more uncommon than not, thus far) equipped with a laserdisc player and a television, can tour The Louve at home. If the viewer has a computer, all a sudden, "home" can become the interactive museum experience, without the cost of getting to the museum, paying admission, renting the audio tour, or dining out. The viewer now "owns" the art or other content. If the technology becomes cheaper, it could be a very appealing and popular method of "museum going" --especially, if the avenues expand to enable users to download museums over a broadband digital network.

However, as exciting as this new technology might be, it is still keeping the content of the museum out of context. In Foucault's Pendulum, Umberto Eco describes a museum brochure as "the catalog hypocritically informed (me) that this worthy undertaking had been conceived by the gentlemen of the Convention, who wanted to offer the masses an accessible shrine of all the arts and trades."[3] Some museums can be thought of as shrines of art and trades. However, others are shrines to principles of science, and reflect things that exist in the real world. Objects that are rare and valuable do need to be housed in a safe place where they can be preserved. However, true learning (about the content) within an exhibit as the previous study showed us, comes from a combination of content and technology. Furthermore, even if we have that particular combination, we are still learning out of context. For the "museum of the future," I propose learning in context.

Let's suppose that the purpose of enshrining the arts and trades is to give us a historical perspective on objects and technological evolution. It is certainly very interesting, but is it in context? If I enter a museum and view an abacus, can I relate it to the modern day calculator or any other invention myself, without the aid of curation? The exhibit content is enriched either through the museum staff's careful creation of supporting text panels, or though the storytelling of clever docents. What if there was technology available for me to see/hear the history of an object as I view it in context?

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[3] Umberto Eco, 'Foucault's Pendulum'

It is my opinion that for learning, the museum of the future will become a personal museum, evolving from a combination of the personal computer and radio, cellular or satellite technologies. Currently, there exists a piece of hardware called "The Private Eye," which bills itself as a "large screen in a small box.[4] The Private Eye is a lightweight (2.25 oz) head mounted computer output display device (see attached). Its virtual screen is a 1.2 inch 720x280 pixel screen that "floats" in front of the viewer. The hardware consists of a lightweight headband with a small box that is mounted in front of one eye. The unit enables the viewer to see data in a large format floating in front of them in space. The box consists of a linear array of LEDs (light emitting diodes), a magnifying lens, and a counterbalanced resonant vibrating scan mirror. The user looking into the mirror sees a magnified vertical line of LEDs that correspond to one column of the full image. As the mirror swings, the apparent location of the line of LEDs sweeps horizontally from one edge of the virtual screen to the other. Although on only one column of the screen is visible at any instant, the user's eye perceives a full screen of information. At the moment, The Private Eye is monochrome, but future models will include high-resolution full color. Amongst its many uses, this hardware can be built into mobile data devices, such as handheld paperless fax machines and full screen radio pagers. I'm proposing that the museum of the future will integrate something like The Private Eye, that is portable and personal, with full color and high-resolution images as part of the museum going experience.

Today, the technology exists for the monochrome version of The Private Eye to be hooked up to a CD-ROM drive for museum visitors to have portable projectable data. I would like to take that several steps further in imagining the museum of the future.

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[4] Reflection Technology, 240 Bear Hill Road, Waltham MA 02154, (617) 890-5905 "The Private Eye," company marketing literature

What if there existed a portable data device that could be worn on the belt like a personal stereo, and was connected to hardware similar to The Private Eye? This unit could be voice controlled for data retrieval, which would be stored in the device or remotely access through cellular/modem channels to a larger database server. This unit could be worn, while visiting traditional museums, or out into the world like eyeglasses, a personal stereo or a watch. For example, if I were standing in front of Mont Sainte-Victorie in France and I wanted to know who had painted it and see all of the paintings about it as I looked at the mountain, I would simply speak into a small microphone attached to my unit, "Mont Sainte-Victorie, France. Art. Painting." After a brief pause, there would be notification that several images had been found. I would press the advance key on my unit and see paintings, superimposed over the scene of the mountain. Thus, seeing in context, how the art had evolved from the nature, and how the mountain had evolved since the art had been created. Perhaps more than one artist had painted the particular scene, during more than one art movement. I could enter other commands, and find out the history of the mountain, or if any songs had been written about it, or anything else. It would be like having an expert storytelling docent on call, in context, with pictures. Another example might be more scientific. What if I see a pulley on a sailboat and I wanted to know about leverage? I could speak again in to the device, "Sailboat. Pulley. Mechanics or Physics. History and Theory." Perhaps my screen would display small animations of what physical properties make pulleys work. Again, I would have a double view of the object and information about it. Imagine being able to see the cross-section of an animal or plant, as you are looking at it in its natural environment.

I'm not suggesting that the museum of the future will replace traditional museums. I suggest that that contextual learning of the historical perspective of art and objects can exist either inside museums, or outside of them. The traditional museum should not be replaced entirely. Museums fulfill many different types of functions for many types of visitors, aside from their function as "shrines." Today's museum provides a place of solitude and beauty for people, that they might not experience otherwise. That said, the

museum of the future, used within existing museums, or outside in the world, can offer a new and entertaining way of learning about what is usually not revealed in the traditional museum environment.