“Avoid missing ball for high score”*

A study categorizing issues facing current and future
videogame museums and exhibitions in today’s heritage marketplace.

October 2002

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Abstract

Although videogames have only been in existence for a little over forty years, the influence they have had on popular culture has been extensive. Because technology has developed so fast, forty years has been long enough for nostalgia to develop, and with this a need for institutions to preserve and display videogames. Throughout the world a few pioneering institutions have done just this, and have created exhibitions, or even established a permanent museum to interpret and preserve videogames to an expanding segment of the public. By means of a case study approach, two of these organizations were examined and observed in order to create a categorical list of issues that these museums and exhibitions have faced. This study is a broad based research, opening doors for further research. Conclusively, this study includes a list of issues and subsequent questions in areas such as funding, exhibition design, education, visitor studies, competition, objective setting, and preservation.

* Title reference: Instructions for one of the earliest videogames, *Pong* (Burnham 2001).

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Chapter One: Introduction

When the videogame industry started almost forty years ago (BBC News 2001a), it would have been impossible to predict the immensity of its impact on culture or its significance—that it would turn into a worldwide industry of more than twenty billion dollars (Waters 2002), garner its own television channel (Seiberg 2002), and involve some of the largest corporations in the world such as Microsoft, Time Warner, and Sony. Historically speaking, forty years is rarely considered a great length of time—almost a snap of the fingers when looking at the evolution of the human race, but for electronic technology such as videogames, forty years is almost like comparing geological eras. Videogames from forty years ago are old enough to establish themselves as museum artifacts (Frank 1998). Forty years is long enough to have videogame nostalgia. Forty years of videogames begins to validate the question, "do we have a videogame heritage?" Apparently some think so. Recent years have seen the development of videogame exhibitions and museums—all around the world, and in a variety of formats and complexity. However, even though these exhibitions and museums appeared, it would seem they were created only by the vision of their creators. The exhibitions were not designed out of the rigors of research, feasibility studies and market analysis (King 2002b, Lange 2002b). They did not necessarily look at the issues they would face such as the strengths and weaknesses of displaying artifacts as ethereal as videogames and the reception by the public of videogames as a heritage product. This should not be taken as criticism—these exhibitions have experienced success; however, this body of research can hopefully backtrack and fill in the gaps. It can document and explore some of the thoughts that crossed the founding curator's minds, and it can take a look, with an unbiased eye, at the way these exhibitions and museums have experienced success and failure. In the end it can hopefully categorize some of these issues, and produce a body of research that serves a practical purpose.

Rationale

Clearly, there will be some who look at this research with a bit of skepticism. However, the researcher believes that it contains a significant amount of value. Videogames have had, and increasingly will have an impact on culture. The existing statistics alone show the large influence videogames have had: ". . .92 percent of American children between the ages of 2 and 17 play videogames" (Reuters 2002a), ". . .roughly 145 million [Americans] play videogames" (IDSA 2001), and "SEGA's Dreamcast is responsible for the single largest day in retail of any kind of entertainment experience ever . . ." — 97 million dollars in one day of sales, beating the second highest day, the release of the *Phantom Menace*, by almost three times (The History Channel 1996). Certainly in the future, if not now, many will view the history and heritage of this cultural phenomenon as important.

For several years, the researcher has been interested in, and a player of, video games. In recent years, the researcher developed an interest in the history of video games and how they have become such a large part of popular culture. With this in mind, the researcher began to realize that there might be opportunities for museums and exhibitions to be developed around this new cultural phenomenon, and undertook some

preliminary research to discover if such museums existed and under what premise they operated. Eventually it was decided that a full-blown research project would be of use, not only for the researcher's personal interest, but also for the advancement of these types of museums and exhibitions.

This study's immediate target audiences are the museums and exhibitions that display videogames, but through them, the communication of the heritage of videogames is distributed to potentially thousands or even millions of people. This research is an exploration—it hopes to only serve as the beginning of what could be a long line of research topics and areas, but hopefully, the current exhibitions will find useful information enclosed, by which they can better interpret, preserve and display videogames. In the researcher's mind, the first generation of videogame exhibitions has been created and consumed by the public. Now is the time to create the next generation of these exhibitions—further reaching and more influential. This body of research could be the springboard for that development.

Secondly, videogame museums are concerned with the display of digital artifacts—a growing issue as museums move to displaying physical objects in a digital environment, i.e. the Internet. As the digital world of computers becomes more and more intertwined with the physical world, it is also likely that museums will need to adapt to depict some of this involvement on our culture. By default this research will turn up some of those issues, which will be applicable to the greater heritage market.

Objectives

When looking at the body of research from a view of objectives, there is a realization that it must cover a lot of ground. Intentionally, the research is fairly broad-based—it is an exploration of a topic area that has had little other previous research. With this in mind, this study hopes to fulfill the following steps:

1. Establish a backbone of background information. Because the research is in such an unexplored area, few assumptions will be made; therefore, it is vital that the actual history of videogames, and their influence on culture is at least examined to some degree—including gender, violence, and other issues. Secondary research will fulfill this need.
2. From preliminary research the influence of videogame nostalgia was seen as an important factor in the creation of videogame exhibitions and museums, hence an examination of this influence was deemed necessary. Again, secondary sources will fulfill this requirement.
3. Examine current videogame exhibitions and museums in order to search for the main research question for this body of research *What types of issues do videogame museums and exhibitions need to address, and research further, in order to be a feasible venture in today's heritage marketplace?* Although secondary sources will provide significant amounts of information, empirical data will also be collected. It must be noted that this study does not attempt to prove or disprove whether these museums are currently competitive or not, rather it works to gather a collection of issues which can be later assessed.

There could be many additional objectives, but this initial study must limit itself to a reasonable amount of research for the given amount of time (approximately 5 months), and to stay within a maximum word count of 20,000 words. In addition, financial resources will limit the amount of empirical data that can be gathered—especially as videogame museums are not abundant and are distributed over a wide geographical area.

Chapter Two: Literature Review

The literature review for this body of research was a critical part of the research process. Although it differs in some ways from the typical literature review format, it provides an invaluable platform for the empirical research. Typically literature reviews discuss past research (Brightwell & Shaw 1998); however, that is very difficult to accomplish for this thesis because as far as the researcher is aware, there has not been any previous published research specifically related to the combined interests of videogames, museums and heritage. However, videogames, nostalgia and heritage are relatively well covered in typical mass media sources. Therefore, this thesis hopes to use these more popular sources of information to their best use. This broad-based information can still be used to explore the general area of videogames and their history, and by looking carefully there should be ways of gleaning nuggets of useful information that can be related specifically to the topic area.

To start, at least a short section needs to be dedicated to the history of videogames. This is vital to get an understanding of the rapid transformation videogames have experienced in the last forty years. In addition, by looking at the variety of texts covering the history of videogames, ideas can be established about the interest in videogame heritage and nostalgia. Finally, it is important to look at how videogames have affected culture—especially the issues related to violence, gender and cultural globalization. Later, this information can be transferred to the analysis of the empirical data—providing a backdrop of information to compare against—for example, a better understanding of why the Game On exhibition decided to cover certain machines or genres of games.

A short history of videogames

The history of videogames is not lengthy by most standards. Digital computers themselves have only been around for 60 or so years with the first videogame being developed about 20 years after that (Augarten 1984, Herman 1997). There are a surprising number of texts that cover the history of videogames in one fashion or another. Some of the most predominant are: *Phoenix: The Rise and Fall of Videogames: Second Edition* by Leonard Herman (1997), *Game Over: Press Start to Continue* by David Sheff (1999) and *Supercade: a Visual History of the Videogame Age* by Van Burnham (2001). In addition to these printed references, there are many sources available online. Each of the printed sources cover essentially the same story; however, with a slightly different angle. For example, Sheff's book looks primarily at one of the major videogame companies—Nintendo, whereas Herman's (1997) book is a much more general text covering all of the major players with equal importance. It is important to note that many of these histories focus on the history of videogames in the context of U.S. or Japanese history. European influence of videogames is often only mentioned in passing. It is also worth noting that videogames fall under four basic categories—machines played at arcades or coin-op machines, home "console" systems, handheld games and games that can be played on personal computers. For

the purpose of this research, all of them are examined to some degree, but the focus remains on the home console as the thermometer of the industry.

The late fifties and early sixties saw the very first videogames appear. Technically, the very first videogame was developed by a U.S. government employee, William Higinbotham, at a nuclear power research facility in 1958 (Burnham 2001, Poole 2000). The game was developed to help entertain visitors to the plant, and proved to be popular as people lined up for hours to play the simple paddle and ball game Mr. Higinbotham whimsically called "tennis for two"(Burnham 2001, Poole 2000). This, however, was not the beginning of a videogame revolution, rather it was the first inklings of what was to come – that computers could be used to entertain people.

In 1962, four years after Mr. Higinbotham's "tennis for two", the space age was in full fling, and science fiction stories by the like of E.E. Smith captured the minds of university students with tales of space aliens and imaginary worlds far away (Burnham 2001, Poole 2000). It was at this time that some students at MIT (Massachusetts Institute of Technology) began to think of new ways to use the new PDP-1 computer the university had installed (Herman 1997, *et al*). The result of the mix of a sci-fi culture and new technology was the development of *Spacewar* (Figure 1), an instant success with students at MIT and soon many universities around the country (Herman 1997, Bellis 2002). Several of these student videogame players, including people such as Nolan Bushnell, would become major leaders in the videogame and computer world. Still, however, the vast majority of the world had never heard of, or seen a videogame.

By the late 1960s television was well entrenched as the primary entertainer for the home; however, some ". . . began thinking about alternate uses for a television besides merely turning it on and watching" (Herman 1997). Ralph Baer began working in 1966 on an idea that would make television interactive. Originally called the "brown box", Baer began to develop a machine that could be hooked up to a television and play simple, tennis-like games (Burnham 2001). Eight long years later, in 1972, Baer was finally prepared to market the machine, and he took it to several companies, only to be rejected (Herman 1997, *et al*). Eventually, one company, Magnavox, decided to take a chance and began to sell the machine as the Magnavox *Odyssey*—the world's first home videogame system (Herman 1997, *et al*). Unfortunately, mostly due to inept marketing by Magnavox, the *Odyssey* was not a big seller, and it would not be until several years later that the home videogame systems, instead of arcades, became the focus for many manufacturers (Kent 2000).

In 1969 Nolan Bushnell graduated from the University of Utah and began to think of ways to bring the game *Spacewar*, which he had played in university, into penny arcades (Kent 2000, Herman 1997). In 1971 he quite his job, moved his infant daughter to the living room couch in order to make a bedroom workshop, and began work on the game *Computer Space* (Herman 1997, Sheff 1999). With a sparkly, futuristic cabinet, his technically minded friends found it fun, but it proved too complex for audiences used to the simple controls and

play of pinball machines (Burnham 2001, Poole 2000). Determined to succeed, Bushnell persevered. With a close friend he started a company that was to become synonymous with videogames for most of the 70s and 80s—Atari. Bushnell thought that if a game could be made simple enough, people would play it. He was right. That simple game turned out to be the first videogame smash hit – *Pong*.

Released in 1972, *Pong* was not the first videogame; however, it was the first one to gain general public awareness. The principle of the game was as simple as the instructions, which read, "Avoid missing ball for high score" (Burnham 2001, *et al*). The competition for the companies selling the game was fierce, however. Although Atari had been the company to invent the game, it soon faced "more than twenty-five competing companies" all who released copycat versions of the table-tennis type game. Atari was successful—"it manufactured 10,000 of the games which were an astounding number when compared to the three thousand units that a pinball manufacturer would churn out for one of their more popular games", but held only "10 percent of a market it should have dominated (Herman 1997).

Following the success of *Pong*, videogames began to take off in popularity. Most manufacturers were happy to make replica's of *Pong*, but some, such as Atari realized that the public would want more. Just as the public was getting fed up with *Pong*, new games began to be developed—some such as *Tank* proved to be very popular, whereas others such as *Touch Me*, later replicated as the "memory" game *Simon*, proved to be ahead of their time (Burnham 2001).

The mid-70s became a battle for the home when manufacturers realized that people wanted to play games such as *Pong* at home as well as in the arcades (Figure 2). Soon companies were scrambling to come up with their own version of Ralph Bauer's original invention. Even Magnavox, who had abandoned the original *Odyssey* came running back into the market after seeing the success of *Pong* and re-released the *Odyssey* as the *Odyssey 100* (Burnham 2001).

While the U.S. was experiencing *Pong* mania, there was action across the Pacific as well. Nintendo has been a company since 1889, when it started manufacturing playing cards, and has a long history of being in the entertainment industry (Sheff 1999). In 1969 Nintendo began to look for ways to expand beyond playing cards when it opened a research and development department (Sheff 1999). Soon the company was dabbling in electronic gadgets. In 1975 tales of the success of Atari and *Pong* reached Nintendo and the company began to make its own plans for entering the videogame market. Its first major success was with Game & Watch—simple videogames with a tiny clock in the corner that could be worn like a watch. However, it would not be until several years later that Nintendo would make its major move into the videogame market.

Other Japanese manufacturers, such as Taito, made their mark as well. Taito's game *Space Invaders* was immensely popular in both Japan and the U.S. In fact, "within a few months of its 1978 release in Japan, the

game had caused a nationwide shortage of the coin required to play it" (Poole 2000). In its lifetime the game grossed approximately $500 million (Poole 2000). *Space Invaders* not only was a big hit in the arcade, but also made an impact in homes—propelling the, until then, mediocre reception of the Atari VCS into one of the most popular home systems of all time (Burnham 2001).

The late 1970s and the beginning of the 1980s saw videogame companies making unbelievable successes. The biggest name of the game was Atari. In 1977 Atari released the Atari Video Computer System or Atari VCS for the home. Later it was known as the Atari 2600. Although it now pales in comparison to the 90 million Playstations, and 30 million Playstation II systems sold, the Atari 2600 was incredibly popular in its time, eventually selling almost 25 million worldwide (Burnham 2001, Mikhail 2002, Morris 2002). The Atari 2600 followed in the footsteps of the *Odyssey* but left a much more permanent mark. One of its most prominent features was the use of a cartridge system, which allowed users to play multiple games on the same system (Kent 2001). Up until then, most systems simply had a few games programmed into the machine—once they had been played there was nothing new. Atari made full use of this cartridge system and "ported" or re-programmed many popular games from the arcades to play on the Atari 2600, ensuring success for many years.

The late 1970's and early 1980's also saw the home computer rise in popularity. A common problem for companies was deciding whether or not to market their system as a home computer or as a game machine. With the Atari VCS, although the name had "computer" in it, the machine was almost exclusively for games. This was not the case with more business-minded computers such as the Commodore PET and 64, the Tandy TRS-80, the Apple II or the IBM PC. Although machines like the Commodore 64 and the TRS-80 fell on the inexpensive side of the market, they were still dedicated home computers (Burnham 2001). However, just because all of these machines were sold as computers, did not mean they could not play games. In fact, the Apple II was designed by Steve Wozniak, a former Atari employee, and game lover extraordinaire. "?A lot of the features of the Apple II went in because I had designed *Breakout* for Atari . . . that was the reason the color was added in first—so that games could be programmed'" (Burnham 2001). Wozniak's influence has pervaded Apple's mentality since then, particularly apparent in the multi-media capabilities of Apple's Macintosh computers.

The 1980s also saw the arrival of identifiable characters when *Pac-Man* fever took the world by storm in 1981 (Burnham 2001, *et al*). Looking like a yellow pie with a slice taken out, *Pac-Man* traveled around the screen gobbling dots and evading four menacing ghosts (Figure 3). Even with this simplistic characterization, people seemed to identify with him, something that stands even today as "*Pac-Man* has been recently voted the greatest videogame character of all time" (BBC News 2001c). Some authors such as Poole (2000), seem to think it may have connections to the similar way westernized humans are continuously looking for products to "gobble up" in our capitalistic society. Regardless of the reasoning, *Pac-Man* had a big impact on culture, influencing other arts as well, with a top 10 hit song "Pac-Man Fever" being influenced directly by the game (Burnham 2001, *et*

al). In addition, videogames would never be the same, with companies realizing the potential of good characterization: *Pac-Man* was the predecessor to Mario the Plumber, Sonic the Hedghog, and Pikachu the Pokémon (Kent 2001).

In 1983 the videogame industry suffered a massive shakeout. From the end of 1982 to 1985 the industry shrank from $3 billion to a mere $100 million worth of sales (Herz 1997, *et al*). The biggest reason from this major downturn was the lack of good games. It was a classic case of supply and demand. As dozens of videogame companies set up shop, hoping to catch their share of the profits, many produced inferior games—games that were unoriginal, boring, and simply not fun to play. Since the games did not sell, they had to be severely discounted, dropping the value of all videogames in the process. Eventually most companies were selling games at a loss—Atari ended up burying thousands of excess games in landfills (Herz 1997, Burnham 2001, *et al*).

Following the crash of 1983, there were many who thought the videogame industry was dead. Stores refused to stock videogames and videogame consoles for fear that they would lose money again, but in 1986 the U.S. experienced an invasion almost as significant as the Beatles had been. The arrival of Nintendo on the home console market let "the videogame industry climb from the embers of its own funeral pyre and begin a new life and prosperous life" (Herman 1997).

Nintendo was by then a major videogame company, but primarily only in Japan. It had set up an office in the early 1980s in Seattle, which fared well with games such as *Donkey Kong* (Sheff 1999). However, Nintendo was not involved in the home console market in the U.S.—it only distributed coin-op machines to arcades. Meanwhile in Japan, Nintendo was dominating the home console market with a machine it called the Famicom—short for family computer (Sheff 1999). In 1984, despite the "prophecies of doom", Nintendo felt it could have success in the U.S. and Europe with a version of its Famicom (Herman 1997). When finally introduced in New York in 1986 the critics gave such good reviews of the Nintendo Entertainment System, or NES (Figure 4), that the rest of the U.S. was soon clambering for it (Herman 1997). By 1987 Nintendo had sold 1.1 million Nintendo Entertainment Systems, and had almost single-handedly lifted the videogame market back into success (Herman 1997, Sheff 1999). By 1992 Nintendo was experiencing massive success.

> In the entertainment business, Nintendo had become a force that could not be ignored. In early 1992, the company profited more than all the American movie studios combined *and* the three television networks combined. (Sheff 1999)

As videogames developed, the companies that were successful began to realize that it was not just the hardware—the physical attributes of the machine, but the games themselves that really mattered. A good game could make a low-powered system successful, and a lack of good games could destroy the hopes of the most advanced system. Nintendo was no exception, and much of its success can be based off of one character—Mario. Originally found in the game *Donkey Kong*, the character of Mario has been developed into a series of games that has continued even to Nintendo's latest system, the Gamecube.

Nintendo also made sure it would not make the same mistakes that had caused the videogame market to crash in 1983. By putting a special "lock-out" chip in each of its game cartridges, Nintendo had absolute control over what and how many games were released (Sheff 1999). This, of course, prompted a huge outcry from game publishers and retailers, who felt that Nintendo was unfairly controlling the market. Legal battles, familiar throughout the development of videogames, erupted with companies like Atari claiming Nintendo was using monopolistic measures to control the market. The fact that Nintendo was a Japanese company, and the late 1980s were at the peak of Japanese and American trade tensions did not help matters (Sheff 1999). Soon the U.S. government became involved, setting up an inquiry into the trade practices of Nintendo (Sheff 1999, *et al*). In the end Nintendo relaxed some of its control, but an even more powerful force was the eventual changes in technology.

Nintendo was the undisputed king of videogames during the late 1980s and into the mid-1990s, but in 1994 a significant new player arrived on the scene—one that had new ideas of what videogame machines could do and how they should be marketed (Asakura 2000). Most people thought Sony was crazy when they decided to go against Nintendo—they did not have experience in videogames, did not have the same powerful network of distributors and on top of this planned to not market specifically to kids, but to an older audience.

In the end Sony proved to be correct. ". . . one company has done more than any other over the last six years to stake out videogames' huge place in adult popular culture: Sony, manufacturers of the PlayStation. . ." (Poole 2000). The Sony PlayStation, as it was called in the U.S. and Europe, not only changed the videogame market, it changed Sony—a multi-billion dollar company. From 1994 to 1997 Sony went from zero percent market share to controlling 70 percent of the market share, taking over Nintendo's spot as the undisputed ruler of the videogame world (BBC News 2002b). Fully 40 percent of Sony's profits came from the Playstation, and Sony is a 120 billion dollar company (BBC News 2002b). One of Sony's key successes was realizing that the videogames were no longer just for children. Rather, significant money could be made with an older target market.

By the year 2000 the videogame market was growing by leaps and bounds. Sega, Nintendo and Sony all announced plans to release their newest and most advanced videogame machines. Sega, one of the other major videogame companies during the 1980s, was the first to deliver with its machine called the Dreamcast, but found that much of the market was waiting for Sony or Nintendo. In 2001 Sony released the Playstation II, a massive success. During this time there were rumors about Microsoft entering the game market. This was proved to be true, and in 2002 Microsoft released the Xbox—essentially a powerful home computer, which could play advanced games and connect to the Internet (BBC News 2002d). Although a newcomer to home console systems, Microsoft has deep pockets, created from its success providing operating systems to most of the world's computers.

Even from the early days of home videogames there has been an attempt to merge home entertainment into one unified machine—a computer that can play games, do work, watch and record television, and connect to the outside world via some sort of network (Kent 2001, *et al*). That continues today with all three big players, Nintendo, Sony and Microsoft, announcing plans to create online gaming networks. This is perhaps the next stage in video gaming, but only time will tell.

Videogame Nostalgia

As the previous section shows, the business of videogames has gone through a multitude of changes since they were first introduced. Technology has changed, new types of games have been developed, and the amount of money made has changed, but perhaps one of the most interesting developments has been the idea of videogame nostalgia. In recent years there has been a massive increase in interest of what are referred to as "classic games" (Burnham 2001, Herz 1997, *et al*). "It was a time bomb, really. You couldn't have that many kids doing the same thing at the same time and not generate an immense aftershock of nostalgia fifteen years later" (Herz 1997). In her book *Joystick Nation* J.C. Herz directly discusses the growth of nostalgia for older videogames. Written in 1997, however, the book only describes the beginning of an increased interest in classic games. Within a few years other authors began to write about "the golden age of videogames" (Sellers 2001). Books such as Burnham's (2001) Supercade, and *Arcade Fever: The Fan's Guide to the Golden Age of Videogames* by John Sellers (2001), not only describe the history of videogames, they also try to capture the excitement and interest over older videogames. However, the real place to look for indicators of videogame nostalgia is on the Internet. The curator of the digital media exhibition at the American Museum of the Moving Image writes:

> ". . . we find ourselves in the midst of a "retro-gaming" craze. The Internet has become ground zero for arcade arcana, offering extensive information for collectors and fans, shareware homages, arcade game emulation software that, when paired with the code from the original game, makes your PC think that it's Pac-Man, and multi-player games that turn our digital telecommunications networks into one massive game palace. (Goodman 1999).

The number of videogame museums and "classic games" fan sites on the Internet can almost make up for the lack of physical museums. A search on *Yahoo.com* for "Videogame Museum" pulls up 10,500 hits, and a search for "classic videogames" produces almost 8,000 hits (Gieske 2002a). This, of course, does not mean there are more than 10,000 virtual videogame museums, but it does indicate that there is a high level of interest in the subject area. Some of these sites are very professionally done and well maintained. Sites like *Classicgaming.com* have feature articles, and news to go along with a well documented history of videogames. Others, like *Vintagegame.com* have price and repair guides for fans. The staple, however, of most online videogame museums is a collection of emulators and ROMs.

". . . via the magic of emulation, people are once again playing their old favorites and discovering new life in other classic, previously forgotten games." (Bowen 2002). Emulators are programs written to emulate an older computer system, or even a different kind of computer system on today's standard computers (Sellers 2001, *et*

al). For example, with an emulator program, games from the Atari 2600 can now be played on a standard home computer. The emulator duplicates the hardware setup, and another type of program, called a ROM, is used to duplicate the actual game itself. Most emulators can be downloaded for free. The availability of emulation is a clear indicator of nostalgia. Nostalgia is defined as "a longing for experiences, things or acquaintanceships belong to the past" (Flexnor 1988), and emulation can fill that need as the availability of the original machines becomes more and more scarce.

The profit making industry that is video gaming quickly recognized opportunity when they saw the success of emulators, and decided they could make a profit from marketing old games. Goodman (1999) states, "Back on store shelves, video-game companies are discovering what the music industry has known for a long time: the past can be mined for profit" and Herz (1997) compares it to the music industry, with companies like Activision and Microsoft releasing "tribute albums" of classic games. "For a few minutes of each day, players of Microsoft *Return of Arcade* can use their home or office PCs to relive the days of their youth" (Herz 1997). "The classics are being cloned, emulated, compiled, enhanced, and updated for a home market made up of children craving novelty and post-boomers binging on nostalgia" (Goodman 1999).

Beyond emulation there are other signs of videogame nostalgia, primarily related to collecting, preserving and trading existing equipment and games. Again the Internet is a major area providing ways for enthusiasts to communicate with each other. For example, *Classic Home Videogames Museum* (http://www.classicgaming.com), has message boards in which users can write stories about their experiences with videogames. The BBC also created a message board for visitors to write in, and the comments could almost be compared to a meeting of WWII veterans:

> My first experience of video gaming was with a good old "TV Game" with tennis, squash on it. And a two-tone beep sound. It was great. More fun can be had with that than a lot of the new big lumbering PC games of today. Keep it simple and look to the old days for real enjoyment in gaming. More action per square inch of screen is what it's about. *Ty, UK* (BBC News 2001e).

As a powerful and emotional experience, videogames seem to burn indelible memories into the minds of their users. Poole (2000) talks about the almost "Zen-like" state videogame players achieve when they are playing games—almost a stage where time stands still as your mind is focused entirely on the task at hand. Undoubtedly with an experience this intense there are going to be people who want to relive it, and the calling for videogame nostalgia will only intensify as the number of people who have played games increases.

> I wander down the AMMI [American Museum of the Moving Image] Arcade replaying the games that came out when I was twelve and thirteen. And it's like hearing a junior high school hit on the radio. You look up from a game of *Galaxian* half expecting to find yourself back in the mall as a teenager . . . And it's strange, because a dozen other people in the room are obviously also thinking this way. (Herz 1997)

Videogames, popular culture and public attitudes

Simply understanding the history of videogames is not enough to determine the impact they have had on culture. It is also necessary to look at the multitude of facets videogames seem to relate to or touch upon. Amongst these topics, only briefly discussed in this study, are the almost continual debate over videogames and violence, videogames and gender issues, and finally their role in the globalization of popular culture.

Videogames have been associated with violence almost as soon as they appeared in any great numbers. The 1976 game *Death Race* was the first to achieve notoriety and started the connection between violence and videogames (Sellers 2001, Burnham 2001, *et al*). Based loosely on the 1975 movie *Death Race* 2000, the premise of the game was to run over zombies with a car, but "the games awful graphics made the monsters look too much like actual humans, and running over people with cars wasn't such a crowd pleaser" (Sellers 2001). When compared to the bloodbath that can be created by new games such as *Grand Theft Auto III*, *Death Race* seems extremely tame in comparison, but nonetheless it received a good deal of attention in its time as it, "stirred up protests and was even discussed on CBS's *60 Minutes*." (Kent 2001).

The next game to achieve that kind of attention was the 1992 game *Mortal Kombat*. A fighting game made famous by its "fatalities", *Moral Kombat* was an extremely popular and also extremely debated videogame. Selling "approximately 6.5 million cartridges [for home console systems]", the game's violence attracted the attention of the U.S. government which eventually led up to "the 1993 joint hearings that investigated the marketing of videogame violence to minors" (Kent 2001). The videogame industry only managed to escape censorship by promising to enforce a self-imposed rating system.

The latest games to receive attention are the *Grand Theft Auto* series, of which the first was released in 1998. Once again the bar is raised as the player in these games must "shoot and drive over police officers and innocent pedestrians, engage in bank robberies, pimping, drug smuggling, murder, police bribes, and other "jobs" to impress the most powerful crime syndicate in the city" (Saltzman 1998). The latest rendition *Grand Theft Auto III* brings the realism to a 3-D level, and has created enough controversy that the videogame industry is concerned the government will get involved again (Coles 2001, Rueters 2002c). In fact despite the makers insistence that "'Grand Theft Auto' is cartoonish and campy by its very nature . . ." and that "It's a parody on crime; even the dialogue was meant to be comedic," several governments including "the French, German and British governments have condemned the videogame", and Brazil went as far as to ban it (Saltzman 1998, Barr 2000).

The affects of videogame violence have been debated since *Death Race*, but conclusive results have been hard to find. The book *Violent Children* edited by Bryan Grapes (2000) looks at both sides of the issue with articles attempting to prove that videogames either cause or do not cause violent behavior in children. One of the earliest books on the subject was by professor Eugene Provenzo Jr. (1991) who wrote the book *Video Kids:*

Making Sense of Nintendo. His book took a rather critical view of the industry, and in fact during his testimony during the federal 1993 joint hearings he stated, "Videogames are overwhelmingly violent, sexist, and racist" (Kent 2001). On the opposite end of the argument is a recent white paper released by the Interactive Digital Software Association (IDSA 2001). In the paper they report on a variety of studies and state:

> There is no compelling evidence that establishes a link between playing games and aggressive behavior. In fact, the most objective comprehensive reviews of research find no such link. Additional objective indicators also support this conclusion. (IDSA 2001)

The paper goes on to list a number of other interesting statistics, including that "ninety percent of the best-selling games in 2001 are appropriate for everyone over age six" and that "youth violence in America has fallen dramatically at the same time that game sales have skyrocketed" (IDSA 2001). Nonetheless, they must be viewed as such—statistics, and it is doubtful the debate will end anytime soon. In the meantime, the popularity of videogames continues to grow, and as concern builds on both sides, it appears to the researcher that there is room for a neutral forum to both research and present this information to the public. Could a museum, which are not always simply dedicated to the old, but also present the new—as in science and industry museums, possibly take this role?

Close behind the debate over violence, is the issue of gender and videogames. This has been in relation to both who plays them, and also the subject matter of the games themselves. Provenzo's book (1991), looked at this issue in addition to violence, and conducted a relatively informal study on gender and videogames. He indicates that many games [at that time] presented female game players with a limited number of role models—most games, if they had female characterization at all—presented the female as a typical damsel in distress (Provenzo 1991). Herz (1997), a female videogame player, seems to agree and writes:

> Shortly after videogames became icons, one thing became glaringly obvious: this was a Guy Thing, programmed by and for males. When girls got near an arcade game, they were probably watching their boyfriends or brothers compete. (Herz 1997)

Herz (1997) goes on to analyze the situation further, and again agrees with Provenzo (1991) on the limited number of strong female characters. However, she continues by saying that games such as *Ms. Pac-Man* and *Frogger*, which had more neutral, or "cute" characters did well with females, demonstrating that girls did want to play, but companies needed to cater to them with better characterization. The biggest hit with girls does not have to worry about characterization because it has none. *Tetris* is "more popular with women than any other game, and notoriously addictive among female professionals" (Herz 1997). This game of falling blocks, which need to be organized into patterns in order to clear them from the screen, is popular according to Herz (1997) because "*Tetris* is about coping. It's about imposing order on the chaos. . . a scenario to which many modern women can relate."

One of the reasons why there may be so few games designed for women, is the lack of women videogame designers (Herz 1997). "The games industry has traditionally ignored the female market, with male designers creating games aimed at men" (Hermida 2001). Herz (1997) talks about struggle the games industry has had with developing games for women—"There's a lot of money to be made if you can sell games to girls. On the other hand, there's a fear of developing games for girls." In some ways the game companies have developed a comfort zone, in which they have a "winning formula" by making and selling games to males—a formula that they are hesitant to break (Herz 1997). Despite this the numbers of women playing games has continued to rise with the IDSA (2001) reporting, "forty-three percent of video and computer game players are women." In fact, there is even a web site devoted to the issue at *womengamers.com*, (Http://www.womengamers.com) which caters to the growing community of women videogame players. In the end it would appear that parity might be achieved in the near future—as demonstrated by one recent, and very popular game; *"The Sims* has proved hugely popular with both sexes" (BBC News 2002a).

Regardless of the issues just mentioned, videogames have swept through popular culture, impacting many other art forms such as television, cinema, and even music as they have grown in popularity and have become more and more mainstream (Sieberg 2002, *et al*). This influence has had other interesting affects as well, however. A recent program on BBC Channel 2 (BBC News 2002b) discussed how videogames have contributed to the globalization of culture, and most significantly the trans-pollination of ideas between traditionally separated Eastern and Western cultures (BBC News 2002b). Recently, the United States seemed to dominate many forms of popular culture—cinema, television, and music; however, with videogames there appears to be much more of a world contribution. Both Europe and Asia have had a big influence on videogames (Lange 2002ba)—"30 percent of games are made in the U.K." (BBC News 2002b) , and all one has to do is look at the names at the biggest videogame companies—Sony and Nintendo, and the impact of Asia (especially Japan) can be realized immediately. For a country like the United States, which is notoriously egocentric when it comes to popular culture, the fact that many of the most popular games have been developed elsewhere is very interesting. Masuyama, founder of the TV-Game Museum in Japan and exhibitor of the annual Bit Generation (Masuyama 1998), contributed to the book *Game On*, which was the accompanying text to the exhibition by the same name in London. In it he writes:

> Perhaps the striking worldwide success of Pokémon [a extremely popular videogame, cartoon, and set of toys] should not be considered the result of the adoption of 'Japanese culture' on a global level . . ., but should be seen as two cultures meeting halfway in the 1990s, as Japan became more Westernized and the West became more open to foreign culture. Gone are the days when, in the realm of entertainment, globalization meant only Americanization. (Masuyama 2002).

Videogames have provided a means of cultural transport that few other media have matched. Perhaps with games there is a realization that everyone, all over the world and despite cultural differences, find many of the same things to be "fun." Even during the days of the Cold War, when political and social ideologies frigidly

separated the U.S.S.R and the West, a game like *Tetris*, which was invented in Russia, demonstrated the common bond of humanity with its popularity around the world (Sheff 1993).

The heritage marketplace

The research question of this study refers to the "heritage marketplace"; therefore, it is important to gain an understanding of what this is, and how the heritage of videogames and video gamming relates to it. Heritage itself is a difficult word to define—some heritage authors such as Lowenthal (1998) say that it " . . . all but defies definition." For the purpose of this study, Ashworth and Tunbridge's (1996) definition of heritage as "a contemporary product shaped from history" is used as a guideline. Regardless of difficulties of definition, there has been a rise of a "heritage industry" (Hewison 1987), and with it a heritage marketplace. A marketplace is, of course, a place where products are bought and sold—or more generally "the world of commerce", therefore the idea of a heritage marketplace is the buying and selling of heritage (Flexner 1988, Leighton 2002a). As the popularity of nostalgia and the past has grown (Lowenthal 1993; Lumley 1988; *et al*), so too has the demand for access to heritage. Typically the biggest provider of heritage has been museums, historic sites and other public institutions—and although many of them are non-profit, heritage must still be defined as the product they sell (Robinson 1994). How then do videogames fit within this mix?

The past sections covered the speed by which videogames have developed and how they are already viewed as a source of nostalgia. With this in mind it can be seen that there is an opportunity to "sell" the heritage of videogames. In fact, a few organizations have already attempted it—two of which are case studies within this study. With their first attempts, an assessment can be made—how well did these organizations fare: how did they handle issues such as funding, education programs, visitors and competition? With their opening a vison can begin to be developed for others who will most likely follow.

Any marketplace, by its very nature, is going to be competitive. Even though many of these heritage organizations are not attempting to make a profit, they are still competing—for visitor's valuable recreation time and other stakeholder needs. How these institutions market and manage themselves is just as critical as it is for businesses in the for-profit world. Without competitiveness most will eventually fail to other institutions that do a better job of serving stakeholders' needs. Therefore, a videogame museum or exhibition needs to realize what they face—from both external and internal pressures. The assessment that takes place in this study is a focus on those internal pressures—it attempts to identify through the experiences of the videogame museum pioneers both difficulties and opportunities these types of institutions face.

Chapter Three: Methodology

As a relative newcomer to the field of research, the researcher undertook efforts to learn about the variety of strategies and methods that experts recommend. One point, which became quickly apparent, was that although there are models of best practice, each and every situation may require a variation or a specialization of the established procedures. Therefore, the field of research is ever developing and changing. Nonetheless, having a clear and rational research methodology can have a very large impact on the success or failure of the research. Clearly the methodology helps keep the research on track: "The main purpose of the design is to help to avoid the situation in which the evidence does not address the initial research questions" (Yin 1989). Also, the research methodology provides a means to get to the end result:

> Colloquially, a research design is *an action plan* for *getting from here to there*, where *here* may be defined as the initial set of questions to be answered, and *there* is some set of conclusions (answers) about these questions. (Yin 1994)

Because of these reasons, the researcher endeavored to develop a strong research methodology—one that would provide an "action plan", but still allow the flexibility that an exploratory study requires. Also, the researcher kept in mind that this research was designed to provide experience in the area of research itself, and not just a study of the topic area. As Robson (1993) wrote, "All the reading in the world won't make you a skilled enquirer . . ." referring to the importance of gaining real life experience in order to perfect the art of research.

Research Question

What issues do videogame museums and exhibitions need to address in order to be a feasible venture in today's heritage marketplace?

Research Methods

It was intended from the onset that this study would be an exploratory one, and that although the research would depend on a strong literature review, it would contain at least some empirical data. The strategy best fitting this exploratory route, determined by initial research and suggested by researchers such as Robson (1993) and Yin (1994), seemed to be that of a case study, using interviews and observation as the data gathering techniques. Because of the research strategy, it was realized that the data collected would be primarily qualitative in nature. Next, the data was analyzed, going through Miles and Huberman's (1994) suggested steps, working towards "issues analysis" (Robson 1993). "Patterning" and "clustering" were used as the tools to help draw the conclusions (Robson 1993). Overall the analysis was driven by "grounded theory" – an emergent type of analyses proposed by Glaser and Straus (1967) and then reiterated by Glaser in 1998; however, it does not strictly follow all of the stipulations set by them.

Purpose: Exploratory

There are several main purposes for research: to explore, describe or explain a situation or phenomenon, and as Robson (1993) states, "the research question does have a strong influence on the strategy chosen." Clearly a question such as the one proposed for this research fits the description of an exploratory search, which according to Robson (1993) looks to "find out what is happening", "to seek new insights" and to "ask questions". An exploration is about collecting information, which this research hopes to do as it looks for issues facing videogame museums.

Strategy: Case Study

The case study strategy fits well with the purpose and nature of the research question. Although sometimes looked at with skepticism by some researchers, case studies have been used for many years, and with success (Yin 1994). The greatest criticism is that case studies lack "sufficient precision (that is, quantification)" (Yin 1994). However, both Yin (1994) and Robson (1993) feel that if done properly, case studies can overcome these weaknesses and offer real value.

The other primary research strategies did not particularly suit the research or the research question. Experimental research would not be appropriate because the question was not suited to an experiment and there was no way to control the environment. A survey strategy could not work because there are too few current museums and exhibitions for the information to be generalized—not an appropriate sample size. Therefore, the only logical research strategy was the case study. Case studies involve gathering an intensive amount of data from a case or set of cases that are related (Robson 1993, Yin 1994, *et al*). This strategy is especially appropriate for exploratory studies that ask questions and try to "find out what is happening" (Robson 1993).

There are a few types of case studies—single case, multiple cases, holistic and embedded (Yin 1994). This research follows a multiple case, embedded design as it looks at more than one location, and it uses more than one data collection technique per location. Initially cases studies were planned for four locations, but this was scaled back as it became clear that that the data could not be properly analyzed in such a limited timeframe. Beyond this, there were also original ideas of conducting a focus study to gain some perspective from the visitor's point of view, but this too was scrapped in favor of better analysis of existing data.

Data Collection Tactics: Semi-structured Interviews and Observation

Once the strategy had been decided on case study, the method of data collection needed to be determined. There are many types of data collection techniques but most fall under three main categories: observation, interviews and questionnaires, and "unobtrusive measure" such as content analysis (Robson 1993). Each tactic has advantages and disadvantages, and some may not be suitable for a case study strategy at all.

Observation was the first tactic looked at, and was chosen as one of the tactics to be used. One reason is that observation is well suited to an exploration—there is an opportunity to see what is going on first-hand (Mahoney 1997). Two of the advantages listed by Mahoney (1997) are that observation can "permit [the] evaluator to enter into and understand situation/context" and it can "provide good opportunities for identifying unanticipated outcomes." However, there are different levels of observation, as looked at by Robson (1993): "as a complete participant", as a "participant as an observer", a "marginal participant", and finally a "observer-as-participant." Each offers varying levels of participation with other visitors, from complete immersion, to simply watching the other visitors and taking notes. In the end, a hybrid of observation techniques was used for this study. It was decided that participating as a "complete participant" offered many advantages—foremost was the idea of exploration, and that acting as a "complete participant" would allow the research to follow other visitors' leads (Robson 1993). However, this brought up one of the major difficulties of observation—how to record the observation without influencing the behavior of the participants (Mahoney 1997). Because of this, elements of a "marginal participant" were also used—acting as a "largely passive, though completely accepted, participant"—for example a casual spectator at an informal football game (Robson 1993). One additional issue that was looked at in regards to conducting the observation was the idea of having a "structured protocol" (Mahoney 1997). This concept is basically a determination of what data is to be collected—some, as with this study, rely primarily on "descriptive observation" which tells in words about the setting, objects, events, etc. that are taking place (Robson 1997), others use checklists, rating scales or other methods (Mahoney 1997).

Interview was the next type of tactic to be examined. They have several advantages that proved to be a strong tactic for this study. First they, "Usually yield richest data, details, new insights", and they do this by providing a face-to-face conversations in which not only the words, but the expressions of the interviewee can provide details methods (Mahoney 1997). Pauses, hesitations, and gestures can all give clues and provide a fuller picture of the situation. In addition, both the interviewee and interviewer can clarify questions or answers, "increasing the likelihood of useful responses" (Mahoney 1997). This research used the expert information that only the curators of these first videogame museums could provide, and the best way to get that information was by speaking to them. Often, the curators were the only source for the type of information needed, such as objectives, the process involved in starting the museum or exhibition, and decisions on interpretation, funding, and content.

There are two major types of interviews, "structured interviews, in which a carefully worded questionnaire is administered; and in-depth interviews, in which the interviewer does not follow a rigid form" (Mahoney 1997). Both structured and in-depth interviews can have different formats as well. For example, questionnaires can be self-administered with no input from the researcher. This however, is not a good technique for a case study strategy. "The data are, necessarily, superficial. There is little or no check on the honesty or seriousness of responses. Responses have to be squeezed into predetermined boxes . . ." (Robson 1993). These types of limitations do not allow for the in-depth type of information needed for a case study approach. In addition, self-completed questionnaires do not allow for flexibility—they are set along a preconceived process and do not

allow for divergence into related interesting areas. This research study needed more flexibility than a typical questionnaire interview could provide, so instead the "in-depth interview" was used instead. Essentially, the interviews were "free-range", as Robson (1993) puts it, which means that the interviews had "an fluid agenda and open-ended questions." Although the researcher had some pre-determined questions, the interviews were very fluid, and would veer off into new areas if the researcher found them interesting.

Another form of interviewing was also looked at—the focus group. This tactic was looked at briefly during the initial stages as a good way to get information from visitors, or potential visitors. Although still thought of by the researcher as a good idea, time was too limited to conduct a focus group for this study.

The final tactic was used only marginally for this study. Robson (1993), describes "unobtrusive measures" or "indirect observations". These methods utilize the byproducts of other activities, such as erosion or accretion, or by analyzing documentation for patterns—"content analysis" to provide information (Robson 1993). Content analysis of documents was used informally to provide background information for the other tactics. Media sources were analyzed in order to determine appropriate questions for the interviews and to get an idea of what the exhibitions may cover.

Methodology: Qualitative

There are two primary methodologies for conducting research—quantitative and qualitative. Quantitative research is concerned with the gathering of primarily numerical data for the production of statistical information (Robson 1993). Qualitative data, on the other hand is typically non-numerical, it is usually a description in words, and can provide "rich, full and real" detail (Robson 1993). Typically, most studies include a mix of both qualitative and quantitative data; however, this study focuses exclusively on qualitative data. There are several reasons for this. The first reason goes back to the purpose of the study—it is an exploration of issues, an attempt to find a variety of different ideas and thoughts, and it is difficult to find ways to quantify this type of information. The second reason pertains to sample size. There are simply not enough videogame museums to warrant generalization. If there are only two, possibly three exhibitions in the world, there is not really a point in generalizing such a unique phenomenon. The final reason is related to the type of data gathering tactic used. Case studies are not "sampling units" and should not be used to produce "statistical generalization" (Yin 1994). Therefore, the raw data gathered will not be appropriate for qualitative analysis.

Analysis Methods

Once the data had been collected, the most difficult part of the research process was undertook—analysis. From an analysis perspective, qualitative data is tricky to handle. Robson (1997) and others (Miles and Huberman, 1984, *et al*) emphasize several difficulties with qualitative analysis: that there "are no prescriptive formulae for the task" (Robson 1997), there is a perception that only an expert with experience can properly analyze the data,

and that although full of detail it must be dealt with carefully in order to avoid creating unrealistic or inaccurate conclusions. Despite these difficulties, there are ways to analyze qualitative data and get good results.

One of the first recommendations is to begin analysis early—even during the collection process (Robson 1993). Robson (1993) refers to the use of "informal" and "formal" analysis, where "informal" indicates analysis that is conducted during the course of data collection. The reason for this is due to the fact that analyzing qualitative data is "mainly concerned with data reduction . . ." (Robson 1993, Berkowitz 1997). If the data can be looked at during the initial stages, categories can be developed and relevant data can be separated from the irrelevant (Berkowitz 1996). The researcher began to analyze the data as soon as it was received in this case, although hindsight would show that even more could have been done. During this informal process memos were used to keep track of important thoughts and ideas (Robson 1993).

The analytical process began with defining categories based off of the questions used in the interview sessions and also the topics looked at during observation. However, the quality of the categories could not be adequately assessed until the data was transcribed. Originally the researcher planned to complete full, word-for-word transcripts, but after an experiment with this, it was decided that a summarized transcript would be more useful, and certainly less time consuming. Following this, the categories were reassessed, and data was again limited.

Miles and Huberman (1994) propose three steps during the analyzing of the data. After reducing the data, the second step is to display the data. "Data display goes a step beyond data reduction to provide 'an organized, compressed assembly of information that permits conclusion drawing...' (Miles and Huberman 1994)" (Berkowitz 1997). This study kept the display to a simple level and worked primarily to create categorical matrices that would allow easy comparison between the case study sites and categories. In addition coding was used to simplify the search process for related topics. Codes were developed for main categories and sub-categories.

The final stage proposed by Miles and Huberman (1994) is the drawing of conclusions. This if any of the stages is the most likely to be described as "an art" (Robson 1993). During this portion of the analysis, the researcher chose to analyze the data based on a descriptive framework and not a theoretical one since the study is exploratory and not explanatory or experimental. Robson (1993) describes the procedure as such:

> You are looking for a set of themes or areas, linked to the research questions once again, which appear to give an adequate coverage of the case. One version, common in applied, real world studies, is to work towards an *issues analysis*, where the issues can be used as a means of organizing and selecting material. (Robson 1993)

Other tools were used to aid the process of drawing of conclusions. Robson (1993) had several suggested tools, two of which were used in this study. The first was the concept of "patterning", which is simply noting

recurring patterns or themes (Robson 1993). The second tool was to cluster the themes in order to produce sub-categories, and thereby draw further conclusions.

Other Research Issues

One of the key concerns of any research is the usefulness and acceptance of the data. In quantitative research this is often referred to as "internal and external validity" (Robson 1993, *et al*). Guba & Lincoln (1985) proposed that credibility, transferability, dependability and confirmability" are the equivalents of internal and external validity for qualitative research.

The goal of credibility "is to demonstrate that the enquiry was carried out in a way which ensures that the subject of the enquiry was accurately identified and described" (Robson 1993). Robson (1993) goes on to describe several methods of achieving credibility, including "prolonged involvement", "persistent observation", "triangulation" and "peer debriefing." This study should have credibility due to the fact that the researcher did indeed have "prolonged involvement", because the research has been familiar with the "culture" of videogames, and video gamming for more than ten years (Robson 1993). In addition, triangulation, or the use of multiple sources of evidence was used through utilizing both observation and interviewing as the data gathering techniques.

Transferability corresponds to external validity in quantitative research (Robson 1993). In essence it is the proof that the sample sizes were appropriate; however, this is not appropriate for qualitative data. Rather for this kind of research it is more of a judgment call for the person who is going to be using the data (Robson 1993). With this in mind it is up to the researcher to clearly provide the information needed so that the user of the data can accurately make the judgment call (Guba & Lincoln 1985). This would include having a clear research methodology and explaining the process to arrive at the conclusions, which the study attempts to do.

Dependability is directly related to credibility—if the study is credible, then it is also dependable (Robson 1993). Confirmability refers to whether or not the researcher remained objective during the study (Robson 1993). Since this study was not attempting to prove a point one way or the other, it was relatively easy to remain objective.

Chapter Four: Case Study Results

Originally four locations were chosen as case study candidates—The Computer-Spiele Museum in Berlin, Game On in London, a temporary exhibition at a toy museum in Belgium, and a gallery at the Bradford National Museum of Photography, Film and Television. In the end, it was realized that four case studies was far too ambitious for the time allotted, and would not allow ample time to analyze the data. Only The Computer-Spiele Museum and Game On were chosen in the end. Each had characteristics that could be useful to get a broader picture for the potential of videogame museums. Computer-Spiele was the first museum about videogames, was a permanent exhibition, had fairly limited funding and had only a small gallery. Game On was a traveling exhibition, well funded, and was large.

Case Study One: The Computer-Spiele Museum in Berlin: Andreas Lange, Curator

During the initial research stages, preliminary research led the researcher to the Computer-Spiele Museum in Berlin. As early as December 2001 the researcher made contact with the curator, Andreas Lange and began discussing ideas with him about videogame heritage. Later, when the researcher's plans had finalized to conduct the thesis research on the area, contact was made with Andreas again, and plans were made to visit him in Berlin and conduct an interview with him. Early on, he brought to the researcher's attention that the museum was currently closed, as they were making plans to secure additional funding and relocate to a larger, more prominent venue for the museum. The researcher decided that the contributions the museum had made to the display of videogames and their history still qualified the museum as a valuable case study for my research, and the investigation went forward.

The Computer-Spiele Museum was chosen for several reasons, but the most important was because it was the very first of its kind. The museum was a project of the Association of Social Work Service for Juveniles, which amongst many things, was involved in "the systematic evaluation of the educational impact of computer and videogames in Germany" (Lange 1996). As an employee of the organization Mr. Lange was chosen to head a new project—create a video and computer game museum, since the organization already accumulated a number of software titles from its evaluation project. In 1996, Andreas Lange opened the doors to the Computer-Spiele Museum—the first permanent, entire museum devoted to videogames. Clearly Mr. Lange viewed the opening of this museum as an important event, and he writes in the original project proposal with enthusiasm about the roles the museum will fill.

> As the first institution in the world, the Museum for Computer and Videogames will be engaged in the systematic research of the interaction between computer and computer game, between technology and people. Lange (1996)

Beyond this, Lange also had ideas of creating an archive of software, documentation, and other related material to videogames. He also wanted to present "original objects . . . in a highly interactive setting", and conduct

events such as lectures, seminars and conventions on both the "historic development and the current tendencies of the software market" (Lange 1996).

From its opening the museum steadily grew. More employees were added, and a larger collection was accumulated. The Wall Street Journal Europe had an article about it. (Ward 1997). In the end though, Mr. Lange was not satisfied with the size of the exhibition. He temporarily closed the museum, and currently is looking to expand to new, and larger quarters with more funding.

Since the exhibition is closed, observation was not a possible means of data gathering. However, significant amounts of secondary information could be found about the exhibition when it was originally open, and a semi-structured interview was conducted with the founder and curator of the exhibition, Andreas Lange.

Case Study Two: Game On traveling exhibitions at the Barbican, London: Lucien King, Curator

During the course of initial research, it was discovered that there was a prime opportunity to study a new traveling exhibition on videogames within England. The Game On exhibition, at the Barbican in London, was billed as the "first major UK exhibition to explore the vibrant history and culture of videogames" (Barbican Art & National Museum of Scotland 2002). Shortly after, contact was made with the exhibitions curator, Lucien King, and arrangements were made to conduct a semi-structured interview and observation of the exhibition.

According the home page of the exhibitions web site (Barbican Art & National Museum of Scotland 2002), the exhibitions covers "key developments between 1962 and 2002". In actuality only a few of the total fifteen galleries are specifically related to the *history* of videogames. Many other areas are covered as well, including marketing, the "games culture of USA, Europe and Japan", sound, kids games, and character design (Miller 2002, Bodman *et al* 2002). Together the galleries attempt to portray a complete view of the computer and video industry—its history and current developments.

The curator, Lucien King, described the exhibition as a brainstorm between himself and the then current director of the National Museums of Scotland, Mark Jones, who was looking for an original, new exhibition. Mr. King was very familiar with videogames, as he had worked with Take 2 and Rockstar Games, and convinced Mr. Jones with "(a few whiskies and the promise of a holiday in Ibiza) to persuade him that videogames were an ideal subject for a major show at the National Museum in Edinburgh" (Bye 2002). It took almost four years, a lot of money, and an additional partner in The Barbican to actually put the exhibition together (King 2002b), but the results appear to be very good. According to King (2002b), the exhibition has received the largest press reception on an international level, of any exhibition at the Barbican.

Results

Both interviews and the observation at Game On provided ample amounts of raw data, and disseminating the information was not easy. Following the principles of grounded theory, the raw data was listened to and read through several times. During this process several initial categories began to become obvious as a "sample" of repeated topics was taken (Glaser 1998, Dick 2000). Dick (2002) discusses the first round of sampling as "diverse a sample as you are able." Initially, the goal is to look for a "core category", which "immerges from the data" (Dick 2000); however, in this case it was realized immediately that there might not be a core category, since the goal was to look for a diverse number of issues (Glaser 1998). If a "core category" were to be defined it would have to be associated with videogame museums and heritage. With this in mind, the goal was to limit and sort the number of categories/topics that were discovered during initial rounds of analysis. Table one lists the initial/unsorted and limited categories.

Sorting helped to define sub-categories, which were placed under larger categories. Sorting occurred during the memo writing process, which helped to clarify the important and major issues from the more minor ones. Although, there were plans to then sort the categories into further importance levels, it was decided to leave the categories as they were, since it was impossible to tell at this point which of the main categories was the most important. Therefore, table two lists the final major categories; however, they are not ranked in order of importance. The following section lists the memos that were associated with the final categories, and any subsequent write-up.

Funding

Funding, as with most museums, is of high concern for videogame museums. There is a higher cost than usual with displaying videogames, as King (2002b) pointed out. There are a high number of breakdowns, specialized staff is needed, more front of house staff is needed, and moving the exhibition is expensive as it is large, heavy and breakable (King 2002b). King (2002b) talked about how it took about four years to develop the Game On exhibition and very significant contributions from both the Barbican and the National Museum of Scotland. Although the specifics were not discussed with Lange (2002b) it would seem that the Computer-Spiele museum was developed significantly less auspiciously. Lange (2002b) mentioned that they started with a "very small budget", no staff, and no professional museum personal.

Two subcategories were developed under the main heading of funding. They are sponsorship and revenue. Sponsorship was a subcategory discussed with both curators, as it is a concern for any organization interested in developing a videogame exhibition. The immediate thought would be that with the commercial success of videogames, it would be relatively easy to get sponsorship from companies. Apparently this is not the case, as both curators pointed out. Lange (2002b) discussed the problems of location. Essentially, since Germany only had marketing offices, and not the parent offices of the large videogame companies, it was difficult to get their support. In addition to the problem of location, Lange (2002b) thought that the producers of the games were not

interested in the heritage of videogames. He concluded that the developers themselves may view their games as serious contributors to culture, but producers, who own the copyright are only concerned with getting as much money as possible from the game. King (2002b) had another perspective on sponsorship. It was his opinion that sponsorship would not necessarily be a good thing. He commented on how he wanted to avoid the commercialized feel that most computer/videogame expositions have, and how involving sponsors would invariably alter the neutrality of an exhibit.

Revenue was discussed in regards of admission fees. Again there were significant differences between the organizations. The Computer-Spiele Museum charged a relatively low admission fee of approximately two pounds, although the museum was very small. The Game On exhibition had what could be considered a very high admission fee, for a museum, of eleven pounds. Both curators had comments on their admission fees. Lange (2002b) said that a few people did initially complain about the cost, since the museum was so small. However, he also said that after completing the visit, most visitors thought that the price was worth it –there was a suitable level of value for money. King (2002b) did not comment on any visitors complaining about the cost, but he said that he thought the price was average for West-End London entertainment prices. He also stated that he wanted the museum to lower the cost for repeat visitors—he thought they would have been able to get many more people to come back if the cost had been lower for repeats.

Exhibition Design

The exhibition design was considered an important area of research for the study, and was broken down into several sub categories during the analysis. These categories included interpretation methods and the content included in each exhibition.

From the researchers point of view, there was a high level of interest as to how the interpretation was handled for each exhibition. It was an opinion of the researcher that interpretation would play a key role in defining the premise for videogame museums and exhibitions. Interpretation methods were discussed only briefly with each curator; however, there was ample opportunity to observe the interpretation at the Game On exhibition, and by looking at photos provided by Lange for the Computer-Spiele museum.

Perhaps the most important interpretive tool for videogames is the hands-on portion of the exhibition. Videogames as artifacts contain a unique aspect when compared to most artifacts in that they require use of all four dimensions for display. Many artifacts, for example a vase, are viewable basically as a whole with just the dimensions of height, width and depth; however, videogames also require using the fourth dimension, time, in order to get a picture of what they are all about. In other words, the longer a visitor views a videogame while it is played, the different perspective the visitor may acquire about that videogame. In addition, the sequence of a videogame may change, making it different from even most audio or video recordings, which have a very linear, pre-determined, sequence. Even to add to the need of hands-on display for videogames, is the fact that

they were designed to be interacted with in the first place. "The gameplay is the component of computer games which is found in no other art form: interactivity" (Rouse III 2001). Clearly a videogame exhibition needs to make use of hands-on displays to convey the essence of videogames. Both case studies had identified this need and focused a large part of their exhibition on allowing visitors to try out a variety of games on different machines. Since the Computer-Spiele museum is temporarily closed, it was more difficult to get an idea of the scope of their display. However, it was known that the exhibition was quite small—two rooms with a total of 70 square meters—which would not allow for a lot of different games (Lange 2002b). The Game On exhibition, however, "is the ultimate 'hands on' event", spanning two floors and containing almost one hundred playable games (Williams 2002, King 2002a, Bodman *et al* 2002).

Despite the necessity of displaying the games as a hands-on activity, there are a number of problems with this. First, is the concern with the durability of the displays. Hand's-on exhibits are notoriously breakable (Dagnall 2002), but it is even an increased concern with older computers and videogames, that although designed to be played upon, may not be up to the rigors of hundreds or thousands of users attacking them. In addition, some of these machines may be rare enough that they warrant additional concern. Lange (2002b) suggests a solution to this. He indicates, that although it may be best for visitors to play on original equipment, the use of emulators may be necessary for some cases (Lange 2002b). Emulators would use modern computers to mimic the original game, which may not be cheap, but are replaceable. The disadvantage, which Lange indicates, is that the visitor will not get the full experience of playing original software on original hardware. In the interests of conservation, this may be the only solution. The second major issue it that of playing time. There are two sub concerns with this. Some videogames take extensive time to learn how to play—the main idea of the videogame may not be understood for a while, or it may take time to adequately learn how to control the game. This will discourage traditional non-videogame visitors from trying the game. In addition to this, the exhibit may suffer from "game-hogs", or people who are using the exhibit as their own personal arcade, and are not willing to play for a reasonable amount of time.

There are several other points about hands-on displays and visitor management, which were discovered during the observation process at the Game On exhibition. First is the issue of children and adult themes/and or violence within the games. As discussed in the literature review, there are games that are potentially undesirable for use by young children, yet they warrant display because of contributions they have made to the industry. Policing these games is difficult for the museum, and parents may expect that since "it is a museum it must be safe." The second issue is one of display height and access. Positioning games at a height that is easy for children to see and play, may pose problems of glare for adults or taller visitors. Also, popular games may experience large numbers of visitor crowding around in order to "see the action". The Game On exhibition attempted to get around this by having large projection screens above some of the more popular games (Figure 5). This seemed to work well, but requires large amounts of space. Finally, the exhibition has to be aware of

light levels. Contrast is an issue, and monitors and television screens tend to be easier to see in low-light situation; however, this is not always compatible with other forms of interpretation such as text panels.

From comments made by the curator, and by looking at photos of the past exhibition, the Computer-Spiele museum was dependent on two primary types of interpretive devices—text panels and hands-on exhibitions. The text panels served multiple purposes. First, was an explanation of what the machine was, and why it was chosen for display—what was significant about it in terms of computer/videogame history (Lange 2002b). Secondly, a text panel described the program that was running on the machine, why it was selected, and also a general description of how to play the game, or at least get the visitor started (Figure 6). Therefore, the text panels and the hands-on displays worked together to improve the visitor experience. In addition to text panels, two other methods were used with limited use and success. Radio recordings from the 1980s were used, as well as a video program, which was enclosed in a converted arcade case (Lange 2002b).

The Game On exhibition had a number of interpretative devices, however the predominant methods used were text panels and the hands-on displays themselves. In addition to these two methods, video was used in a couple of displays. A looped advertisement reel provided ambiance for a display about the game, *The Sims*, and in another area a cinema style display showed movie footage related to videogames (Gieske 2002b, Williams 2002). One of the most unique interpretation methods was a costume display. The Barbican had asked a couple of Mormon Sewing communities to create costumes of videogame characters; however, they were not given a description of what they were creating. Most of the costumes remained fairly ambiguous, but proving the popularity of the character, Mario was clearly created. Overall, King (2002b) was pleased with the way the exhibition used interpretation, although he thought the text was too small and too limited.

Education

Both curators viewed education as an important objective of their respective exhibitions (Lange 2002b, King 2002b). Again, it was more difficult to assess the situation with The Computer-Spiele Museum, since it was closed; however, Lange (2002b) specifically commented on the success with schools. Lange (2002b) described how children would be excited to take a school field trip if they knew they were going to The Computer-Spiele Museum. Once the children arrived, the museum had a plan set in place. First the children would hear a short presentation, then they would have time to play some of the different games (Lange 2002b). However, beyond this, the facilities were fairly limited for The Computer-Spiele Museum—there were no handouts, education officers, and it did not seem to fit closely with a specific national curriculum.

The Game On exhibition had a very extensive educational program—one that could be viewed as setting the bar for any future videogame exhibitions. The educational program is a structured, six lesson/six week program for 8-11 and 11-14 year old students (King 2002b). The first lesson gathers information about the students in the form of a questionnaire, which is done as homework before the next lesson. This forms the basis as to what

topics will be taught in later lesson. It seeks to ask questions that help them find out more about themselves and their videogame habits such as how they play them, how much they spend on them, do the boys play more than the girls, etc (King 2002b). The next stage is to make a videogame or elements of a videogame, such as character or storyline. Next, teams are created and a case study is used of Lionhead, a videogame design company in England, which shows the students a number of different things about the business of creating videogames. Two lessons follow, which are work time, and a final lesson, which reviews the work. At the time of the interview, there were plans to show the first group of student's work in a nearby exhibition. The goal of the educational program, according to King (2002b), was to not only explain how videogames are made etc., but also to encourage their involvement in the creation of games—not just playing them. King (2002b) emphasized in several parts of the interview that the students of today will be designing the videogames of the future—which seems like an obvious statement; however, the key is that King (2002b) wants to see new types of games being developed, games which can reach to a large, more diverse audience. Relating to the gender issue referred to in the literature review, King (2002b) specifically sees the exhibition playing a role in getting females to be more interested in games, and hopefully spawn a new generation of female game designers (King 2002b).

Visitors

There are really two concerns with visitors. First is the aspect of visitor studies—the use of research tools to analyze who and who is not visiting the museum. Both The Computer-Spiele Museum and Game On did not seem to have a specific program set in place to learn more about their visitors; however, both also seemed to think that conducting some form of research would be beneficial (King 2002b, Lange 2002b). Both responded that they did not conduct any feasibility or visitor studies before opening the exhibition. This is understandable for The Computer-Spiele Museum, as they had extremely limited funds previous to opening. However, it is a little more surprising that a well-established museum system such as the National Museums of Scotland or a large gallery such as the Barbican did not insist upon a feasibility study in advance. From comments made by both curators, the idea of opening such an exhibition was primarily based on a "gut feeling" (King 2002b, Lange 2002b). King (2002b) was interested in conducting post-opening visitor studies. He proposed that conducting a survey of visitors would be a valuable source of information, "An interesting record that could be added to as it goes around the world" (King 2002b). King continued to talk about the interest he has in seeing how people react to the exhibit. "We had a guy on the second night, he was on his knees, crying, because he hadn't seen *Tempest* working . . . on an arcade on free play ever . . . People get very emotional about it" (King 2002b). He said it continually surprised him that "people do actually care enough about them—about games" (King 2002b).

The second concern with visitors is the idea of public perception. As earlier explored in the literature review, videogames have a variety of public images—from violence, to a "boy thing" to a "geeky thing". From the comments of both curators, it seemed that the museums could serve as an area for people to make their own

perceptions of games—but actually based off of trying them, and not simply from the media or second-hand knowledge. Interesting things can happen at these museums, as parents, or even grandparents can mingle with their children or grandchildren and share in an experience together. Lange (2002b) specifically talked about how grandparents would bring grandchildren to the museum, and then have an opportunity to try videogames themselves—sometimes for the first time. Lange (2002b) said that because the games were presented in a museum environment, with information and helpful staff, visitors who would not be considered "typical" videogame players were able to experience videogames. Lange (2002b) went on to say that some visitors even came up to staff after visiting to make comments about how their perceptions of videogames had changed. Although not part of the case study, a separate discussion with a member of the staff (Wellens 2002) at the Mechelen Toy Museum in Belgium reinforced the ideas Lange was talking about—that children for the first time could relate and explain something about their lifestyle back to their parents. As videogames are played by an older and older audience—" A survey by the European Leisure Software Publishers Association has found that the average age of the keenest players is gradually edging upwards . . . currently between 25-34", this may be less of an issue; however, for the time being older generations can use these museums as a safe place to learn about technology (BBC 2002a).

Other public perceptions may be a factor as well. A videogame museum may have to deal with an idea that they are only for "geeks"; although this is rapidly changing as systems such as the Playstation II are very mainstream—often serving as a household's DVD player and becoming a standard part of households entertainment systems (Mikhail 2002). It is more likely that a videogame museum will be perceived well. Parts of the Game On exhibition dealt particularly well with the realization that videogames have blended well with other aspects of popular culture (BBC News 2001d), and that they are no longer for just a small segment of the population (Gieske 2002b). Certain galleries discussed how popular pop artists have worked on the soundtracks for games, and the cinema has seen an influx of movies based off of videogame plots—i.e. *Final Fantasy* (Wearden 2001).

Competition

Issues of competition, although not directly discussed, could be inferred from the conversations held with both curators. It would seem that although these museums are relatively unique they still face forms of both direct and indirect competition. Primarily, two sources of competition were discussed--Web-based videogame museums and video game trade shows.

Web-based videogame museums were viewed slightly differently by both curators; although, neither seemed to think of them specifically as competition. Lange (2002b) was of the opinion that these types of museums offered a different service, and that essentially they could survive in harmony. However, he also had the perspective that these sites could assist in the quest for preservation. He has the perspective that the more copies of a certain piece of software the better, because it is more likely to survive. Therefore, a videogame museum,

unlike other types of museums, should maybe be seen as a central or unique archive, but should also share its resources with as many other places as possible (Lange 2002b).

Web-based videogame museums were briefly discussed with King (2002b), and he thought of them in a cooperative manner. He hoped that eventually, Game On's web site would link to many of these existing sites, providing the visitors an opportunity to learn more than what the exhibition alone could provide. The other source of competition that was discussed was video-game tradeshows, such as E3. King specifically talked about wanting to be different from these types of exhibitions, as discussed earlier.

With Lange (2002b) there was also the importance of being first. Research was done by Lange to see if The Computer-Spiele Museum was indeed the first of its kind. He talks briefly about the Coin-op Museum in St. Louis, but discredits it by saying "It wasn't really an exhibition. It was one collector and he opened his collection of classic videogames for the public" (Lange 2002b). To look deeper into this issue, Lange placed a good deal of importance on having a proper museum structure and interpretation—that is a key difference from having an arcade with classic games to having a museum about classic games.

Objectives

Objectives are an important part of any marketing and management plan (Leighton 2002b); therefore, the researcher wanted to see what objectives these two cases had set for themselves, and how well they felt they had done in accomplishing them. Surprisingly, neither location seemed to have clear objectives; however, there were indications that the line of questioning did not prompt the best possible answers. Lange (2002b) discussed how he felt the museum was more of a media museum--more similar to a film or art museum then a computer museum. He discussed how the museum was concerned with the story, content, culture, and marketing of the games. Later he suggested that education, entertainment and preservation all played equal roles of importance to the museum--or at least that a good museum would strive for all three.

King (2002b) did not discuss the objectives specifically, although some possible objectives could be determined from other parts of the interview. For example, when discussing the reasons for opening the museum King though entertainment was an important value. He said that he wanted people to have a good time, but a little more than just that. He was also striving for something that is different from the typical museum experience– not the standard "hush-hush", quietly visit and get-out experience.

Preservation

Preservation and its related sub-categories of emulation and archiving were felt by both curators to be important roles for their organization. In the case of videogames, preservation is more of a concern for the future for current artifacts. Lange (2002b) talks about how it is not so much of a concern today to find, for example a Commodore 64, but in 100 years it may be very difficult. Both hardware and software are self-degrading.

Hardware essentially damages itself after many years of operation; the constant flow of electricity runs the circuitry (Lange 2002b, et al). Software that is stored on original media, especially magnetic media, is at risk of demagnetizing, or becoming otherwise degraded. Also, there is the concern for unique or relatively rare forms of media storage such as 8-inch floppy disks or magnetic tape. Lange (2002b) in particular discussed ways around this inevitable loss of software and hardware and seemed to be a strong proponent of emulation. Although he thought playing the games on the original hardware was the best way to get the experience, in the future there would be no choice and emulation was the best answer. Lange (2002b) also thought that the more copies of software the better, and that the Internet should be used as an archival tool–not only for videogame museums, but also other media institutions such as libraries and other types of museums.

Although emulation was not discussed with King (2002b), he saw opportunities for his exhibition to serve as an example for other organizations dealing with media on a variety of formats. King (2002b) saw a near future in which media archiving could become a national crisis of sorts. Art museums may have to deal with art in different digital formats, libraries now must deal with content that is exclusively on-line, and traditional museums look for ways to bring their collections into digital galleries. King (2002b) felt that the experiences the staff at Game On had would already benefit the Barbican. Game On could provide instruction on “How to deal with and manage media" (King 2002b).

Chapter Five: Conclusions

As mentioned in the introduction, it is the researcher's opinion that the first generation of videogame museums have been created and consumed. Museums like The Computer-Spiele Museum and exhibitions such as Game On, have given the public its first taste of videogames as an artifact. From initial reports, it seems like the public thought well of it. The Game On exhibition reports high numbers—possibly the second highest visitor numbers after the record breaking Star Wars exhibition one year prior (King 2002b). Other factors indicate that there is a certain level of nostalgia about "classic" videogames, and that individuals have already begun to create museums of their own, although mostly in the digital realm of the Internet. With this interest, there also seems to be a number of potential topics beyond simply the history of games—issues such as gender, violence, economic factors, globalization, creativity and many others could all seemingly make good material for videogame museums and exhibitions. In essence there appears to be opportunity—opportunity that has just recently been tested.

Beyond opportunity, however, come more questions; questions that don't necessarily have answers yet. Nonetheless it is better to at least start with the questions, instead of only the unknown. That is what this study hoped to do, and the researcher feels, that in most of its capacity it has done just that. The categories that this study has looked at are important issues that future museums about this subject will need to address in order to be successful.

Based off of the analysis, the following questions are issues videogame museums and exhibitions will need to look at further:

Funding

Although it seems videogame museums can sustain a relatively high admission charge and still have substantial numbers of visitors, admission charges alone will probably not be enough to sustain these museums, since the cost of operation is so high. Therefore, sponsorship will need to be looked at. The problem with sponsorship is that it increases the number of stakeholders, who will undoubtedly have some additional demands.

- How can sponsor demands be met without damaging the integrity/objectivity of the exhibition?
- What types of data will sponsors demand from the exhibition—i.e. visitor numbers?
- How important is location to this type of museum—are companies more likely to sponsor these types of museums if they are in their local region?

Exhibition Design

Exhibition design hinges on one key fact—a videogame exhibition should and most likely will have, many hands-on displays. As discovered during the analysis, however, there are several issues that need to be addressed.

- ?? How can hands-on displays be used to their best potential—allow visitors to experience the game, but not have to worry about complicated controls, or a long storyline?
- ?? Are emulators an adequate replacement for the real thing?
- ?? How can games that have adult-themed content be displayed without the potential problems of younger users having access to these games?
- ?? How can other interpretation methods beyond the hands-on portion, be made interesting enough to compete with the action, sound and excitement of the games themselves?

Education

An educational program can help create value for a videogame exhibition. Kings comments about helping to develop a broader base of game designers in the future is a valid argument. However, the researcher feels there are other areas that education can play a role in:

- ?? How can a videogame museums educational program help to inform visitors and potential consumers about violence and gender issues?
- ?? What methods of delivery will be most effective for education of visitors—has the online/in-class method used by the Game On exhibition worked well (Barbican Art and National Museum of Scotland 2002)? What forms can be used in the exhibition itself?

Visitors

Without visitors there is really no point in having an exhibition (King 2002b). Part of being able to survive in the heritage marketplace is being aware of visitors and non-visitors, and the associated needs and desires of these visitors (Leighton 2002c). Visitor studies should be a crucial part in the plan for running a videogame exhibition—especially since there is a chance that the motives of these exhibitions may be questioned by funding bodies.

- ?? Although the curators were roughly aware of who was coming to visit the exhibition, further and more formal studies should be conducted. There is interesting evidence that points to a more diverse segment of visitors then initially expected by the researcher.
- ?? The comments made by King (2002b) about the high emotions that existed at Game On are interesting and unexpected. How can future museums and exhibitions play into this further—utilize the growing amount of nostalgia and the intense emotional experience videogames can sometimes provide?
- ?? There needs to be a continuation of study on the impact of videogames on culture (Goodman 2002). What have they influenced? What affects do they have? Can they increase aggression (BBC News 2001b), or can they be "valid learning tools" (BBC News 2000)? Is it possible that videogame museums could play a role in this research? Also, what can they do to communicate results to visitors?

Competition

From the researchers point of view, videogame museums and exhibitions need to look at competition more seriously—especially indirect competition.

- ?? How can physical museums compete against Internet-based museums, which have much of the same experience to offer? What are the strengths and weaknesses of physical museums?
- ?? What advantages do videogame museums hold over traditional museums—more access to young visitors, broader demographics, more activities?

Objectives

Judging from the comments made by both curators, specifically stated objectives were not necessarily part of the start-up procedure. Rather, there was a perceived need, and exhibitions were created based off of that perceived need. The researcher attempted to get a feel for the objectives by asking Andreas Lange to attempt to rate the importance of education, entertainment and preservation. Of course, Lange responded that all three were desirable qualities for such a museum. Looking at the question again, the researcher realizes that it is not really a matter of rating importance, but rather how these museums want to position themselves.

- How will these museums position themselves, especially between education and entertainment, which is an important issue for most museums?
- What objectives do these museums need to set out for themselves, and what are realistic goals that can be achieved?

Preservation

Preservation is an important issue for these types of museums, as they sit at a certain period of time in which there is relatively easy access to equipment that may be difficult to get in future years. There is a lot of room for additional knowledge in this are, especially in archiving. This knowledge could also benefit other organizations concerned with digital media.

- How much of the museums resources should be set aside for preservation and acquisition?
- How can these museums develop protocols for preserving digital media?
- How much of a role do these museums want emulation to play, and how important is the real hardware and software.
- Beyond the software and hardware, what needs to be preserved? Advertisements, packaging, other media?

Additional issues

Although the research was intended to discover issues for further study, the results did indicate some potential recommendations that current museums can use, based on the experiences of the existing museums and exhibitions. These issues will also need to be researched further to quantify their usefulness.

- As mentioned by King (2002b), the artifacts are excellent for repeat visits. Look for ways to implement membership programs. Establish a friend's organization that can help volunteer, donate, act as experts and provide general help.
- As seen throughout the analysis, the hands-on aspect of the exhibition will be extra work. Plan ahead, and be aware that a certain number of artifacts will need repair on a regular basis. Budgets will need to plan for this.

Research Appraisal

The research study was a difficult project. From the very beginning there were difficulties in defining what the study was about. Dick (2000) comments how creating a good research question is winning half the battle because it sets the boundaries for the research, but for this study it was a struggle. With an exploration the goals

and objectives are somewhat tenuous. They keep drifting and changing—it is not nearly as clear as an experiment, where you are trying to prove or disprove point A because of the reaction of B and C.

I think there was a temptation to think that an exploratory study would be easier, that since the rules were not so set in stone, freewill could take over. It wasn't the case. There is a path that needs to be followed, and the research needs to stay within the same scope, but instead of walking down a clearly lit path, the researcher was wandering in a bunch of caves, never knowing if success or failure was around the next bend. It was overwhelming at times, and I never expected the magnitude of options and the breadth of information available.

The results of this wandering can be seen at times, and time limitations meant that some areas that could have been better explored were not. For example, the heritage marketplace could have been explored in fuller detail, or the management and marketing of these museums could have had separate sections devoted to them. However, this is in hindsight, and the researcher is still confident that the work in this study still accomplished the original goals and will fulfill a useful purpose.

Finally, the analysis of qualitative data can be a very difficult process. Understanding grounded theory, which was used as the analysis methodology is not easy, and expertise indeed comes with practice. Hindsight would again hint at drawing tighter conclusions, and minimizing categories even further, which a better understanding of the analysis process would have led to.

Tables and Figures

Table 1: Initial unsorted categories discovered:

Museum Roles	Funding	Education
Children	Visitors	Hands-on
Emulation	Cinema and video games	First Museum
Japan and videogame museums	Classic arcade machines	Sponsorship
Videogame companies/location	Comparison to film	Preservation
Exhibition size	Media Museum	Archiving
Distribution of artifacts	Time/hands-on issues	Visitor Studies
Visitor Use	Cost of admission	Games as art
Culture and games	Traveling vs. Permanent	Awareness
Unique gallery aspects	Marketing	Videogames and higher education
Nostalgia and Emotions		

Table 2: Sorted categories:

Category	**Coding Symbol**	**Game On**	**Computer-Spiele**
Funding	FND	Discussed	Discussed
Sponsorship	SPN	Discussed	Discussed
Revenue	REV	Discussed	Discussed
Exhibition Design	DES	Discussed and Observed	Discussed
Interpretation	INT	Discussed and Observed	Discussed and Observed
Content	CON	Discussed	Discussed
Education	EDU	Discussed	Discussed
Visitors	VIS	Discussed	Discussed
Public Attitudes	PUB	Discussed and Observed	Discussed
Competition	COM	Discussed	Discussed
Objectives	OBJ	Discussed	Discussed
Preservation	PRE	Discussed	Discussed
Emulation	EMU	Not Discussed	Discussed
Archiving	ARC	Discussed	Discussed

Figure 1: A PDP-1 and *Spacewar* on display at the Game On exhibition. (Image by Jeremy Gieske)

Figure 2: Atari home *Pong* machine. (Image from AGH Museum)

Figure 3: Pac-Man. Emulated version of the Namco classic running on MAME32. (Image from http://www.uni.bonn.de/)

Figure 4: The Original Nintendo Entertainment System. (Image from http://www.cyberiapc.com/nintendo/nes1.jpg)

Figure 5: A large screen at the (on upper-right-side of image) can help many Game On exhibition visitors see the game at once. (Image by Jeremy Gieske)

Figure 6: One of the text panels used at The Computer-Spiele Museum. (Image by Jeremy Gieske)

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