

Edutainment – Evaluating the Social Change-Value of *Carmen Sandiego*

“Give your kids the advantage they need for success...” – The Learning Company

Some of the greatest innovations of the twentieth century have stemmed from humble beginnings. Take Apple Computer, for example. Apple’s start as a company was not in a large research and development laboratory, but rather within a garage with two electronic hobbyists and some electronic kits. Hewlett and Packard also had less than extraordinary beginnings when they decided to start HP in 1938. The fact which seems to hold true rests in the idea that the product of great innovation does not need to be fostered in the depths of an R&D lab with an unlimited budget. Rather, products of great innovation are bred from the depths of the minds of serious individuals, or a group of individuals, focused on change.

Starting within the confines of someone’s home as an early software company, BrØderbund focused heavily on utilizing few resources to produce quality software titles to fuel the emerging personal computing industry in the early 1980s. BrØderbund was afforded a very fortunate position due to its early participation within the software sales arena. As long as BrØderbund produced attractive titles for early Apple IIs and Macintosh computers, the company could expect to have a clear and definable market within the public education system with its well-budgeted purchasing power along with the emerging home market. Since many of the games that BrØderbund released could be updated and followed by a new version the following year, they were blessed as a software company with a continual revenue stream with reliable repeat paying customers.

Little did BrØderbund know that from its humble beginnings, it would eventually revolutionize the computer game industry with a particularly popular and successful software series -- *Carmen Sandiego*. From “*Where in the World...*” to “*Where in the USA...*,” *Carmen Sandiego* continues to play an instrumental role in the integration of computer-based learning and educational technology. *Carmen Sandiego*’s contribution is given, but is not limited to, the following points:

- Serving as a working model that showcases the strengths of multimedia software within an educational context
- Playing an important role in defining and redefining the edutainment industry
- Exemplifying the use of branding techniques beyond the software package
- Taking an indirect role in getting more of an equal gender utilization of technology
- Surfacing difficult issues that deal with public policy focused on education, technology, and power

The aforementioned points serve only to illustrate aspects of the historical narrative presented in this paper. With respect to the significance BrØderbund continues to have on computer game design, the *Carmen Sandiego* game series acts as an agent of social and technological innovation within the emerging edutainment industry.

Background Information

Before this paper begins to outline how BrØderbund has influenced the development of the edutainment industry, it is important to first understand and define what edutainment is, BrØderbund's mission as a computer game developer along with other pertinent company information, as well as some foundational information regarding the *Carmen Sandiego* game series.

Defining Edutainment – According to Aleta McCallum-Fournier, a writer on entertainment and education, the “one word to best describe educational entertainment and entertaining education” is edutainment. Edutainment combines two powerful forces, education and entertainment, and was introduced formally into the new dictionaries in the early 1990's. Aleta mentions that “there has been some controversy over the word and implication” since it poses a threat to traditional education. However, many believe that edutainment is nothing more than a type of embedded learning which helps others learn without them directly knowing it. For authority's sake, the Marion Webster and Garfield Dictionary defines edutainment as “a form of entertainment that is designed to be educational,” whereas Random House Webster's College Dictionary defines edutainment as “television programs, books, software that are both educational and entertaining especially those intended for primary school age children.”

In the software industry, though, edutainment represents for the most part any software title that is “entertain[ing] with an educational twist.” Edutainment software titles initially targeted parents seeking home products for their children. Many educators, including teachers and parents, were frightened by the possible implications of a removed formal education through edutainment since it was unconventional and believed that learning should be “satisfying and valuable enough without the distraction of entertainment getting into the educational picture.” BrØderbund early on encouraged educators and parents that edutainment not only “re-energizes our children's learning and success in school” but also has “positive effects in our everyday home, businesses and media arenas.”

Company Background – In its 1994 SEC filings, BrØderbund Software, Inc. states that it “develops, publishes and markets a broad line of interactive personal productivity, entertainment and education software for use in the home, school and small business markets.” Since its founding in 1980, BrØderbund has developed innovative products which take advantage of advances in personal computer technology. Its success is evident through its awarding of over 400 awards and with software sells of over 40 million units. BrØderbund's mission states that it is “committed to creating imaginative software to provide value for consumers of all ages.” BrØderbund's product strategy is “to identify and develop

families of products that will achieve sustained consumer appeal and brand name recognition primarily across three major consumer software categories: personal productivity, entertainment and education.” Through its mission and its product strategy, it has come to produce the better known titles such as “The Print Shop(R) family of personal productivity products, the *Carmen Sandiego*(R) family of educational products, the Family Tree Maker(TM) line of genealogy products, and the entertainment product *Myst*(R), which is the best selling PC game of all time.”

About Carmen Sandiego – BrØderbund describes the *Carmen Sandiego* family of products as “a very popular series of interactive games designed to motivate the player to learn more about the subject matter.” Having had sold over six million units since the first product was released in April 1985, *Carmen Sandiego* is known for its central character – a criminal named *Carmen Sandiego* with a passion to steal fine art and world treasures from around the world with the aid of her nefarious henchmen.

BrØderbund – The Social and Technological Innovator of Edutainment

BrØderbund early on utilized the promising multimedia technologies in its software development for education. Primarily focused on developing for the Apple II, the computer line widely popularized by early grade school education, *Carmen Sandiego* had impressively utilized 8-bit color graphics with decent sound functionality. Since the game operated as a multimedia game, users were subject to constantly having to swap out 5.25” floppies when special cut-sequences were needed to be loaded into the system’s memory. It was not until later that this problem was addressed with the use of single-speed CD-ROM drives. These drives made it possible to have all the multimedia condensed onto one medium source.

Carmen Sandiego circumvented the low amount of memory early computers were plagued with by coupling imaginative still graphics with intermittent animated sequences. Impressive for its time, *Carmen Sandiego* actually engaged computer users in a realistic detective scenario through the clever use of specific sound bytes and audio tracks. Some of these produced police sirens, typewriter noises for dossier entries, and airplane sounds as one would leave a country to chase different villains. *Carmen Sandiego* added great value to the multimedia genre of software titles by employing story lines that were not necessarily linear. Though one eventually would have to identify the correct criminal in the end in order to be considered for promotion, there were many paths the student sleuth could initially take, each of which providing its own educational value.

Carmen Sandiego enhanced the educational environment by being one of the first software titles to actually integrate external resources with the gaming experience. In fact, the game was packaged with a Fact Book consisting of condensed reference material. From the early 1980’s to the mid-1990’s, BrØderbund served as an effective educational model that indirectly laid the foundation for the emerging edutainment industry of the 1990’s.

By the time of its formal incorporation in the state of Delaware on January 28th, 1994, BrØderbund had had profound effects on computer gaming by being one of the leading software developers

and promoters of the edutainment industry. First off, the public education system began to place a greater deal of faith on the software title as the software became popular enough to replace instructional time in front of the classroom teaching with computer class coupled with individual instructional opportunities. This transformation within some school systems brought serious issues of accountability and accuracy of data to the computer gaming industry.

This in effect would create new metrics to compare one edutainment software title's efficacy to another. Also, now that *Carmen Sandiego* was being worked into actual classroom curricula, issues surfaced concerning the software's reliability and the availability of technological support for educators. This is due to the fact that the educators who made use of these tools may not have been exposed to such technology previously nor formally trained to use it. Thus this would undermine the true effectiveness of the software title. Finally, a more formal connection between software development and educational institutions was developed to bridge the gap between meeting the needs of the educational market with the technologies offered by the computer gaming industry.

Home schooling now was becoming more promising due to the introduction of edutainment titles. *Carmen Sandiego* enabled educators at home to cover similar educational material being presented in the school system since the same software was available for purchase. Though *Carmen Sandiego* at first focused more on the subjects of social studies and world geography, it would eventually start to incorporate other domains of education. With its expectation of the gamer to use external resources, such as dictionaries and encyclopedias, *Carmen Sandiego* allowed individuals taught at home how to practice researching skills on a rudimentary level. The disadvantage obviously is the lack of a primary educator to supplement the knowledge discovered within these external sources, which can be particularly disadvantageous since not all information presented in external sources is accurate.

Carmen Sandiego contributed to the computer game industry by helping educators realize that software could be used to tackle the issue of varying paces of educational development within young students. A major problem within early grade education is the expectation of similar learning patterns within all students in a particular grade. *Carmen Sandiego*, due to its innate nature of being a patient medium for the dissemination of educational material, could be used at home with students who were taken out of school or had become discouraged due to the lack of patience shown by educators, school administrators, and operators of Special Education programs.

BrØderbund by this time had established credibility within both the public and private sectors. One could find its software in public school systems, as well as private and parochial school systems. In fact, various non-profit organizations and foundations whose missions were focused on bettering education through the integration of technology into formal education systems placed great faith in BrØderbund's products. They would donate heavily and hold large donation events to have enough capital to buy more software licenses to be used within the school systems. With such great support, BrØderbund took computer game design to another level – outside of computing and into the mass market of television.

Even today, the model that BrØderbund uses as a branding mechanism of its computer software title *Carmen Sandiego* is rivaled only to that of a few action and RPG-oriented computer games. Due to the popularity of the game and marketing efforts of BrØderbund, *Carmen Sandiego* has become a household name known for its leading role in edutainment. Since September 1991, the Public Broadcasting Service Television, or "PBS," has shown this Emmy award winning, weekday children's quiz show now called "*Where in Time is Carmen Sandiego?*". Although BrØderbund does not receive significant revenues from the television program, the company believes its PBS program has increased the exposure of the *Carmen Sandiego* series and enhanced the recognition of the brand name.

Carmen Sandiego was already widely popularized and enjoyed by youths worldwide. Therefore, there was little to have to investment towards promotion and marketing of the show. In essence, more of PBS' resources could be focused on making the program more attractive to older grade school and high school students since there was not a lack of interest in the customary PBS viewers who were young children allowed only to watch television programs shown on the PBS station. This is where *Carmen Sandiego* diverged from many other edutainment software titles since it really focused on the attractive element of edutainment – entertainment.

“What were the attractive elements of Hollywood that made its movies so appealing to its viewers and would be able to be watched by young viewers in an academic setting?” is the question that had to be asked by BrØderbund. What *Carmen Sandiego* would eventually use as the entertainment focus of its instructional programming were three things: engaging plots and storylines, rock music to accompany the programming, and a two-tiered incentive reward structure.

By integrating plots of thievery and criminal activity of ancient art and masterpieces from around the world, *Carmen Sandiego* provided itself with a limitless supply of material to fuel the scripts for its software and its television series. In fact, with each villain and story plot, BrØderbund was able to reinvest in other revenue opportunities by putting the villains' names and faces on an assortment of commercial items, such as lunchboxes and school bags.

As far as trying to appeal to an older student population, BrØderbund and PBS came up with the idea of Rock-a-pella. Rock-a-pella was a traveling *a cappella* troupe of musicians whose music not only served as a branding mechanism for the software and television program, but also helped produce creative learning mnemonics that were able to be used by students. This of course was not totally novel since Sesame Street used a similar paradigm. However, the influence of using a *Carmen Sandiego* “rock” band in addition to educational instruction is important since it touches on issues of that are important to computer game designers, especially within the edutainment industry. Game designers began to recognize the value music added in maintaining a workable attention span within young students. Finally, aspects of multiculturalism emerged since many times the troupe would sing in foreign languages or dress according to the setting and place of the show's filming.

Where in the World is Carmen Sandiego as a show added a two-tier reward incentive structure. On the first level, winners of the show were able to travel for free anywhere of their choice within the

contiguous United States adding to their educational experience. And on the second level, viewers of the show at home were rewarded internally by the satisfaction of being able to answer the questions asked. *Carmen Sandiego* has had such widespread appeal that its software now has Internet connectivity. Users can connect to a global Internet ACME Club, where an online global community of computer users can connect to share educational resources, stories, and other communications while participating in active group problem-solving online. The major tenets that the Internet ACME Club promote are 1) the promotion of the safe exploration of the World Wide Web as a informative resource of external data and 2) the increase of exposure of additional educational resources and links.

The amount of visibility and the area of distribution a computer game receives, however, is necessary but not sufficient to describe the significance of that particular game. That is because those two factors usually deal simply with the technological and financial factors associated with that game. There are usually influences behind the scene, such as personal motivations, that influence the way these games are created and developed. It is crucial when evaluating the significance of a game to understand the operatives of the publishing company and the intentions of the developers involved with creation of these games. This is especially true within the edutainment domain since its market serves a more universal population reaching a larger audience. These motives and intentions get at the heart of many of the cultural factors that these games try to address or challenge. Unfortunately, they are not always as clear within the computer game design itself. *Carmen Sandiego* undoubtedly addresses certain cultural issues referencing gender and technology in addition to issues regarding the proper implementation of technology in education.

The story of the development of *Carmen Sandiego* is mainly associated with Dr. Janese Swanson. While working for the airline industry, Swanson started her first entrepreneurial venture by persuading a local computer store to provide her and several other flight attendants with laptop computers. On their time off, they become more familiar with various computer skills. With an interest in children and how they learn, she invented games to amuse them on her flights. Some of these games involved geography

After the flight attendant position, Swanson helped develop computer software as a senior product manager at BrØderbund Software. There she managed the Sensei education line and produced the very successful *Carmen Sandiego* Macintosh series. Dr. Swanson was instrumental in concept development, product design and marketing strategy of the children's product line. According to Swanson, there are ten million girls ages six to ten years old who represent an untapped market. While at BrØderbund, she wanted to know more about the minds and play patterns of preschoolers, so she headed a project to design a new interface that could be used with this age group. In addition to the interface, Dr. Swanson "was also concerned about the dearth of technological toys for girls."

Dr. Swanson believed that by designing *Carmen Sandiego* well, she could hope to see a larger cross section of genders represented. She feels there are many ways in which the gaming industry can encourage girls to embrace the world of technology. In fact, many young girls already do. But if young girls are only offered games that focus on their appearance and do not develop their coordination or

computer skills, they will be less likely to play video games as they get older. According to the AAUW Educational Foundation, studies have shown that children's early experience with computers and games informs their use patterns as they get older. Some software developers have already begun to explore the idea that video games for children should be fun to play and appeal to all children, regardless of gender.

Swanson's *Where in the World is Carmen Sandiego?*® serves as a good example of a game that is challenging and entertaining for both girls and boys. This game challenges both boys and girls to solve puzzles and use their knowledge of geography. BrØderbund released other *Carmen Sandiego* games after the initial success of the game. As a popular game with children and parents alike, the *Carmen Sandiego*® series has won several awards and has sold over 5 million copies. According to Janese Swanson, the following are ways to engage a more diverse selection of young individuals within the computer game.

- Create appealing characters that both genders enjoy.
- Avoid stereotypes and myths about females and males.
- Create products and marketing strategies that feature healthy female role models.
- Have girls test products and offer their opinions on all aspects from color to content.
- Design feedback questions and consider answers with socialized biases (e.g. girls will say any pink product is for girls because that is what they have been taught by society).
- Show girls actively participating in and enjoying the use of technology on advertising and packaging.

When asked, “*Where in the World Is Carmen San Diego?*”, which you created, has been a tremendous success. Did you know it would be? Did you always know in your heart that it would be or were you somewhat surprised?,” Janese Swanson replied with the following:

As a teacher, I knew. I was really poor when I was growing up, so we never had a vacation...I was always looking at globes and reading in books about these faraway places that I just imagined in my head, would read and look at pictures...when I produced Carmen, it was natural. I didn't even really think, 'This is going to be a mega-hit,' or anything. I just knew that it was the right thing to do, and I stayed true to that.’

From Swanson's perspective as an educator, doctoral student, and business women in the technology industry, the three most important issues in education today are gender equity, a willingness to address gender issues, and communication. Dr. Janese Swanson would later pursue her dreams in San Rafael, California where she started Girl Tech “to create entertaining products that foster strength and connection between girls, and raise awareness of and confidence in using technology.

Recognizing the role new and emerging technologies have historically played, and will continue to play, in the multimedia environment and consumer preferences, BrØderbund seeks to adapt to and incorporate such technologies into its product offerings. In this respect, BrØderbund believes that the emergence of the Internet represents an important trend and opportunity in the consumer software market, and as part of its Internet strategy it is developing on-line capabilities to its existing products, expanding its web-site presence and infrastructure and investing in a number of small Internet related companies in order

to keep abreast of developments in this rapidly-evolving area, and to position itself as a leading participant in this emerging platform.

According to Susan McLester of Technology & Learning, “edutainment titles combine entertainment with education, and target parents who want titles for the children that combine fun and learning.” McLester also says that advances in multimedia technology are “blurring the lines that once existed between education and entertainment.” At one time educators were concerned over whether graphics and animation would actually create a distraction to learning, the focus now is on helping children learn through hands on experience and through utilizing all of their senses.

The narrative presented here demonstrates the significance of *Carmen Sandiego* with respect to its influence on the development of computer game design. *Carmen Sandiego* addresses the needs of the edutainment commercial industry without having to focus on the development of a hyperbole of graphical or audio elements which are more substantive within the game genres of first person shooters, RPGs, and sports. Edutainment has found its way into the mainstream due to BrØderbund developing many great edutainment programs for schools, homes, businesses and organizations.

The focus of *Carmen Sandiego*’s contribution both culturally and technologically to computer game design rests in its success in bringing to the forefront a working model for using multimedia technologies and external reference resources. These resources deal effectively with implementing educational computing as a social practice that shows a net profit within any cost-benefit analysis. Culturally, BrØderbund as a computer game developer, which is today under the auspices of The Learning Company software publishing company, has proven that innovative ideas in converging educational lessons with elements of the entertainment industry can be marketed outside of the software package by becoming a quality program choice for both public and commercial broadcasting networks. This makes a strong case for edutainment showing a world of difference between the passive act of watching television and the self-driven, active world of children’s edutainment.

Issues to consider, however, also deal with the adverse effects that edutainment may potentially bring to light. Some of these include creating a larger gap within the Digital Divide, or between the have and have-nots of the world due to funding disparities between school districts and non-continuous funding annually to upgrade previously purchased products. Other difficulties include the potential development of physical problems such as “repetitive stress injuries, eyestrain, obesity, social isolation, and, for some, long-term damage to physical, emotional or intellectual development” as stated by the Alliance for Childhood.

Intuitively, however, those repercussions seem to fall on a far extreme. At present, common sense says that edutainment is helping to develop an engaging and interactive learning environment when setup with appropriate limits. This “nutritious diet of activity” can provide both genders their first introduction to technology and will instill in them the confidence to do independent learning while utilizing computer technology as a tool to meet their educational goals.