

Video Games Beat Hollywood

Interactive television comes of age as they become pervasive, powerful and fantastically profitable

By John V. Pavlik

Video games rock. Just about any teen or pre-teen in the U.S. or anywhere else knows that. What they may not know is that video games have become one of the most pervasive and powerful forms of television in the world, and not just among the younger set.

Television has evolved tremendously in recent decades. Changes in ownership, regulation and technology have all helped transform television to such a degree that in many ways the medium barely resembles the lights and wires in a box alluded to so famously by Edward R. Murrow in his speech at the Radio-Television News Directors Association (RTNDA) convention in Chicago, Illinois on October 15, 1958. Just what constitutes television in the 21st century is far more than simply subject matter for academic musings. Instead, it is vital to the future of the entire television enterprise.

As the digital age has taken hold, video games have emerged as one of the most significant components of the realm of television entertainment. Practically overnight, and rather quietly, the question of whether interactive television would ever take hold has been answered. Interactive television trials such as QUBE in Columbus, Ohio

in the 1970s and Time Warner's Full Service Network in Orlando, Florida in the 1990s seemed to suggest that interactivity might perhaps never find a secure foothold in a medium dominated by passive audience viewing.

Who Plays

As digital technologies transformed television and all other media at the dawn of the 21st century, interactive television in the form of video games exploded on the scene. In early 2008,

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an estimated 145 million Americans routinely play video games, often on their television set, which is increasingly a large flat-panel screen with surround sound. Studies show that video games were once the almost exclusive domain of the young, mostly 18 and younger. The Entertainment Software Association reports that as of 2007 nearly a quarter (24 percent) of Americans 50 or older

play video games, an increase from less than one in ten (nine percent) in 1999. The average age of a video gamer in the U.S. is 33. Even the very young play video games, with many video games targeting children as young as three or four years of age. Most gamers are male (62%), but the portion of female gamers is growing. Less than a decade ago just 29% of gamers were female; today it is 38%. More than a third (36%) of U.S. parents play video games with their children.

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Gamers come in two types: casual and serious. Most (71%) casual gamers are 40 years old or older and even more (76%) are female, according to a 2006 study commissioned by the Associated Press and AOL Games. Many casual video games are played on cell phones and are games similar to the classic *Pong*. Serious gamers focus more on sophisticated and action-packed games such as the online game *World of Warcraft*, which make up a significant portion of the worldwide video game industry. Serious gamers spend an average of 5 to 13 hours a week playing video games, while casual gamers are more in the 1 to 3 hour range. But, expanding the market place has been the introduction of the Nintendo Wii with its unique wireless game controller that enables three-dimensional video game playing and physically active

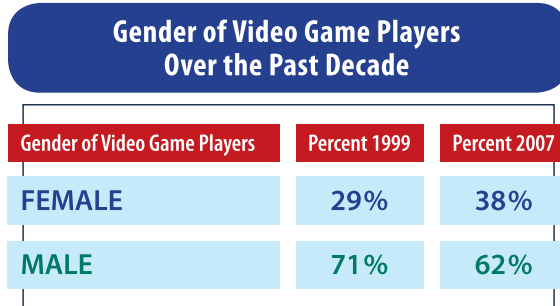
participant sports, such as tennis, bowling and Wii Fit, a collection of game activities designed to give the player a vigorous aerobic workout while having fun. The Wii is drawing both male and female players, including the more mature set, to the world of video games, especially those played on large screen televisions.

It started more than 60 years ago!

Video games have come light years since their commercial debut in 1971, when arcade-game manufacturer

Nutting Associates produced the first Computer Space video game machine, a device packaged with a 13-inch black-and-white analog

television set (http://www.gamespot.com/gamespot/features/video/hov/p3_01.html). Of course, the history of video games goes back even further. Thomas T. Goldsmith, Jr. and Estle Ray Mann in 1947 applied for a patent for a "Cathode-Ray Tube Amusement Device," which allowed players to simulate the firing of a missile at a target (<http://www.pong-story.com/2455992.pdf>). The patent was assigned to the Allen B. Du Mont Laboratories, in Passaic, NJ, where much pioneering work in the development of early television took place. Engineer Ralph Baer in 1968 produced perhaps the first true video game, a prototype for simple chase game, based on user manipulation of and interaction with actual video signals where one square chased another. Baer's experimental work led to the creation of the first widely popular video game, *Pong*, in 1972.



Source: Entertainment Software Association (2007)

With a world-wide fan base, playing video games has become a full-fledged sport. Major video game tournaments are extensively covered by television and other media, with large and growing audiences tuning in, particularly online. Known as Fatal1ty due to all the killing he does in video games, the sport's top player is Johnathan Wendel (<http://www.fatal1ty.com/>). Wendel has won more than \$300,000 in six years of video game tournament playing. Video game tournaments are broadcast live online to audiences in excess of 100,000. This compares favorably with many cable television programs. Does an audience of 100,000 qualify as mass media? Perhaps not, but many shows on cable and satellite draw audiences of about that size as well. CNBC's top-rated *Mad Money* with Wall Street trader Jim Kramer, for instance, draws an audience of 350,000. On July 29, 2007, CBS became the first television network to cover a video game tournament as a sporting event, broadcasting video coverage of the hour-long World Series of Video Games tournament to millions of U.S. viewers.

Social and Physical Impact: Many popular video games, such as *Grand Theft Auto*, feature themes of violence and criminal behavior such as armed robbery and even sexual assault.

In contrast to much of the history of televised entertainment, video games are striking an unusual chord among the health conscious. Television has traditionally enjoyed no shortage of critics. Many academics, policy makers and parents have accused television of fostering aggressive attitudes and behaviors among viewers, especially

children, exposed to large doses of televised violence. Perhaps at least as problematic, watching many hours of television each week, coupled with heavy Internet use, has been correlated positively and strongly with the obesity epidemic sweeping the nation's youth.

Many popular video games, such as *Grand Theft Auto*, feature themes of violence and criminal behavior such as armed robbery and even sexual assault. Released in early 2008, *GTA IV* offers gamers particularly realistic violent action. Playing such video games can have the same deleterious effects as watching violent or sexually exploitive television, perhaps even more so because of video games' interactive, first-person perspective that might reinforce the player's anti-social modeled behaviors. In the case of *Grand Theft Auto*, where game players can decapitate, shoot or burn police officers, a number of lawsuits have been filed against the maker of the game. Having sold more than 35 million copies of the game, the potential scope of class action suits against the maker and marketers of *Grand Theft Auto* is significant. One class-action suit was settled in January of 2008 with claimants eligible for \$35 in cash compensation. One multi-million dollar lawsuit was filed in Alabama where lawyers argued that a teenager went on a rampage and killed three men, two of them police officers—all because he had spent months playing and practicing such behaviors in *Grand Theft Auto*.

The same legal theory was invoked in the 1977 murder trial of Florida teen-ager Ronny Zamora, but based on television violence viewing. Zamora had been a fan of television's popular detective series, *Kojak*. Zamora's attorney claimed the teen

murdered his 83-year-old neighbor due to “television intoxication” from watching so many episodes of the violent program. Zamora’s attorney subpoenaed actor Telly Savalas, who played the show’s lead character, *Kojak*, a tough guy who had a propensity for lollipops. Before Savalas could testify,

Children and teen-agers can easily obtain copies of “mature” rated video games.

though, the judge ruled his testimony inadmissible, and in the end, Zamora was found guilty of murder and sentenced to more than 20 years in a Florida prison. Zamora was paroled in 2004 and deported to his native Costa Rica.

Social -science studies of the impact of video games have yielded mixed results. Some studies such as those conducted by Iowa State University’s Dr. Craig Anderson have shown that playing violent video games can foster aggressive behavior. Social-science studies assessing the specific impact of *Grand Theft Auto* have yet to be published. Some research suggests that playing violent video games, as with watching violent television or movie fare, can reduce violence and crime in society. Employing the new economics framework known as “freakonomics,” Gordon Dahl of the University of California, San Diego, and Stefano DellaVigna of UC Berkeley in 2007 published a study that documents a decline in violent crime as a consequences of the theatrical release of blockbuster violent movies (<http://elsa.berkeley.edu/~sdellavi/wp/moviescrime07-12-20.pdf>). Thereasons seem to be that movie-goers, including violent criminals or those so disposed,

are spending their time watching the violent movies rather than committing crimes or engaging in other potentially dangerous behaviors, such as drinking alcohol. The effect continues not only in the six hours immediately following movie exposure, but in the three weeks following watching as well. The same principles might apply to playing violent video games, although they have yet to be so tested.

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In 1993, the video-game industry started placing ratings on video games, including E for “everyone,” T for “teen,” and M for “mature” (e.g., *Grand Theft Auto* is M rated). Survey research by



Dr. James C. “Butch” Rosser, a laparoscopic surgeon, polishes his hand-eye coordination with video games.

Photo: Bruce Dalton

psychologist David Walsh, however, shows that children and teen-agers can easily obtain copies of “mature” rated video games. Many retailers infrequently enforce age requirements for the purchase of M-rated video games, Walsh has found. Also, parents share some of the blame, often times giving little supervision of their children’s game selection, purchase or playing. Walsh reports, “Our student survey found that seven out of 10 children report playing M-rated games, and three out of five kids named an M-rated game as one

of their favorites. Nearly half of the more than 300 boys who participated in the study named an M-rated title as their most favorite game.”

“Half of the parents who participated in our survey said they do not allow their children to play M-rated games,” Walsh notes. “But nearly two-thirds of surveyed students said they owned their own M-rated game. What explains this gap? Maybe this statistic: only half of the parents say they were with their children the last time they purchased a game.”

Yet, as with some award-winning television such as *Sesame Street*, early evidence suggests that when properly designed, video games can have a positive social benefit for the game player. Among the benefits are potentially reducing overweight, or at least sedentary behavior, and improving

eye-hand coordination and nurturing other physical skills.

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Unlike passive viewing of television, active media use, such as video game playing, can improve eye-hand coordination. Research reported in 2006 indicates that physicians who spend at least three hours a week playing



Guitar Hero

Photo: Jackie Pavlik

video games make substantially fewer mistakes (37 percent) in laparoscopic surgery. They also perform the surgical tasks significantly faster (27 percent) than surgeons who do not play video games. “I use the same hand-eye coordination to play video games as I use for surgery,” said Dr. James C. Rosser, Jr., now Professor of Surgery at Morehouse School of Medicine in Atlanta, GA. Last year, as Chief, Minimally Invasive Surgery and Director, Advanced Medical Technology Institute at Beth Israel Medical Center in New York, he demonstrated the results of his study. Laparoscopic surgery employs a tiny camera and instruments controlled by joysticks outside the body to perform internal surgical operations on patients for a variety of ailments, from appendectomies to removal of colorectal polyps. This methodology parallels closely the playing of most video games. Although Rosser’s laparoscopic-surgery study did not involve child-age subjects, it is quite likely that youthful game players might improve their eye-hand coordination as well. Rosser’s research indicates that video games can be designed to maximize both their entertainment value as well as their educational impact. By manipulating the form (e.g., audio, video), content (e.g., shooting someone) and mechanics (e.g., the type of game controller) of video games, as well as the frequency or amount of game playing, the educational effect of video games can be increased.

Cancer patients play a video game where the cancer patient attacks bad cancer cells helps treatment. Another medical trial showed that a dance videogame helped overweight users shed unwanted pounds. The video game, *Dance Dance*

Revolution (DDR), has proven wildly popular as an exercise tool among teens and young adults. Developed initially as an arcade game by the Japanese company Konami, *DDR* requires the player to dance on an electronic dance pad while watching arrows scroll down a screen in synch to a musical rhythm or beat. The player tries to successfully time and position his or her steps to match the on-screen display and accompanying song. As the author can attest, it is a lot harder than it looks, although his daughters make it look



Guitar Hero

Photo: Jackie Pavlik

pretty easy. Konami reports some 1,500 schools in the U.S. have announced plans to involve *DDR* use in physical education curricula. West Virginia’s 765 state schools began using *DDR* in 2006 as a form of aerobic exercise. Caltech permits students to use *DDR* to satisfy physical education requirements.

Brainage is another video game that promises health benefits. Nintendo has sold more than six million units of the video game, which is designed to stimulate brain development (www.brainage.com). Whether playing *Brainage* or other such mentally stimulating video games can foster mental development is unclear, but preliminary results suggest a tentative yes. Medical researcher J. B. Funk’s investigations indicate that video games can be an effective tool in physical therapy and

oncology. Looking further ahead to the positive possibilities are Dr. Rosser's new book, *Playin' to Win: A Cybersurgeon, Scientist and Parent Explores the Upside of Videogames* and his innovative *Top Gun for Kids* surgical video-game shootout that encourage the early exposure to and development of the link between fine motor skill, 2-D depth perception and hand-eye coordination.

Among the most exciting and popular video games for the rock and roll set is *Guitar Hero*. This game is actually a series of music video games published by RedOctane and Activision all of which use a guitar-shaped device similar in style to a real Gibson SG guitar as the main controller to enable the player to simulate the playing of rock music. Playing *Guitar Hero* is comparable to other music and rhythm video games. The player plays on the guitar-control device the notes shown scrolling on the screen to complete a song. The player operates the guitar controller by pressing the fret buttons and the strum bar. The player scores points for correctly hitting notes and chords, and gets bonuses for playing notes correctly consecutively. Tracking the player's performance is a "Rock Meter." If the meter falls too low, the song ends in failure. The player wins "Star Power" by playing perfectly a series of illuminated notes. All this requires both concentration and manual dexterity for the player and the combination of high-powered audio and video makes for a compelling interactive user experience.

Rock Band is another popular video game that lets the user experience being a rock star. Only in this case, the user can play with friends in a complete

virtual band, playing lead or bass guitar, drums or singing into a microphone. Visit the *Rock Band* web site only with the volume turned down low on the computer (<http://www.rockband.com/>). This and other new games illustrate the increasingly social nature of video games. A growing number of popular video game titles are often played in group settings, whether in a living room, an arcade or even distributed across thousands of miles via the Internet.

Some Assembly Required

To play these sophisticated video games requires a video-game console or portable video game player. Consoles are the devices used to run the game software. Consoles are essentially high-powered computers optimized specifically to run video game software. Increasingly powerful computing technology that underlies current digital television has facilitated the development and display of extremely high-quality graphics in modern video games. The graphics of contemporary video games have advanced such that in many cases animated characters appear almost as realistic as video of human actors, only these animated characters are under the control of the game player or computer and are fully interactive. This all gives the player the sense of being a participant in an interactive movie or television show where s/he can control or interact with the actors or scenes.

Video-game consoles use a television or computer display to play the game as well as speakers for audio playback and a controller device, such as a joy stick, to operate the game. Video game software

is produced by a variety of companies, but must be written specifically for each console. *Halo 3*, for instance, a very popular science-fiction video game in which the player shoots aliens to win the game, was created by Bungie Studios exclusively for the Microsoft Xbox 360. Many games, however, such as the *Guitar Hero series*, *Rock Band*, *DDR* or *Mario*, have versions to run on multiple hardware platforms.

Dominating the video-game console marketplace have been three companies: Microsoft, Sony and Nintendo. The three leading edge consoles are the Sony Playstation 3 (PS3), Microsoft Xbox 360 and Nintendo Wii. The PS3 combines powerful video game technology and DVD Blu-ray technology, and the Xbox 360 includes HD DVD technology. Each of these game players also includes high speed Internet connectivity to permit online game playing and downloading of software and movies. Nintendo's Wii uniquely features a wireless hand-held remote control embedded with a miniature, micron-sized infrared sensor. Through this image sensor, the Wii enables the user to play various physically active games such as swinging a virtual baseball bat, rolling a virtual bowling ball or firing a virtual weapon.

Sony's Playstation 3 console, or PS3, is the company's successor to the PS2 and has been the leading player in the marketplace, with roughly 60 percent of the overall market. Microsoft and Nintendo each have had about 20 percent of the market, although Nintendo's share is growing. Sony's PS2 and now PS3 have had the edge in sheer computing power. Since its debut in 2000, Sony had sold 100 million PS2 consoles worldwide, with the largest

market in North America, primarily the U.S., with more than 40 million PS2s sold there (<http://www.pcworld.com/article/id,123760-page,1/article.html>). In Asia sales have totaled 22 million PS2 consoles. Sony has sold more than 6 million PS3s worldwide as of January 2008, with the largest market in the U.S. with other major markets in Japan and Europe. The PS3 includes a Blu-ray high definition DVD format device so the console can be used to not only play video games but also watch high-definition movies and other programming. The PS3 also features an 80-gigabit hard drive, which is needed to store games and videos. The PS3 was initially marketed at \$599, but the price was lowered to \$499 in late 2007. A lower-end PS3 was also launched late in 2007 for \$399, with a 40-GB hard drive.

Microsoft introduced its Xbox 360 in 2005 with a price of \$500. Microsoft apparently lost money on each console sold initially, but by 2006 economies of scale helped lower production costs and by year end Microsoft was reported to be making money on each console sold even though the price to consumers had fallen to less than \$400. Microsoft sold 11.6 million Xbox 360 consoles by the end of 2007.

Catching the marketplace somewhat by surprise has been the Nintendo Wii, which went on sale late in 2006. The Wii had unexpected success in 2007, with 6.29 million consoles sold in the U.S. that year.

Let the Games Begin

Confounding the business picture for video games is the reality of game production. Games are in fact complex software programs that usually take a

The player is a character in the movie, not just an observer.

year or more to produce. The narrative structure of many games can also be quite complex. Consider the case of *Halo 3*. As noted on Wikipedia, “*Halo 3*’s story centers on the interstellar war between 26th century humanity, led by the United Nations Space Command, and a collection of alien races known as the Covenant. The player assumes the role of the Master Chief, a cybernetically enhanced super-soldier, as he wages war in defense of humanity, assisted by human Marines as well as allied alien Elites led by the Arbiter.” Due to this complexity, there tend to be relatively few game titles available during the early introduction of new game-player consoles, potentially inhibiting product sales. Nevertheless, U.S. video game sales were in excess of \$6 billion for 2006, and were up 34% in 2007, topping \$8.6 billion, according to an NPD Group survey. *Halo 3* was the biggest selling video game of the year, with more than 4.8 million copies sold in 2007. *Halo 3* even set a record for the largest opening day gross in entertainment history, with more than \$170 million in sales revenues in the first 24 hours of its release (http://www.gamepro.com/news.cfm?article_id=136548). “Wii Play,” which includes nine games packaged with a Wii remote, was second in sales, with 4.12 million units sold in 2007. *Guitar Hero* games, which sell for about \$50 a game, had combined sales of more than \$820 million in 2007.

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Another new video game quickly gaining traction in the marketplace,

but also acquiring a growing number of critics, is *Mass Effect*, released for Xbox 360 in November, 2007 by BioWare Corp., of Alberta, Canada. *Mass Effect* is a science fiction story with a complex, violent, and compelling plot. As with many contemporary video games, the graphics are excellent. The high visual and audio quality create the impression of a near movie-like experience, only the player is a character in the movie, not just an observer. The experience is first-person, not third. But--and this is where most of the criticism has arisen--the story line can lead the game player to become romantically involved with another character of the opposite sex. The story line climaxes, so to speak, in a love scene where two characters (the player and a computer-controlled partner) copulate in full digital nudity. In one scenario, a male player can make virtual love to an alien female. The curious may see a sample of the game online at Bioware’s *Mass Effect* web site (<http://masseffect.bioware.com/>) or watch on Youtube (search on “Mass Effect Cutscene”) the virtual sex scene, which rumor suggests has been cut or censored from the final version of the game. Rated M, *Mass Effect* has sold more than 1.6 million copies worldwide.

One interesting new online resource for downloading video games is Azureus (azureus.sourceforge.net/). Azureus is a peer-to-peer Internet file-sharing network that enables high-speed downloads via the popular platform BitTorrent, and can be used not only for downloading video games but also for a vast assortment of television programs and movies in standard or high-definition format on demand. Its business model incorporates

advertising, pay services and other revenue streams. Literally dozens of video games can be downloaded from the site, for free, and very quickly (ie. in a few minutes).

Not all video games require a purchase to play. Leading video-game developer Electronic Arts (EA) video games announced last January that the new installment of its successful Battlefield series will be distributed on the Internet for free downloading and playing. EA anticipates building revenue from several sources, including advertising, product placement and user purchases of such virtual gear as new outfits and weapons. These video games offer a compelling marketing opportunity by building strong online communities that can stretch not only across demographic segments but also across significant geographic boundaries including the entire U.S. and around the globe. "Online gaming garners a massive audience," said Gerhard Florin, Executive Vice President, Publishing, Americas-Europe at EA.

Beyond Entertainment

Video games are much more than entertainment. They have been developed in a variety of fields, including education, medicine and the military for training purposes. Popular video games like Leapster appeal to children as young as four, helping to teach such essential school skills as reading, writing, vocabulary, math and critical thinking. While such video games offer clear educational and entertainment value, critics also raise important questions about the appropriateness of targeting children

so young with products that may take them away from more physical activity.

The U.S. Army has developed video games that not only serve as a military training tool, walking the user through the process of enlistment, basic training and advanced marksmanship, but through online distribution of the game help with recruitment. Critics contend that the video game is so powerful as a recruitment and training tool that it may encourage violence, while defenders counter that it is building the values needed to sustain a volunteer military. The U.S. Defense Department has long developed video game technology and in the 1980s funded the development of a pioneering military medical training video game called the Regimental Surgeon. Created at the Interactive

Revenues for video games already top those of all Hollywood.

Media Laboratory at Dartmouth Medical School under the direction of Dr. Joseph Henderson, the interactive video game on videodisc placed the user in a first-person role at a military base where he or she conducted triage, diagnosis and treatment of ill or injured military personnel. The Department of Homeland Security has more recently funded video games such as Virtual Terrorism Response Academy. Elizabeth Losh of the University of California, Irvine, says Virtual Terrorism Response Academy "Uses game technology to prepare first responders for rescue efforts in which hazardous materials may be involved."

Satellite-television systems such as DirecTV and digital cable systems across the country now feature many increasingly popular channels of video



Guitar Hero

Photo: Jackie Pavlik

games on demand. These games tend to be low-end productions, such as poker, Sudoku (i.e., a Japanese number-based puzzle game), Bejeweled (another puzzle game, but based on arranging and rearranging on-screen jewels) and the like. They are attracting the casual gamer more than the serious video gamer but represent what likely will be a growing part of the total video game marketplace.

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Video games and television are enjoying a remarkable and profound convergence. As the convergence continues, video games will make up a growing portion of the overall television marketplace. Revenues for video games already top those of all Hollywood. Game players spend substantial and increasing numbers of hours playing video games, and this is time not spent watching conventional

television programming. The sophistication of the look, narrative structure and computational power driving the video game industry is impressive. How traditional television producers and programmers respond to the on-rushing video game tsunami may well determine the fate of a medium that has long promised to be more than just lights and wires in a box.

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John V. Pavlik is Professor and Chair, Department of Journalism and Media Studies, the State University of New Jersey. He was awarded the inaugural Fulbright Distinguished Chair in Media Studies at the Academy of Fine Arts in Vienna, Austria, where he lectured on television during the 2008 spring term.