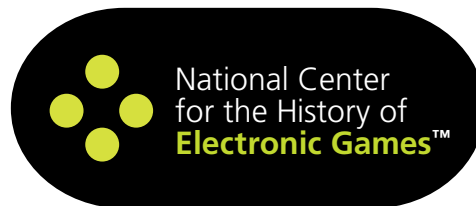


# Concentric Circles: A Lens for Exploring the History of Electronic Games

National Center for the History of Electronic Games™

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## Introduction

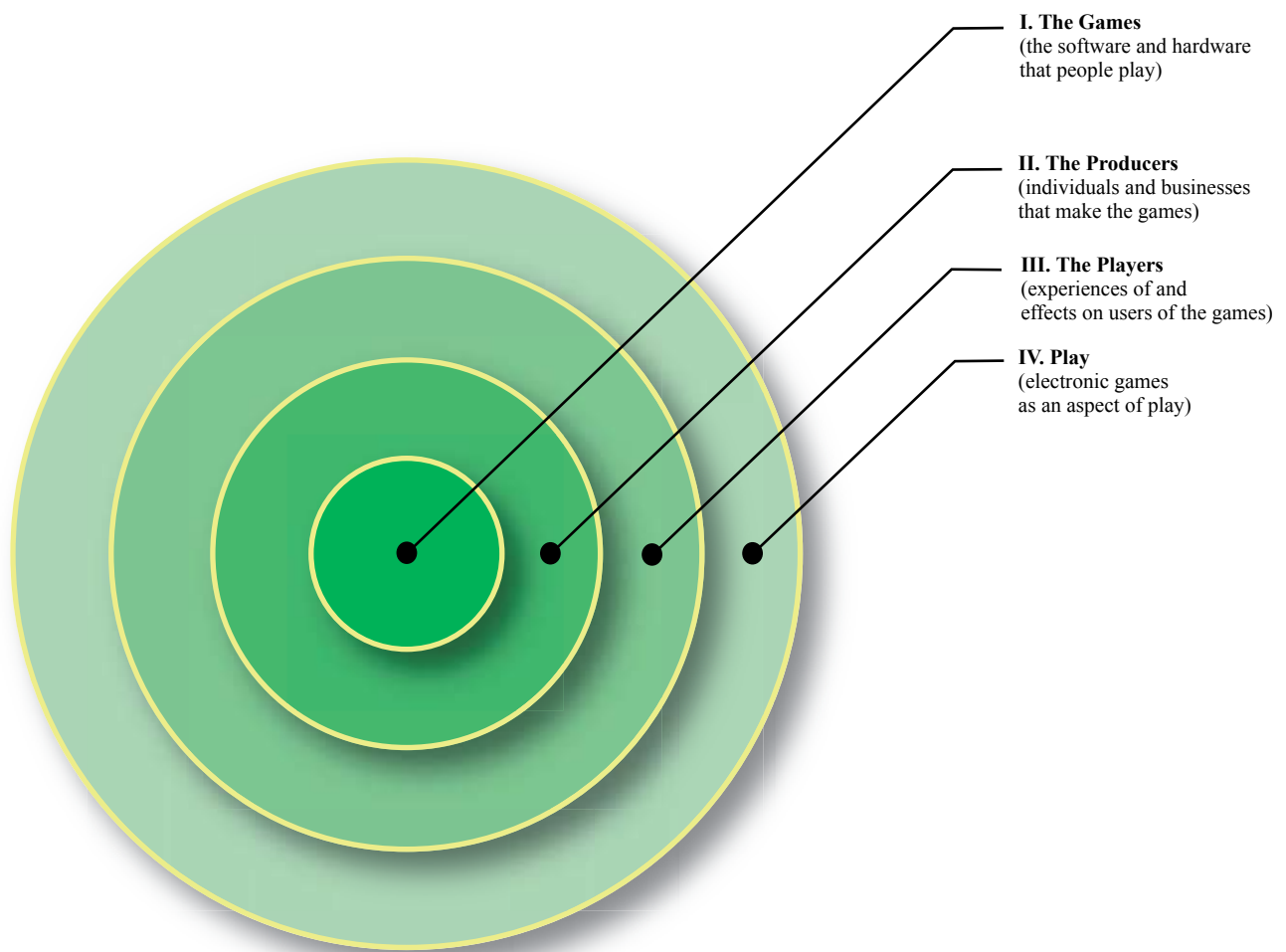
This document is a work in progress. The staff of the Center for the History of Electronic Games created it solely for internal use to help inform, but not necessarily to dictate, the development of a major, long-term, interactive exhibit tentatively titled *The Revolutionary World of Electronic Games* at Strong National Museum of Play.

The National Center for Electronic Games defines electronic games broadly to include video games, computer games, console games, arcade games, handheld games, and toys that combine digital and traditional play. The Center's collections are therefore broadly inclusive and encompass not only games and game platforms, but also a wide variety of other material such as packaging, advertising, publications, electronic-game-inspired consumer products, literary and popular inspirations of electronic-games imagery, historical records, personal and business papers, and other associated artifacts and documents that represent or illustrate the impact of electronic games on American life. All of these types of material will be included in varying degrees and ways in the exhibit.

The impact of electronic games is broad. They are a rapidly evolving new form of play and are having a profound effect not only on how Americans play, but also on how they learn and how they connect to each other.

Given the breadth of electronic games and their far-reaching impact, it is useful to imagine exploring their history through a lens of concentric circles, each representing a particular layer of interpretive analysis. Such an approach might look something like this:

### *Concentric Circles in the History of Electronic Games*



This approach to interpreting electronic games involves a continual zooming back and forth of the lens of focus, from a tight focus on the games themselves, to a broader look at who makes these games and how they are made, to a wider-angle view of their impact on players and society, to a panoramic consideration of them through the lens of play. Interpreting electronic games also includes examining these issues historically, considering not only the evolution of the games themselves, but also the deeper layers of culture that underlie them. Exploring these circles of interpretation requires asking many questions. Here are a few of them—by no means an exhaustive list—with some preliminary thoughts about answers.

## Circle 1: The Games

- **What cultural forces inspire electronic games?** Electronic games do not emerge *ex nihilo*, out of nothing. They use rules, techniques, and models first created for non-electronic games and toys. In other words, digital play often resembles traditional play. *The Sims* echoes centuries of doll-house play, practically every electronic role-playing game is based on *Dungeons and Dragons*, and *John Madden Football* is merely a simulation of the real sport. Sometimes the cultural influences are more diffuse—it is no surprise that the first video games emphasized extraterrestrial warfare at a time when the United States and the Soviet Union were engaged in a space race.
- **When was the first electronic game invented?** The first electronic game (at least the first one that used a graphical interface) was probably A. S. Douglas's *Noughts and Crosses* (1952), a tic-tac-toe game that ran on Cambridge's EDSAC computer. William Higinbotham invented a tennis game (1958) that ran on an oscilloscope, but *Spacewar!* (1962) was probably the first video game to run on a computer.
- **What was the first mass-market electronic game?** Magnavox's *Odyssey* first appeared in 1972; Atari's *Pong* broadened the market when it began selling to home consumers in 1975.
- **What have people used to play electronic games?** Electronic games always play on some type of computer, whether a general-purpose computer, one specially designed to run electronic games, or even one built into a toy or mobile device. Originally, people played electronic games on public computers on mainframe systems or on arcade machines, but with the rise of home computing, they increasingly played games on their own machines. Today, more and more game play is taking place on the Internet, which is a hybrid of public and private.
- **What are the different styles of electronic games?** There are many different styles, or genres, of electronic games, just as there are many different genres of books or movies. Sometimes games are categorized by the type of play that is involved. There are adventure games, puzzle games, sports games, role-playing games, and many more. Games are also organized by the platform on which they are played or by the length of game play, hence there are games for consoles such as PlayStation 3 and Wii, mobile games, casual games, massively multiplayer online games, and so on. As with books and movies, particular products cross genre boundaries or may inhabit different genres at different parts of the game.

• **What are the most popular games both historically and currently?** Every age of electronic games has produced its favorites. Early on, arcade classics like *Pong*, *Space Invaders*, and *Pac-Man* caught the public's imagination. Later, home system classics like *Super Mario Bros.*, *Sonic the Hedgehog*, *The Legend of Zelda*, and *Halo* became best sellers. Some titles, such as *Mortal Kombat*, *Doom*, and *Grand Theft Auto* achieved success by spicing good game play with a large dose of notoriety. Other games, such as *John Madden Football* and *The Sims*, have been best sellers from generation to generation. In 2008, total retail sales of gaming hardware, software, and accessories in the United States topped \$21 billion.

## Circle 2: The Producers

• **Who have been the key electronic game designers?** Just as there are famous authors (e.g., Charles Dickens or Mark Twain) or famous film directors (e.g., Steven Spielberg or George Lucas), there are famous game designers. Industry insiders and devoted players know them well, even if their names might be obscure to the average American. People like Will Wright, Shigeru Miyamoto, and John Carmack have changed the style, structure, and substance of games.

• **Where have designers gotten their ideas?** Sometimes designers are inspired by other electronic games, but equally important are other influences. Will Wright came up with *The Sims* after watching his daughter play with her doll house; traditional Japanese souvenir dolls known as Kokeshi inspired the minimalist Mii figures in Nintendo's Wii.

• **How are electronic games made?** In the beginning, when computers were less powerful, passionate individuals could create simple electronic games. Today, most electronic games involve teams of programmers, designers, project managers, artists, and testers, often working with budgets of millions of dollars. Still, the best games usually have one prime person who delivers the passion, imagination, and perhaps the code that brings the game to life. In addition, the Internet is opening up new distribution channels, and the independent gaming community is gaining new life as seen in the success of games such as *Line Rider*.

• **How does someone become an electronic game designer?** Once upon a time, any young kid with a computer and a basic knowledge of programming could make an electronic game almost as compelling as those sold commercially. Those days are gone. As the industry has grown larger and the programming demands have become more complicated, schools and colleges such as the Rochester Institute of Technology and Southern Methodist University have game development programs to train the next generation of programmers.

• **What companies have played key roles in producing electronic games?**

Electronic games have always been made as much by companies as individuals. Over time, those companies have changed, as pioneers like Atari, Coleco, and Sega stumbled and new firms such as Nintendo entered the fray. Today, the three main producers of electronic gaming hardware are Sony, Microsoft, and Nintendo, and there are thousands of firms producing games. Some of the largest independent game producers today include Electronic Arts, Activision Blizzard, and Ubisoft.

**Circle 3: The Players**

• **Who plays electronic games?** It used to be easy to say who played electronic games: pre-teen and teenage boys and a few men with an interest in computers (some would have called them “geeks”). That simple formulation no longer applies. Today, as shown through surveys such as those done by the Pew Research Center, kids of both sexes are playing electronic games almost as soon as they can move a mouse or operate a joystick, and they do not stop playing as they grow up. According to the Electronic Software Association, the average age of players is now thirty-five, and it continues to rise. Women are also playing electronic games more and now represent about 38 percent of all players. In certain segments of the market, such as casual games that require smaller investments of time and money, woman may be a majority of players. Recently, additional numbers of older Americans have begun playing electronic games. Still, even as the game-playing population has grown more diverse, the most committed, compulsive, and competitive players tend to be young and male.

• **Will electronic games always appeal most to boys?** In the early years of video games, boys tended to be the primary users, with a great majority of boys playing, and a much higher percentage of boys than girls playing for long stretches of time. This prompted some commentators to dismiss electronic games as merely a “boy thing.” And yet just as the use of new technologies such as the Internet has equalized between the sexes, so girls, too, have increasingly become players of electronic games. This has gone hand in hand with the evolution of the games themselves. Whereas early electronic games tended to prize action and violence, more and more electronic games are now focused on social interactions and non-competitive play, things girls tend to enjoy more than boys. Thus, while males still make up the majority of video-game players, females predominate in certain games such as *The Sims*, in which 70 percent of the players are females under age twenty-five. As electronic games move toward formulas that do not isolate people but bring them together, more girls and women will likely become players. The success of the Wii has stemmed in large measure from its ability to break down traditional gender and age barriers.

• **To what learning styles do games appeal?** Strong National Museum of Play is committed to Howard Gardner’s Theory of Multiple Intelligences, incorporates it into the design of all exhibits and education programs, and is therefore interested in what types of learning styles electronic games can accommodate. The answer is surprisingly broad. Massively multiplayer online play arenas like *Second Life* appeal to people with strong interpersonal intelligences, while meditative, problem-solving games like *Myst* find favor with those who tend to be intrapersonal thinkers. Visual thinkers like video games full of action, and those who favor bodily-kinesthetic approaches love *Dance Dance Revolution* or *Wii Fit*. Musical thinkers can’t get enough of *Guitar Hero*, *Rock Band*, or *SingStar*. Computers’ flexibility lets programmers appeal to many different styles of learning. Indeed, the JumpStart line of educational software intentionally builds the Theory of Multiple Intelligences into the structure of its games, letting guests approach the game from whatever style of learning they tend to favor.

• **Do electronic games make people smarter or have the opposite effect?** The educational value of electronic games is much debated, and, as with all good debates, this question is not easily answered. Researchers such as Daphne Bavelier of the University of Rochester and James Paul Gee of Arizona State University have identified specific positive learning outcomes from playing video games, such as increased visual acuity and better problem-solving skills. Stephen Johnson has generalized many of these arguments in his book *Everything Bad is Good for You: How Today’s Popular Culture is Actually Making Us Smarter*, arguing for the cognitive benefits of playing video games by highlighting the mental complexity the games demand. There is little evidence that electronic games do educational harm, and studies have found only negative correlations (i.e., no correlation) between the amount of time people spend playing electronic games and their academic performance in school. Still, some theorists worry that while electronic games may enhance certain narrow problem solving skills, they may also discourage imagination and creativity by focusing kids’ play in very narrow ways. Bottom line, this is a question in which there will be as many opinions as there are commentators.

There is perhaps a better way of thinking about this problem: that the effect of electronic games will be to make people think differently rather than to make them quicker or slower intellectually. Every revolution in media has had this effect. The rise of the written word thousands of years ago doomed the mnemonic heroics of bards like Homer who could recite thousands of lines of poetry from memory. When inexpensive, mass-produced novels appeared in the nineteenth century, frightened critics warned that people would become shallow-thinkers if they read a lot of books extensively rather than a few books intensively. More recently, television has been derided as the “boob tube” and the “idiot box,” but

I.Q. scores over the last fifty years have risen, not fallen. Undoubtedly kids who grow up playing electronic games will begin to think in ways different than their grandparents did, just as their grandparents thought in ways different than their grandparents did. As James Paul Gee points out, electronic games teach a “new literacy.” Exploring these changes in thinking wrought by electronic games is an exciting and fertile area of inquiry.

• **Do electronic games cause violent behavior or do they prevent it?** To some people this question seems like a no-brainer. Surely, they argue, the violent images and violent game play of many video games must inspire violence. Combine that seemingly common-sense observation with rumors about events such as the Columbine High School massacre in which the perpetrators were supposedly influenced by violent scenarios in video games such as *Doom*, and it seems like an open-and-shut case that violent content in electronic games inspires violence. Some psychological studies have indeed suggested that playing electronic games that have violent content causes increased arousal and aggression and a diminishment of prosocial behavior. However, there is also contrary evidence about the effects of video games in the real world (as opposed to controlled studies). For example, there has been a dramatic drop in violence—and especially youth violence—during the years that correspond with the rise of electronic gaming. So the answer is not clear. Do violent games promote real-life violence? Or, do they have no effect? Or, do they actually have a negative effect, perhaps by occupying the time and interest that gamers might otherwise devote to real-life violence. After all, the Uzi that a player is carrying in a video game might be disturbing, but it’s far less likely to cause real harm than the air rifle or hunting gun that many kids played with in former days. This is one of the most complicated questions relating to electronic games, and it will likely remain so for a long while, as independent groups such as the former The Lion & Lamb Project and Mothers Against Violence in America advocate against electronic games with violent content, and passionate gamers use Web sites such as Penny Arcade to speak out against what they regard as censorship.

• **Do electronic games inspire obsessive behavior?** Once again, recourse to earlier revolutions in media provides parallels for understanding the extent to which electronic games are addictive. The rise of the novel, for example, brought with it warnings that women were losing themselves in the pages of Walter Scott and neglecting the housework. More recently, Robert Putnam in his book *Bowling Alone* blamed television for the loss of social community as people abandon the public sphere in favor of incessant television watching in their own homes. Still, it is important not to blithely dismiss the addictive risks of electronic games. Some critics argue that the reward/feedback mechanism of electronic games, in which players are given almost instant positive or negative reinforcement for what

they do, the way games keep players hooked by offering increasing complexity and more challenging material, and the lure of playing in fantasy worlds less problematic than real life, all can lead to addictive behavior. Some of these critics are psychologists, others are family members of players jilted by their loved ones' obsession with gaming—the online game *EverQuest* even earned the nickname “EverCrack” among some frustrated people. The research will likely continue in this area, as it is an issue that cannot be ignored.

• **Do electronic games isolate people or bring them together?** Not surprisingly, the answer is “it depends.” Electronic games can isolate individuals when they spend hours battling a computer opponent. But more and more, games are becoming social experiences. Sometimes this happens when people gather together to play—once people gathered to play in arcades, then neighborhood kids sprawled in each others' living rooms, and today grown-ups host LAN parties where they hook up high-speed networks to play games together. More and more gamers even lug their computers to conference halls where they play video-game tournaments like chess players. Even more significantly, electronic games are altering the very notion of community. As people join virtual worlds and massively multiplayer online games like *Second Life* and *World of Warcraft*, they establish friendships with people all over the world. Of course, this can have negative as well as positive connotations. For example, what happens to a real-life marriage when a husband takes a virtual wife in an online game and then spends hours chatting with her? Some research seems to point out that players in online communities tend to create lots of relationships, but these may not be as deep as ones formed in the non-virtual world. In the end the question is not whether or not electronic games isolate people, but how they will alter the nature of community.

• **What role should parents have in kids' electronic game play?** While theoretical debates will continue about the addictive quality of electronic games, there seems little doubt that parents should be involved in their kids' electronic game play, be knowledgeable about it, and be ready to set appropriate limits if necessary. The important role parents and other adults have to play is an important reason for Strong National Museum of Play and the National Center for the History of Electronic Games to address this issue. An opportunity exists not only to interpret electronic games historically and as a central component of present-day play, but also to provide useful information to parents rearing children in an age when play with electronic games will be a way of life, not just a pastime.

## Circle 4: Play

• **How is playing electronic games similar or different than previous forms of play?**

The study of electronic games reveals both continuities and changes from older ways of playing. On the one hand, electronic games involve the universal elements of play that Strong National Museum of Play articulates in its *Field of Play* exhibit: anticipation, surprise, pleasure, understanding, strength, and poise. Electronic games also, as keen observers such as game designer Ralph Koster note, tap into ancient human ambitions such as the desire for power, control, and mastery. In that respect they are no different than old classics like chess or Monopoly. And yet an expansive liberation from the constraints of time, space, and ordinary life occurs in electronic games that has no parallel in old-fashioned games and toys. Electronic games can offer play simulations of real-world activities—from urban planning to stock car racing—that were never before possible. Questions about electronic games will be at the center of almost all future explorations of how we play.

• **How will electronic games shape the future of play?** Predicting the future is always a hazardous enterprise, and it is especially so with electronic games. They contain possibilities we cannot imagine now. What gamer would have imagined that thirty years after bouncing an electronic square back and forth in *Pong*, they could play virtual tennis with someone across the world by swinging their wireless Wii controller? (Though it's worth noting that Ralph Baer's first prototypes for Magnavox's *Odyssey* included a golfing game that used a real golf club.) Or, who could have imagined that they could replace their standard-issue black AT&T telephone with a credit-card-sized mobile device chock full of games to play? As technology moves forward at breathtaking speed, and as people apply their unending inventiveness to game development, the eternal human passion for play will manifest itself in ways we cannot even begin to imagine now.