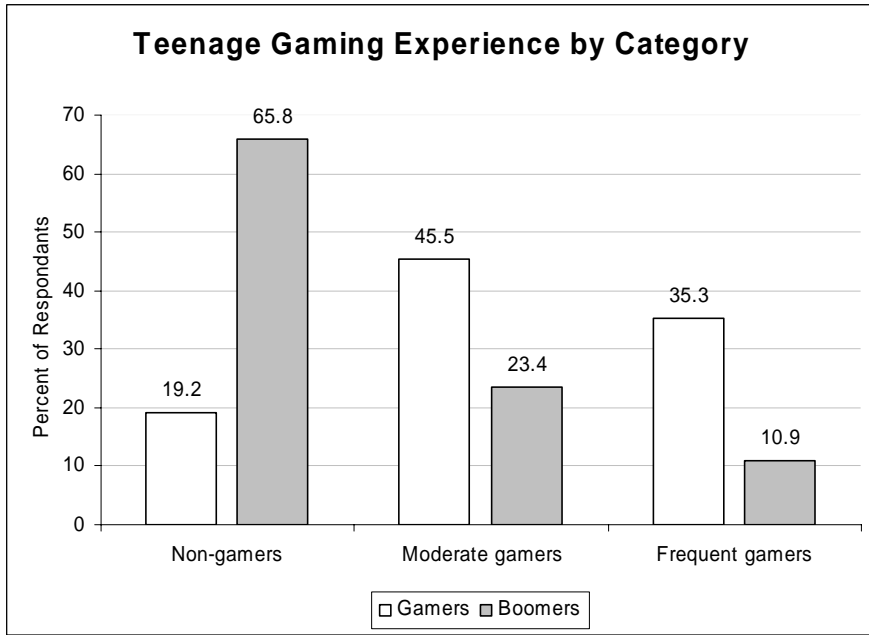


The Gamer Generation

And Why Baby Boomers Shouldn't Worry so Much about Them

A report by Alan Emrich

Inspired by the book *Got Game*, John C. Beck, Mitchell Wade (Harvard Business School Press, 2004)



The “Gamer Generation,” which is a combination of the “Gen X” (people born between 1965 and 1981) and “Millennial” generation (those born since 1982), already number over 90 million in the United States and outnumber Baby Boomers (people born between 1946 and 1964). Most of The Gamer Generation, over 56 million, is old enough to be in the workforce. They are called ‘The Gamer Generation’ because they are very different from Baby Boomers in that The Gamer Generation *grew up playing video games*.

“Keep flax from fire, youth from gaming.”
Benjamin Franklin

- **What defined growing up a Baby Boomer:** Television (linear, closed-ended plots); the Cold War (Space Race, Vietnam War, H-Bomb, etc.); pediatrician Dr. Spock’s permissive child-rearing philosophies espoused in his 1946 book *Baby and Child Care*, The Nuclear Family, and rock music.
- **What defines growing up a Gamer:** Personal Technology (Computers, Video Games, Cell Phones); more complex Television (multi-threaded, open-ended plots; mini-series); the New Media (Internet, Cable TV, Talk Radio) – *the relationship between Games and their technology is more powerful than the Boomer’s TV and rock and roll revolution*
 - **What defines growing up a Gen Xer:** the rise of Single-parent / “Latchkey” Homes. *While this generation has been perceived as “disappointing,” alienated, poorly-educated slackers, they’ve been reversing many of these negative social trends. They have started more business than any generation in history. This generation is more socially conservative than Boomers. While Boomers want to endlessly discuss the value and nuance of a conflict, Xers just want to make sure they win it.*
 - **What defines growing up a Millennial:** “Girls Rule” with female domination in elementary and secondary school grades, plus college enrollment. *This is a “wanted” generation, enjoying their parents’ increased attention and spending on education. They’ve had a “hands on” upbringing with standards-based testing and “no tolerance” classrooms. Consequently, this generation commits fewer crimes, uses fewer drugs, gets pregnant less often, scores higher on their SATs, and so forth. They’re tending toward being a “hero” generation – achieving great things in the exterior world and thereby supporting the expectations of their parents.*

Hope for the Future: The Millennial Generation

During the last 10 years, most of the miserable trends in crime, divorce, illegitimacy, drug use, and the like that we saw in the decades after 1965 have either turned around or stalled completely.

Today, Americans are consciously, and deliberately, embracing ideas about sex, marriage, children, and the American dream that are becoming a healthy normality. We’re producing a vital, optimistic, family-centered, and even morally thoughtful, next generation in this country.

Marketers who survey people’s attitudes to predict trends are noticing something interesting about ‘Millennials’ (the term that generation researchers Neil Howe and William Strauss invented for this cohort born between 1981 and 1999): they’re looking more like Jimmy Stewart than James Dean. They adore their parents, they want to succeed, and they’re optimistic, trusting, cooperative, dutiful, and civic-minded.

“They’re going to ‘rebel’ by being, not worse, but better,” writes Howe and Strauss.

Generation Birth Eras (since 1900)

1924	1945	1965	1981	
G.I.	Silent	Boomer	Gen X	Millennial

Gamers vs. Boomers

Two-thirds of people born before 1965 (i.e., Baby Boomers) had little or no video game experience as a teenager (during the ‘Age of Atari’). Those of the Gamer Generation have *substantial* game experience by a ratio of 4 to 1. That is not only the opposite proportion, *it’s also doubled!* Boomers have to realize that video games are everywhere, established, pack an emotional punch, and are expected by the Gamer Generation as a measure of their generational association.

Gamers are enveloped in a powerful interactive media technology for hundreds and even thousands of hours each during their most formative years. Boomers were not. Thus, there is a very *real* ‘generation gap’ (cultural difference) in America again, this time between the Gamer Generation and Baby Boomers.

Kindergarten: Then and Now

During the baby boom, kindergarten teachers looked for children to show up knowing, say, the names of their colors; in the Gamer Generation, the kids show up as budding *strategists*. While that difference might not be clear to pre-Game Generation teachers, it’s true just the same.

Generation X Gamers

Generation X is the first generation that grew up with arcade and, later, console-style games. Xers have a great interest in both online and console games. Game content for Xers often skews toward “man against computer,” rapid-fire action, shoot-‘em-up games. Xers tend to favor personal, individual competition – so gladiator death-matches win over team play and multi-user game content. Growing up in the arcades, older Xers are comfortable with simple, abstract game visuals. There is significant potential for re-creating classic arcade games online and in consoles as Xers become old enough for nostalgia. Older Xers show significant interest in online games, but younger generations are likely to overtake them in this area due to its communication and multiplayer gaming style. Younger Xers (sometimes referred to as Generation Y) have less interest in classic-style “arcade” games and demand great realism, motion, graphics, and so on. In content, they continue the “gladiator” trend of individual combat – although there is significant interest in “team-play” gaming in the LAN rather than in multiplayer online gaming style.

– Pete Markiewicz, PhD (*Indiespace*)

Millennial Generation Gamers

The Millennial generation is the first to treat the Internet and games as “normal” and not as something new. Popular Millennial games emphasize communication over competition. This generation has many more female gamers, and this trend is likely to continue. The girls (and many boys) display interest in “social engineering” games such as *The Sims*. Millennial expect high-quality game graphics as a given. They show interest in using game environments as a way to communicate rather than simply compete – though competition is also okay. Many Boomer and Xer parents have close relationships with their kids, and the decision to buy a game often involves a parent-child co-purchase. Therefore, games aimed at Millennial must pass the test of parental acceptability. Although many Millennials play console games, this is most likely due to influence from their parents. As Millennials begin attending college and moving away from their parents, their tendency to use the Internet to communicate may translate into the continued growth of Millennial online gaming.

– Pete Markiewicz, PhD (*Indiespace*)

Video Games: A Force to be Reckoned With

Industry Factoid

The U.S. game industry alone does over \$10 billion worth of sales annually, with the industry grossing, globally, \$35 – 40 billion annually. This means that it has already surpassed the movie industry in terms of box office revenue.

International Game Developers Association (IGDA) study

Some 92% of American kids from age 2 to 17 have regular access to video games; 80% live in households with PCs. The Sony Playstation (alone) is in 25% of all US homes. Americans now spend more money on video games each year than they do on going to the movies, and more time at home playing video games than watching rented videos. In 2003, global video game sales were \$28 billion.

Today, 154+ million Americans (that about half of all Americans) play video games, making it the entertainment choice of the 21st century. An August 2003 pool of 1,000 gamers finds they spend an average of 6.5 hours per week playing games, with almost 33% indicating they play in at least *three* different game genres. And what about boys ages 6 to 17? They spend just over an hour a day (on average) playing video games – hardly an excessive amount when compared to the average...

As Americans play more games, they spend less time on other activities. According to the Entertainment Software Association (ESA), 52% of players who spend the most time playing games watch less television; 47% of gamers are going to the movies less, and 41% watch fewer movies at home. This decline in viewing has lead advertisers to pursue with greater vigor in-game advertising.

Time Gaming

One estimate shows that a typical American teen will have played 10,000 hours of digital games by the time they begin their work careers.

That equates to 5 years of full-time employment!

– Marc Prensky, *Digital Game-Based Learning*; New York, McGraw Hill, 2001

Note that 38% of computer gamers are women. Nearly half of them play with other family members. Although most of the women are playing online, no-fee puzzle games, this is still a major change in player demographics.

Speaking of demographics, the 2003 ESA poll found that adult women make up a larger percentage of players than boys ages 6 to 17. Men and women over 18 (i.e., *adults*) make up 64% of the gaming population and the average age of players is now 29 years old. A full 17% of players are over age 50 (up from 13% in 2000).

Here's some more news: *EverQuest*, a massively multiplayer fantasy role-playing game, has 650,000 registered players who stay online an *average* of 22 hours a week – that's like a part-time job, only instead of getting paid, they're paying to play! And about 30 million people play in fantasy sports leagues.

Lessons Learned from Playing Video Games

The Individual's Role:

- You're the star. *Unlike Little League, the world revolves around you.*
- You're the boss.
- You're the customer, and the customer is always right.
- You're an expert.
- You're a tough guy.

How the World Works:

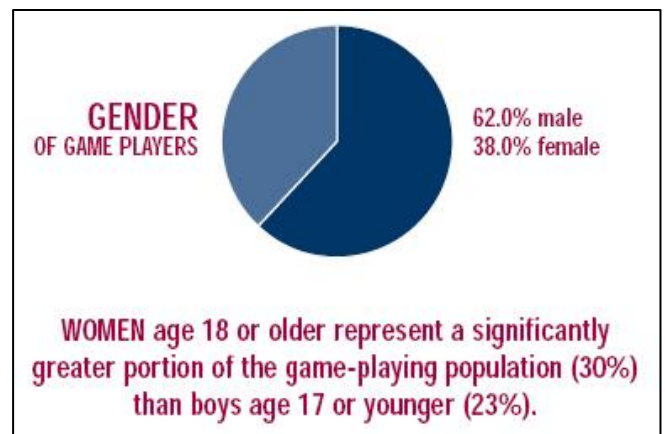
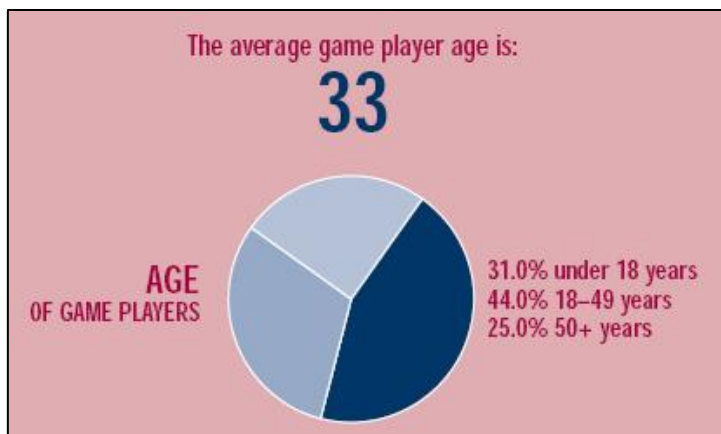
- There's always an answer.
- Everything is possible.
- The world is a logical, human-friendly place.
- Trial-and-error is almost always the best plan.
- Things are [unrealistically] simple.

How People Relate:

- It's all about competition.
- Relationships are structured (competitor/ally, boss/subordinate).
- We are all alone (we don't often play in groups).
- Young people rule.
- People are simple caricatures (big and strong, wild and crazy, beautiful and sexy, etc.)

What you should do:

- Rebel. (Edginess and attitude are the dominant elements of the culture)
- Be a hero. (Being the star is the only way to succeed / get satisfaction)
- Bond with people who share your game experience, not your national or cultural background. (Gaming is a very global world in design, consumption, characters, shared play experiences, etc.)
- Make your own way in the world. (Leaders are irrelevant and often evil; ignore them)
- Tune out and have fun. (Gaming is escapist entertainment)



These Gamers are the new workforce, and will one day be the new CEOs, taking over from the aging Baby Boomers.

More Lessons Learned from Playing Video Games

1. 'Twitch' v. Conventional Speed: Young people have developed the ability to process information very quickly and determine its relevance to them
2. Parallel v. Linear Processing: The ability to process information in parallel (at the same time) from a range of different sources
3. Graphics v. Text First: The tendency to access information in the first instance through *imagery* and then use *text* to clarify, expand and explore
4. Random Access v. Step-by-Step: A familiarity with exploring information in a non-linear fashion (i.e., by 'jumping' through a range of different information resources, creating links rather than following a 'story')
5. Connected v. Stand Alone: Familiarity with networked, non-geographically bounded networks of communication
6. Active v. Passive: Having a model of *doing* in order to *learn*, rather than *learning* in order to *do*
7. Play v. Work: A relaxed approach to 'play,' viewing this as a valid activity and conceptualizing the computer as primarily a 'play tool'
8. Pay-off v. Patience: Expecting rewards for activities
9. Fantasy v. Reality: A relaxed acceptance of fantasy as a valid space of experience
10. Technology as Friend v. Foe: A view of technology as a friend, familiar through having grown up with it

- Patricia Marks Greenfield, Educational Psychologist

**WHO PLAYS WHAT?
PARENTS* AND GAMES**

89%

of the time parents are present at the time games are purchased or rented.

61%

of parents believe games are a positive part of their children's lives.

87%

of the time children receive their parents' permission before purchasing or renting a game.

*Parents with kids under 18 who also own a game console and/or computer used to play games.

The Top Four Reasons Parents Play Video Games With Their Children:

Because They're Asked To **79%**

It's Fun For The Entire Family **75%**

It's A Good Opportunity To Socialize With The Child **71%**

It's A Good Opportunity To Monitor Game Content **62%**

PARENTS PLAY GAMES

35%

of American parents say they play computer and video games.

The typical gamer parent is 37 years old.

47%

of gamer parents are women.

Gamer parents have been playing games for an average of 13 years, with one-third reporting having played for 20 years or more.

Among gamer parents, 80% report that they play video games with their children, and 66% feel that playing games has brought their families closer together.

Gamer parents spend 19 hours a month playing games. Those with child gamers in their household spend 9.1 hours a month playing games with their kids.

73%

of gamer parents say they are regular voters.

36% Democrat; 35% Republican

Source: Peter D. Hart Research Associates

A Culture Shock to Boomers

Lessons Learned

And even if they are used chiefly for entertainment, games can result in some accidental education, putting players in the boots of past generations.

We're doing now what books have done in their time and movies have done in theirs. We're becoming the new medium in which people become educated in spite of themselves.

– Thaine Lyman, executive producer at Activision, February 2005

The video game culture is almost invisible to Boomers; it takes place in the minds, conversations, and informal play patterns of Gamers. And while phones, beepers, email, instant messaging, and advertising make us an 'interrupt-driven' society, Gamers have adapted to it and can perform attention management to quiet that noise and focus on a game (allowing them to actually *concentrate* and *think*). Gamers *love* a game experience that absorbs all of their attention and use this to 'stick it to' any situation that causes dead time (there's never a reason to be bored; that's why God invented the Game Boy – it's the feeling, *and perhaps even the reality*, of freedom). Cutting through societal interrupts and focusing on what's important to them gives Gamers a productivity edge when applied outside of games.

Video games appeal to the young for the same reason the military drafts young people: simplicity of worldview (*see sidebar*). The young find it easier to focus on a simple goal and execute it. As we age, the ambiguities of life, the real weight of costs, and even the capacity for fear grow in us.

Games themselves are simplified, limited versions of reality. A game without simplification is no longer a game (it's bigger, messier, and more complex). Behind a game, a fairly simple model is running; the conflicts exist because a designer put them there. Realize that any kind of *training* (corporate, military, etc.), like analysis, tends to simplify reality (it has to). *We naturally construct models that reduce the complex, subtle, and unquantifiable to a few things that we can easily grasp, see, and manipulate – otherwise it's too hard to work with.*

Games are great practice for real life. Specifically, they're a pretty good training environment for real life in organizations in which collaborative problem solving is the order of the day. The world of games, which looks like a ridiculous waste of time to many of the older generations, turns out to be a boot camp for the future of business.

The Army Recruiting Generation Gap

President John F. Kennedy's inaugural speech (to Baby Boomers) in 1961:

"Ask not what your country can do for you; ask what you can do for your country."

As the Baby Boom generation evolved into the Gamer Generation, the Army ad slogan for years was:

"Be all that you can be."

Today, for the Gamer Generation, the Army ad slogan is targeted thus:

"An Army of One."

See the cultural difference in this small slice-of-life? And you must know, if there is one occupation that is always on top of generational trends, it is United States military recruiters.

The Generation Gap

What Baby Boomers Say About Video Games

"With all those images that flicker and flash, how will they be able to sit down and work with something that takes time to understand?"

They might describe a particular title as, "a game that can literally train soldiers to kill." – *New York City Councilman Eric Gioia (D-Queens) at a City Hall press conference, NY Times Daily News, 9 December 2002.*

Boomers worry that Gamers "won't see any consequences" to actions that, in real life, indeed have dire consequences. – *Dr. Carol Nati, a psychiatrist at Cook Children's Medical Center, Fort Worth Star Telegram, 21 April 2002.*

Some have even concluded that "computer gaming is a massive waste of time, potential, and money because it turns young people into passive vegetables." – *Jon C. Coates, Halifax, Nova Scotia, letter to the editor, Halifax Daily News, 31 December 2002.*

New York senator and former first lady Hillary Clinton calls video games "a major threat" to morality. – *Hillary Clinton, March 27, 2005.*

What the Gamer Generation Says About Video Games

Gamers tend to dismiss fears of violence that is driven by games as silly; as one said, "I've played *Pac-Man* all my life, and I don't feel the need to eat little balls and listen to disco music." – *David Lang, 18, of Northridge, California, LA Daily News, 30 March 2003.*

They speak eloquently about the great value in their world that, they fear, the older generations simply don't see. As another Gamer stated, "Games give us freedom to be, think, do, create, and destroy. They let us change the answer to the question, 'who am I?' in ways never before possible. Games let us reach the highest highs and lowest lows, let us play with reality and reshape it to our own ends. They give us hope and meaning, show us that our journey through life is not pointless, and help us accomplish something at the end of the day.

The inability to even imagine a younger group's point-of-view is a pretty good definition of a 'generation gap.'

Sexism, Violence, Addiction, Isolation, and Stereotypes

Sexism

Males and females play computer and video games together. Games are more and more a common ground for the sexes (while girls may play less because most games are about formal abstract systems – which is not an inherently female preference, they are increasingly nearby, see the adjoining table). Dating and college regularly include playing video games.

- **Females** learn through modeling another's behavior (such as in multi-player games), seek more interpersonal relationship-oriented activities, and tend to eschew games that demand strict hierarchies; they prefer simpler abstract systems with less spatial reasoning; and tend toward a first-person perspective in online games. As women get older, their interest in games (if they have one) tends to sharpen. Women over 40 playing games on their PCs and cell phones looking for a quick 'game fix' have become the fastest growing market in gaming today.
- **Males** prefer more achievement-oriented activities; games that emphasize the projection of power and the control of territory; and prefer a third-person perspective in online games. As males age, they slowly shift over to player styles similar to those of women, playing shorter, simpler games instead of 40+ hour epics. (Occasionally, this might cause them to drop out of the gaming hobby outright).

Violence

Studies about violence relating to video games are often cited, but also disputed. While it seems intuitive that there's a correlation between video games and violence, later studies disprove the correlation of previous studies!

Perhaps facts from government agencies might prove more instructive on the subject of youth and violence. Juvenile crime statistics dropped sharply at the beginning of the period when the Gamer Generation was hitting critical mass in the early 1990s. Thus, just as violent games were skyrocketing in their appearance in American homes, juvenile violence began to *plummet*. One can argue that there is a correlation or, at the very least, video games are not directly contributing to any *rise* in juvenile crime.

For example, juvenile murder charges dropped by about two-thirds from 1993 to the end of the decade (and still show no signs of going back up). Neither has the *rate* of violence increased – only its coverage and non-Gamer Generation media sensationalizing its alleged relationship to video games.

Editorial

Playing... games is as normal to the younger generation as hanging out at the malt shop was to their parents.

– Arizona Republic editorial, July 9, 2003

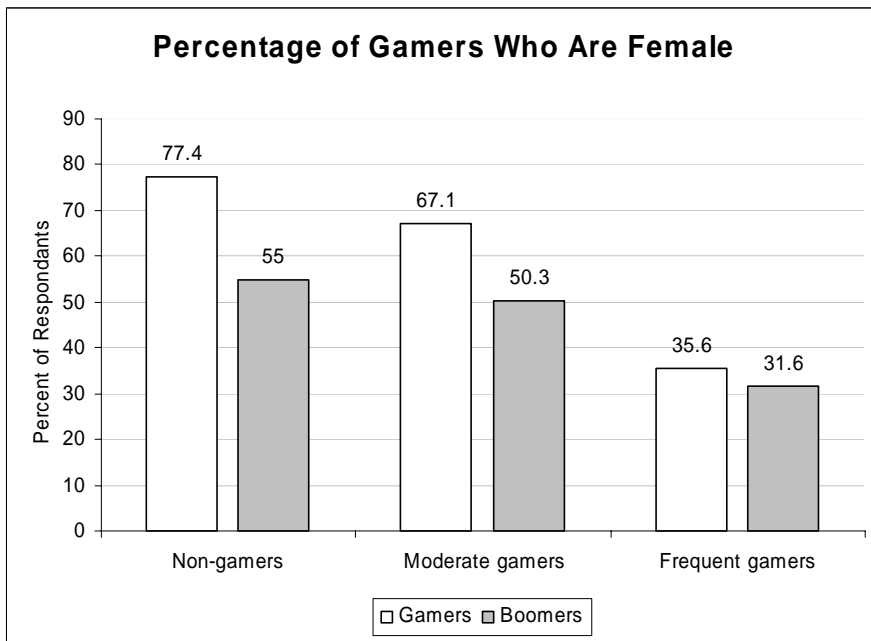


It's Not About Violence

In 1976, *Exidy* published the first video game pulled from the market for violence, *Deathrace*. Although themed around the film *Deathrace 2000* where the player runs over pedestrians for points, mechanically the game is the same as many others: you caught objects that were moving around the screen.

Games train us to see underlying mathematical patterns. The theme is just 'dressing' that is largely irrelevant to what the game is about at its core. Running over pedestrians, killing people, fighting terrorists, and eating dots while running from ghosts are all just stage settings, convenient metaphors for what a game is actually teaching. The part of games that is *least* understood is the formal abstract system portion of it, the mathematical part of it.

Raph Koster, *A Theory of Fun*



A typical sensationalized anti-gaming editorial cartoon.

Many games that include violent content (and some are far more violent than you have seen) are sold in foreign markets. But the incidence of violent crime in these non-U.S. markets is considerably lower than in the United States, suggesting that the cause of violent crime lies elsewhere.

Williams, Dmitri & Skoric, Marko (2005). "Internet Fantasy Violence: A Test of Aggression in an Online Game." June, 2005.

- Key Finding: A longitudinal study of an online violent video game found that it did not cause substantial increases in real-world aggression.

Williams and Skoric set out to determine the effects, if any, of engaging in a violent massive multiplayer online role-playing game. Setting out with no preconceived agenda, they found that there was no increase in the levels of aggressiveness or in belief and behaviors of the gamers.

They wrote, "A longitudinal study of an online violent video game with a control group tested for changes in aggressive cognitions and behaviors. The findings did not support the assertion that a violent game will cause substantial increases in real-world aggression."

The results determined that, "...game play—controlling for gender, age, and time one aggression scores—was not a significant predictor of aggressive cognitions. Compared to the control group, participants after the experiment were not statistically different in their normative beliefs on aggression than they were before playing the game."

From Gerard Jones' book *Killing Monsters*

Certainly video games haven't had any significant impact on real-world crime.

"The research on video games and crime is compelling to read," said Helen Smith, forensic psychologist, youth violence specialist, and author of *The Scared Heart*. "But it just doesn't hold up. Kids have been getting less violent since those games came out.

That includes gun violence and every other sort of violence that might be inspired by a video game." (p.167)

Addiction

While much of the research in this field is preliminary in nature, so far *research has simply suggested that at most, people are becoming addicted to games, not that games themselves are actually responsible for addicting people.* The difference is subtle, yet significant. It also helps to keep in mind that certain works in psychology and the humanities are not entirely definitive. So, while some people **do** seem to be addicted, games may not be the real culprit.

Remember, we're talking about *games* here. Recreation. Stuff that people do for *fun*. Even if it were possible to remove the proverbial 'nicotine,' or addictive ingredient in a game, would we want to? If it takes the fun out of games, then the answer is probably 'no.' The vast majority of gamers are responsible players who count on us for quality entertainment. And while there are people who do seem to have serious problems with gaming, but there are also people who watch too much TV, or spend too much time reading. Do these other media forms face criticism, or a looming threat of legislation? Not really, even though 53% of game players expect to be playing as much or more 10 years from now than they do today.

Government

60% of parents agree that it is not the role of government to regulate game sales in an attempt to protect kids from exposure to violent and/or sexual video game content. However, 36% of those responding believe that it is the government's role, showing at least some controversy over the issue.

Isolation

No Geeks

A Saatchi & Saatchi marketing study found that children, by age 11, are regularly using the computer to socialize; they actually become *more* outgoing as opposed to less. This contradicts the myth of the friendless computer geek chained to his monitor.

Are gamers socially isolated? About one-quarter of all *EverQuest* players play with their romantic partners. Video games are a standard part of modern culture, and simply sharing that experience with others of their generation makes the Gamer Generation accepted among their peers.

Roughly half of gamers say that they play as a social experience. In the Boomer days, playing games made you a loner; today, it makes you like everyone else. No matter what it looks like to outsiders, to those who take part in them, gaming does not feel like a solitary pursuit.

The LAN Party

The '90s saw major developments in computer graphics, processing speed, and sound – and computer games were raised to new standards. Networked multiplayer games such as *Doom*, *Quake* and *Diablo* spawned a new social trend among gamers. LAN Parties involved friends networking their computers together in a room and playing in teams or against each other – in between bites of pizza and (root) beer.

Game Development Essentials

WHAT ELSE ARE GAMERS DOING?

Gamers devote more than triple the amount of time spent playing games each week to exercising or playing sports, volunteering in the community, religious activities, creative endeavors, cultural activities, and reading.

In total, gamers spend 23.4 hours per week on these activities, compared to 6.8 hours per week playing games.

79%

of game players of all ages report exercising or playing sports an average of 20 hours a month.

45%

of gamers volunteer an average 5.4 hours per month.

93%

of game players also report reading books or daily newspapers on a regular basis, while 62% consistently attend cultural events, such as concerts, museums, or the theater.

Source: Peter D. Hart Research Associates, 2004

Industry Poll Challenges Stereotypical Gamer Profile

The trade organization the **Entertainment Software Association** has released a new poll that challenges what they see as the stereotypical image of a game player: obese, pasty, and antisocial. Instead, claims the ESA with the aid of data collected by Peter D. Hart Research Associates, the average gamer takes a healthy interest in the community, sports, and religion.

According to the survey's findings, those who play games spend over three times the amount of hours playing games on other activities, such as "exercising or playing sports, volunteering in the community, reading, or engaging in religious, creative, and cultural activities." The average amount of time devoted to socially constructive pursuits averaged out to 23.4 hours per week, as opposed to 6.8 hours on games.

Specifically combating charges that gaming contributes to America's obesity problem, the survey results show that 79 percent of respondents spend an average of 20 hours per week playing sports or exercising.

Other statistics showed that 45 percent of respondents volunteer an average of 5.4 hours per month; 61 percent spend several hours per month attending religious services; 93 percent read books or newspapers; 50 percent spend time with creative outlets such as painting, writing, or playing an instrument; and 94 percent keep up on current events. The poll was conducted in September 2004 and surveyed a random sample of 802 adults.

And in Another Study

The industry research group, **Neilsen Entertainment**, released data in April 2005 indicating that American males now spend more money on video games than music (and more on DVDs than video games). Almost 25% of gamers are over the age of 40, with approximately 79% of both male and female gamers over age 45 tending to play alone, while teenage girls are most likely to opt for multiplayer sessions. Active gamers spend around five hours a week playing on their own, and three hours playing with others or online.

The US games industry now has an annual revenue of \$10 billion - approximately equal to movie box office sales. Games systems - consoles, handhelds and gaming PCs - are now found in 40 per cent of US homes, and 23 per cent of households own all three types. Around 8 per cent of console gamers own a PS2, Xbox and GameCube.

The Science of Your Brain on Games

Discover Magazine explores how games affect players' thinking patterns, and the results are good.

Excerpts by **Douglass C. Perry**; June 20, 2005

Regarding video games, there seems to only have been two kinds of studies: those that tell us games are bad for us, and those that refute the former studies. Games such as *Doom* are considered "murder simulators." They disrupt our focus, feed anti-social behavior, and teach us that shooting people is an OK "solution." These studies are generally politically inspired, using the "results" as moral lessons. Conversely, researchers, professors, and psychologists who are interested in how games affect human nature often say that videogames are good for us. Games, they say, don't promote violence; instead they engage our imaginations and test our hand-eye coordination. They are no worse than playing war games in the street with other kids, playing with Army Men, or engaging in imaginary role-playing games. They might even provide logic puzzles and challenge our intelligence from time to time.

In a recent Discover Magazine article (July 2005, Volume 26, No. 7), **James Gee**, a professor of learning sciences at University of Wisconsin, suggests that game playing might be mentally enriching. Gee's research explores how games connect to the reward circuits of the human brain, and conveys that while gaming is indeed addictive, it builds instead of diminishes cognitive skills. He found numerous things that everyday gamers already know. Games can indeed be repetitive, dumb-witted, or they can even create tension and frustration. But he learned that most gamers aren't ruined or tainted from game playing. "We had a hard time finding kids who were bad at school but good at games," he said in the Discover Magazine article. Instead, there are positive cognitive results from playing games. Gee's studies show that gamers learn pattern recognition from puzzles and enemies or bosses; they learn system thinking, i.e. they learn how a game is structured, or how an enemy is attacking, or how to solve logic or physical puzzles. They even learn patience.

Gee's research suggests that gaming is analogous to exercise for the mind. It "exercises" the mind like physical exercise does the body.

"Videogaming may be addictive, but it's challenging," says Gee. His studies also show that "successful gamers must have patience, develop a willingness to delay gratification, and prioritize scarce resources."

The article moves from Gee's initial findings to a study in the early 1990s by Richard Haier, a professor of psychology at the University of California at Irvine. The Discover article reads: "Haier tracked cerebral glucose metabolic rates in the brains of Tetris players using PET scanners. Glucose rates show how much energy the brain is consuming and thus serves as a rough estimate of how much the work the brain is doing." Novice players struggled to play the game, adjusting to the game's simple yet genius patterns. One month later after regular playing, he took tests, and even though the subjects' skill level increased

by a factor of seven, their glucose levels fell. "It appeared that the escalating difficulty of the game trained the test subjects to mentally manipulate the Tetris blocks with such skill that they barely broke a cognitive sweat completing levels that would have utterly confounded them one month earlier."

Gee discovered an explanation, nearly 10 years later. Every videogame has embedded in it one of the core principles of learning -- students prosper when the subject matter challenges them right at the edge of their abilities. Make the lessons too hard and they students get frustrated. Make them too easy and they get bored. Cognitive psychologists call this the 'regime of competence principle.' "Gee's insight was to recognize that the principle is central to videogames: as players progress, puzzles become more complex, enemies swifter and more numerous, underlying patterns more subtle," the article states.

The premise that games teach generalized skills that apply in real-world situations has been corroborated by recent studies. James Rosser, director of the Advanced Medical technology Institute of Beth Israel Medical Center in New York City, learned that laparoscopic surgeons playing videogames more than three hours a week made 37% fewer mistakes than their non-gaming peers, thanks to improved hand-eye coordination and depth perception.

Discover also detailed the reason that videogames are so captivating and addictive. Numerous studies show that when playing games, the neurotransmitter dopamine is triggered in the human brain. Jaak Panksepp, a neuroscientist at the Falk Center for Molecular Therapeutics at Northwestern University, calls the dopamine system the brain's 'seeking' circuitry, which propels us to explore new avenues for reward in our environment. Naturally, games promote "risk and reward" behavior with mission objectives, explorable environments, optimization, customization, new weapons, spells, strengths and more. While dopamine is also involved in the addictiveness of drugs, "The thing to remember about dopamine is that it's not at all the same thing as pleasure," says Gregory Berns, a neuroscientist at Emory University School of Medicine in Atlanta. "Without dopamine, you wouldn't be able to learn properly."

Gee's studies, finally, conclude that games produce an interesting array of cognitive skills in this generation. "They're going to think well about systems; they're going to be good at exploring; they're going to be good at conceptualizing their goals based on their experience; they're not going to judge people's intelligence just by how fast and efficient they are; and they're going to think non-laterally. In our current world with its complex systems that are quite dangerous, those are damn good ways to think."

What is a good gamer to make of all this? Certainly, it's not to quit your day job and play videogames all day. Personally, I believe that all of these things -- thinking well about systems, exploring, conceptualizing goals, etc. -- have been generally recognized by individuals and your every day gamer. But to date, they have not been so well articulated. That Gee's studies appear in a prominent magazine such as Discover, and that they focus on non-politically motivated research studies is a relief.

From: <http://xbox.ign.com/articles/627/627505p1.html>

The Gamer Psyche

Who are these Gamers and what makes them tick?

- All of their video game experience has taught Gamers to be passionate about improving their situation and their world, particularly Millennials.
- Gamers have amassed thousands of hours of rapidly analyzing new situations, interacting with characters they don't really know, and solving problems quickly and independently in worlds that emphasize tangible results and give constant, critical feedback.
- Gamers want to be experts and know that skills matter; they place a high value on competence (skills that produce results), something that is very hard to train into people who don't have that desire and knowledge.



Gamers believe that winning matters; they have a high drive to perform. They *want* to be heroes and aren't afraid of the work required to *be* heroes.

- They intuitively understand that their personal success depends on adding value to an enterprise. Thus, they're not afraid of pay-for-performance evaluations (i.e., promotions and raises not based on seniority, but on job performance) because they believe in themselves – that they can add exceptional value. This is *not* a generation of slackers.
- Trial-and-error learning is 'their thing;' they're 'hands on' learners that can aggressively ignore any hint of formal instruction. This means lots of learning from peers, but virtually none from authority figures. Their learning style is to consume information in very small bits, exactly when the learner wants (which is usually just before the skill is needed). *Being forced to learn the rules through trial-and-error, observation, and hypothesis testing is the essence of inductive discovery. "RTFM" (Read The F-ing Manual) is a term of derision.*
- Gamers want to be skilled, they want to win, and they want to be part of the team – *real* contributors to the team – as they do so.



- Gamers seemed convinced that they really can multitask (even though less concurrent processing goes on in the brain than you might think; the brain is more of a time-share operation). Boomers find a quiet place to concentrate, while the Game Generation actually prefers to work in a noisy environment so that they can surface from deep thought to a place that is filled with visual or aural stimulation for a rest; they then return to their place of concentration when an idea has come to them.
- Gamers *love* being immersed in data and can handle more simultaneous data streams than their parents ever imagined (which bodes extremely well for the future of business).



- Gamers have mastered dividing activities into back-of-the-mind and 'front burner' matters and can easily shift mental gears between them to best achieve their goals.
- Gamers are 'tough cookies.' They tend to make their wishes known early and often; they respond very favorably to the statement, "I strive to be in control of the group."
- Gamers are more likely to be easily annoyed or upset (i.e., they are more irritable) *and know this about themselves*. This makes them more emotionally volatile than Baby Boomers and other previous generational cohorts.

"...one can game ten times longer than anything else."

Lord Byron

The *Apollo 13* Generation Gap

For Boomers, trial-and-error learning was never something to be proud of. If you've seen the movie *Apollo 13*, you know that "failure was not an option." There was lots of serious pre-planning work with slide rules, filling blackboards with calculations, all focused on arriving at trustworthy solutions *in advance*. This space mission was the **Gold Standard** in problem solving. Trial-and-error would have seemed unsophisticated, inefficient, and highly embarrassing.

Gamers can barely imagine such an attitude. Trial-and-error *is* their standard; manuals are to be ignored.

The Manager's Lament

The Gamer's emphasis on self-reliance characterizes not only how they think, but also what they do. There are countless complaints from midlevel managers (typically Boomers) that their new employees (typically Gamers) seem to solve problems by successive approximation:

"I have to review work product from my team three and four times – it's as if making the Power Point is so easy, they just throw something together that looks good but hasn't really been thought through. And they think that's normal – they try something out on me, I find the problems, they fix that, I find more. Repeat until deadline.

They don't understand that by the time I see something, it ought to be as right as they can make it."

That makes the Gamer Generation sound careless, disrespectful, and sheltered from the real costs of their mistakes.



Video Games: What's the Future? Look Around the World...

Germany

Germany is the second-largest market for computer-based games, but violence in games is not tolerated by law. *Quake II*, for example, did not have a retail launch in Germany due to the game's violence.

In order to sell *C&C Generals: Zero Hour* in Germany, the game's graphics had to be modified so that all military units were robots, not people, so that no humans were killed in the game.

Games in Germany must avoid blood, shooting humans, and anything that glorifies Hitler, the Nazis, or the Third Reich.

Other countries, including Australia and Korea, have also banned titles that are identified as being too violent

Game Development Essentials

"When people ask where I think games are going in the near future, I always refer to South Korea. Game parlors are on every block and apartment complex, the professional gamers are on billboards and television, and everyone you meet has a favorite *StarCraft* story. Games are not just accepted in popular culture; they are integrated, and nearly everyone plays. Being a 'professional gamer' is a respected career, featuring fierce tournament competition followed in the media on a par with any other sport.

"Korean developers are bringing new perspectives, stories, and mythologies, and even completely new social structures, to online game design. In the game *lineage*, players gather to defend their castle from a siege which has been scheduled to take place. A group of players will actually commandeer a game room for the siege; it transforms into a base of operations, and defenders will quickly organize and change strategies as orders are shouted around the room. This is a completely new kind of game and social experience that has not been available before in any

medium. While the physical and social properties of the PC game room don't always translate worldwide, the use of voice, command structure, team tactics, group balance, and shared risks and rewards are powerful gameplay devices that will shape the next generation of games."

– Mark Terrano, Technical Game Manager of the Xbox Advanced Technology Group and *Age of Empires* series designer and programmer.

Gamers Are "The Global Generation"

Thanks to cell phones and video games, Tokyo's youth call themselves "oya yubi sedai," the thumb generation.

Games themselves have supercharged globalization because they are so easily localized and ported over. The story lines are simple and universal, even formulaic. And gamers are definitely a global market.

It's even possible that, worldwide, Gamers have more in common with each other than with people who share their nationality, history, and educational background, but who do not share their experience with games.

South Korea, for example, currently has an 80% home penetration rate of broadband internet service and boasts the largest subscriber base to online multiplayer games. South Korea's is an *online* gaming market, not a console market.

Japan versus Korea

Because Japan is dominated by a wireless telecommunications monopoly, it is one of the least 'wired' countries in the world. The Japanese are charged by the minute for Internet use, so their game industry has revolved around game consoles, not online games. Most Japanese don't have PCs, but personal digital assistants (PDAs).

The Koreans, who are still anti-Japanese due to the occupation of their country by Japan through World War 2, *won't* buy Japanese consoles. Hence, they went heavily into online games and often *player-kill* (PK) Japanese gamers when they meet them in online games.

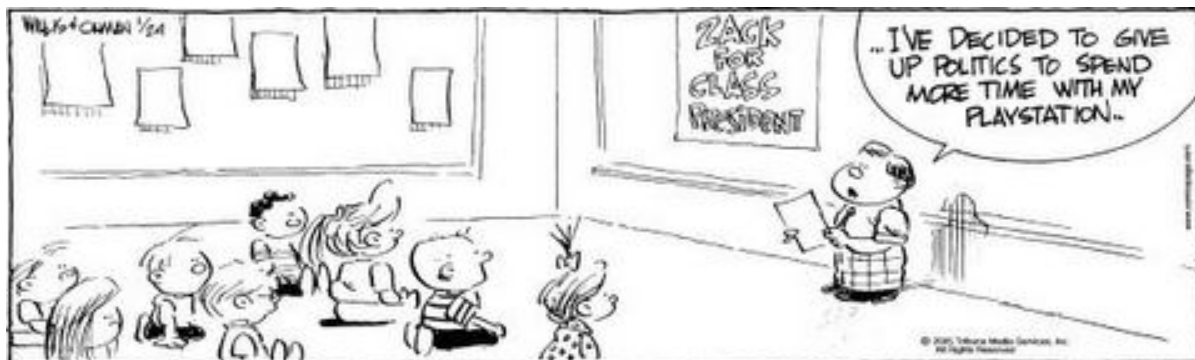
Enter the Dragon: China

At the end of 2005, the number of Internet users in China will hit 134 million, making it the second largest online market in the world, after the U.S. This figure marks a growth rate of around 30% from figures at the end of last year.

Analysis has specifically singled out online games as a growth area, with the country's online subscriber base growing 61.1 percent year-on-year to 24 million, with the market rising 89.5 percent for a total worth of 3.6 billion *yan* (\$434m). In 2005, the subscriber base is expected to increase by 50 percent to around 35 million people.

With massively multiplayer online games proving especially popular, the Chinese government has attempted to crackdown on Internet cafes and continues to monitor online traffic for content it deems politically sensitive. It has fallen short of banning online gaming activities outright, though, and seems happy to encourage Internet commerce in general.

David Jenkis for *Gamasutra*

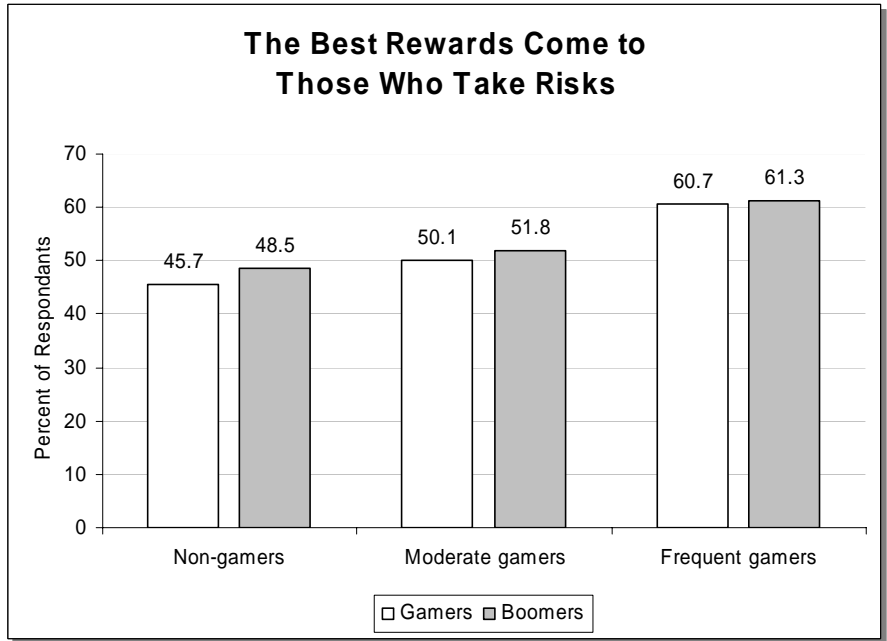


The Gamer as CEO

At some point, the Gamer Generation will become corporate CEOs and will be leading the country through the Boomers' retirement years.

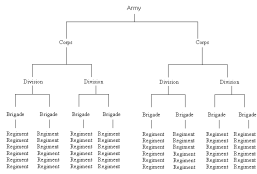
"Each player must accept the cards life deals him but once in hand, he must decide how to play the cards in order to win."
Voltaire

- The Game Generation has learned through repetition something that countless team coaches have tried to instill: Failure is part of the process that leads to success.
- By traditional standards, the Game Generation takes pain and failure less seriously.
- Gamers are more comfortable with risk than other groups.
- The Game Generation is moving more capably and confidently into complex areas such as finance. In 2004, half of Americans aged sixteen to twenty-two, for example, save a portion of their money; nearly 11% invest in mutual funds, and as many own stock. *That level of financial awareness was not happening back in the 1970s when Boomers were about this age.*



- Gamers have developed three key traits that are crucial for executives:
 - Gamers are not afraid to take risks, but they will only for the right reasons. *This is something they've learned from hundreds of hours of video game experience.*
 - By their very nature, Gamer's 'think different' – they fit easily into flexible organizations. This is good, because the traditional business organization based on the Army Model is falling by the wayside. Our current business climate is less rigid, more global, with the individual counting for more and having to learn and make decisions on the fly. *Boomers simply didn't grow up in a world of constant change and complicated matrix structures.*
 - Gamers have developed an ability to 'go meta' – they have a leader's perspective on success, failure, and even perspective itself. To succeed, a leader must have the right perspective (i.e., enough detachment to make hard decisions), including the ability to change perspective; Gamers have been doing that for years; 'productive dissatisfaction,' a sense that things could be better, drives you forward toward a goal. *The more time you spent playing games, the more you believe that things can be made better. Gamers see a more desirable state and believe that reaching it is possible.*

Gamers as Managers
Young professionals with extensive gaming experience display the same attitudes as much more experienced managers. This is particularly clear when it comes to making decisions for a group and managerial style. The Gamer Generation is surprisingly inclined, and fluidly able, to involve their subordinates in decision making.



Perspective
As intense and interactive as they are, games automatically teach two things about perspective: **first**, that a little distance is not just useful, but normal; and **second**, that your point-of-view is a choice – and choosing correctly matters.

About "perspective" as a Gamer virtue: When gamers 'go meta' they take a 'big picture' look and see things from a different point-of-view. In a game, the player's perspective is often under their control and, at certain points, choosing the right view can make a big difference.

For many games, the preferred view is over-your-own-shoulder. Consider the implications in terms of experience. What would it feel like, in real life, to watch yourself from behind and slightly above? A little distant; a little more analytical?

With distance and control added to your point-of-view (i.e., 'going meta'), you achieve more. You see the strategic situation faster and can take bigger risks. You can take that step back from the

immediate situation, analyze the choices and the odds, and then determine the correct strategy.

By sampling so many different realities, Gamers have become good at separating the underlying principles from the visible surface; they've become analytical and strategic. (*See the sidebar "Kindergarten: Then and Now."*)

Summary: What Boomers Should Know (and Remember) About Gamers

Culture: the set of knowledge, beliefs, and assumptions that is shared and passed on by the group.

Gamer's have evolved their own culture. Their childhood is profoundly different from the traditional kind of generations before. Specifically:

- Gamers grew up *playing* differently. They're not as isolated as parents often fear, but have the ability to go off alone whenever they want without boredom.
- They *learn* differently. Their game experience teaches them independent problem solving and the rapid acquisition of technical skills (as opposed to sustained attention studies, such as pondering the subtleties of Shakespeare or delving deeply into calculus).
- They *feel* differently, too. Superficially, people are worried about violent video games making them violent. A more important concern is whether simple, structured, and generally competitive relationships allowed during video game playing might not give Gamers enough room to develop complex interpersonal skills.
- Their *thinking*, too, is different. There is no evidence of the much-feared short attention spans; instead, gamers *do* seem to have a tremendous ability to focus on a single complex task for hours or days at a time.
- And *growing up* is different. Gamers have a dramatic increase in experiencing the hero role along with the repeated failures that build toward success. They have *less* experience with activities where they'll never be the best (or even average) such as music and Little League.

More Lessons Gamers Learned from Playing Video Games

Resources Available:

- Patience: Once you have taken a break.
- Innovative thinking: Game problems seem just as likely to stir up the familiar flash of insight in the shower as 'real' problems do.
- Brute force: In the game world, if you make your inglorious way down the mountain enough times, eventually you will learn to snowboard.
- Help from others: Friends, strategy guides, Internet sites, and occasionally even parents.
- Reading the hints and instructions provided within the game: Many of which pop up just about when you need them.

The only real limiting factor is a willingness to keep trying. The only real driver is the player's own desire to reach some better state.

Bridging the Generation Gap

Because Gamers and Boomers have grown up so differently, they have much to offer each other personally and professionally. Gamers tend to bring intuitive technical skill, plus problem-solving strategies and attitudes. Boomers have life experience and plenty of skills honed from *not* playing video games all the time.

A great way to get them to share and teach each other is through simulation games (particularly cooperative strategy and war games that provide real role-playing interaction). In those game situations where styles, methodologies, and experiences all contribute to discovering the best (winning) combinations, Gamers and Boomers that must cooperate to overcome obstacles will have much to teach one another.

Remember, the game world can't provide unanticipated consequences. They may be unanticipated by the *player* (though not for long, if she's paying attention), but they can't be unanticipated by the *designer*. Real life is full of curveballs; the game world mainly throws regular pitches fast and faster.

If you create a simulation world run by a human referee or game master (akin to 'Free *Kriegspiel*' or a pen-and-paper role-playing game like *Dungeons & Dragons*) who can throw players some curveballs, thus forcing the unexpected on these Gamer / Boomer teams, you'll be amazed what they can accomplish when they're truly working together to solve common 'big picture' problems.

From the War in Iraq: Soldiers Relax with Video Games

Sunday, January 02, 2005; Associated Press

CAMP FALLUJAH, Iraq — Soon after the battle for Fallujah ended in November, U.S. Marines brought their Xbox consoles, Gameboys and laptops forward and started fighting the Covenant hordes in *Halo*, Mario and Luigi's worst enemies, and those irksome roommates from *The Sims*.

At the Marine base several miles southeast, high-speed wires snake down hallways, through doors and out windows. The Navy engineers play *Half-Life 2*. At the gym, where seven Playstations get heavy use, Marines wage *Madden NFL 2005* tournaments. *Neverwinter Nights* reigns in the public affairs office.

The video game generation has grown up and gone to war, taking along its preferred form of entertainment.

Never has that been clearer than during the current Iraq conflict and at Camp Fallujah, where Marines and soldiers play because they've been playing all their lives. Games relieve both the stress of warfare and the crush of boredom.

Psychologists who treat combat stress recommend video games for Marines to unwind and boost morale. "I always talk to people about all kinds of positive, pleasant events that they can use," said Lt. Erin Simmons, a psychologist with Bravo Surgical Company. "I've heard some people say they like to play the video games with the aggressive military content. I've also heard people say they don't want to play those types of games; they don't need to be reminded of it. But as far as a pleasant event, it can take their mind of things, help them relax. We encourage it."

The activity is highly social as service personnel place bets on the outcome of sports games and jeer at one another during multiplayer rounds of "Halo."

It also helps alleviate homesickness. A "Morale, Welfare and Recreation" center just off the gym is filled with Playstation 2 consoles. Marines back from the fight stop in for a few hours to unwind.

The military awoke to the power of video games years ago. It developed *America's Army* as a recruitment tool, giving civilians a taste of the soldier life with scenarios that let players cooperate online in raids on guerrilla camps and bridges, among several other scenarios. Some branches of the service have incorporated games into their training and then sold off commercial versions — *Operation Flashpoint* was one, and the Marines for the first time are helping produce their own game, called *Close Combat: First to Fight*.

On the base, Marines who have seen combat say they were aided by games they had played beforehand. Those games, they say, taught them how quickly something can go wrong. For instance, in the hyper-realistic *SOCOM 2: U.S. Navy Seals* for the Playstation 2, players issue commands to their teams in a highly coordinated ballet of violence. "When we cover houses, you got your guys coming in behind you covering your flank," said Lance Cpl. Patrick Hopper, 23. "When you take over a house and you're playing SOCOM, you kind of get used to it when you get there."

But Marines scoff at the idea that games could somehow prepare them for combat in any significant way. In video games, they say, players are generally willing to risk their lives; that wasn't always the case in Fallujah. "When bullets are zooming by you, there's nothing like it," said Sgt. Jeffery Mickel, 27. "Some guys get scared and take cover, other guys go right ahead and take care of the threat."

Games have also not caught up with reality: civilians blending in with insurgents, and soldiers not being able to distinguish between them. Nor do games cover the types of scenarios faced in the combat. "In a game, you can die and press start and go all over again. This is a little bit different," said Sgt. James Atakoglu, 28, who drove a bulldozer during the battle for Fallujah, often smashing down buildings where insurgents were believed to be hiding. "I don't think games are going to have a dozer crashing into a building."



Dec. 20: Lance Cpl. Ernesto Sanchez plays a computer game while on a break at a U.S. base near Fallujah, Iraq.