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LET THE GAMES BEGIN

GAMING TECHNOLOGY AND ENTERTAINMENT AMONG COLLEGE STUDENTS

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Summary of Findings

While the last few years have seen tremendous growth in gaming, for one segment of the population, college students, gaming is virtually a commonplace. Computer, video and online games are woven into the fabric of everyday life for college students. And, they are more of a social/socializing activity than most suspected.

- All of those surveyed reported to have played a video, computer or online game at one time or another. Seventy percent (70%) of college students reported playing video, computer or online games at least once in a while. Some 65% of college students reported being regular or occasional game players.

- Students cited gaming as a way to spend more time with friends. One out of every five (20%) gaming students felt moderately or strongly that gaming helped them make new friends as well as improve existing friendships.

- Gaming also appears to play a surrogate role for some gamers when friends are unavailable. Nearly two-thirds (60%) of students surveyed agreed that gaming, either moderately or strongly, helped them spend time when friends were not available.

- Two-thirds of respondents (65%) said gaming has little to no influence in taking away time they might spend with friends and family,

- Students integrate gaming into their day, taking time between classes to play a game, play a game while visiting with friends or instant messaging, or play games as a brief distraction from writing papers or doing other work.

- Gaming is integrated into leisure time and placed alongside other entertainment forms in their residence, and that it forms part of a larger multitasking setting in which college students play games, listen to music and interact with others in the room.

- Most college student gamers seem to associate positive feelings with gaming, such as “pleasant” (36%), “exciting”(34%), and “challenging” (45%). Fewer students reported feeling frustrated (12%), bored (11%), or stressed (6%) by gaming.

- Close to half (48%) of college student gamers agreed that gaming keeps them from studying “some” or “a lot.” In addition, about one in ten (9%) admitted that their main motivation for playing games was to avoid studying.

- College student gamers’ reported hours studying per week match up closely with those reported by college students in general, with about two-thirds (62%)

reporting that they study for classes no more than 7 hours per week, and 15% reported studying 12 or more hours per week.

- One third (32%) of students surveyed admitted playing games that were not part of the instructional activities during classes.

Gaming Comes of Age

College students are often considered a bellwether of Internet use, but the Internet is not the only technology they have incorporated into everyday life. Thanks to a plethora of technologies (video game consoles, computers, handheld devices, Internet) a range of entertainment options is at their disposal, a range that is much wider than was available to their predecessors. Furthermore, today's college students are using technologies like cell phones, mp3 players and other devices to entertain themselves wherever they may be.

The goal of this study was to learn about college students' use of video, computer and online games, and to determine the impact of that use on their everyday life. To meet those goals the researchers used three approaches. First, surveys were randomly distributed to college students at a wide range of two-year and four-year public and private colleges and universities in the continental United States. Students from 27 colleges and universities participated and the surveys were collected between March 2002 and June 2002, and September 2002 and October 2002. This sample was intended to produce results that would correspond to the demographics for all U.S. college students as reported in *The Chronicle of Higher Education*'s annual almanac issue.[1] The sample was tested against known population parameters (gender, race, age) and found to be reflective of the national population of college students. In all, 1,162 surveys were returned. For results based on the total sample, one can say with 95% confidence that the error attributable to sampling and other random effects is plus or minus 3 percentage points. This study focused on traditional college students, ones who are seeking a college degree and who devote much or all of their time to their studies.

Second, a team of graduate student researchers at the University of Illinois at Chicago was recruited to observe the behaviors of college students at 10 Chicago area institutions of higher education. The researchers were trained in ethnographic methods of observation and data collecting, and rotated the times of the day and days of the week they spent in various public settings where college students could be found using computers and the Internet. Third, additional material was based on a previous study of college students' Internet use conducted by this research team for the Pew Internet & American Life Project[2] and on the findings of surveys of Americans about their use of the Internet conducted by Princeton Survey Research Associates in 2001 and 2002 for the Pew Internet & American Life Project.

[1] *The Chronicle of Higher Education*, Almanac Issue 2001-2, 158(1), August 31, 2001 and Almanac Issue 2002-3, 159(1), August 30, 2002.
[2] http://www.pewinternet.org/reports/toc.asp?Report=73

The Context for Games

The 1980s were a boom time for video games. Beginning with *Pong*, progressing to *Space Invaders*, and following on to the PC boom with computer-based games, the gaming industry evolved its grip on entertainment slowly but surely. By the late 1990s the Internet's growth and popularity seemed a logical match for video games, but bandwidth, computer processor speed, and the gaming industry's investment in its own devices (Nintendo, PlayStation, etc.) postponed the inevitable merger of interactive games and Internet.

The last few years have been another boom time for the gaming industry. Internet-ready game consoles from Nintendo, Sony and Microsoft (among others), increasing bandwidth, and computers primed for multimedia, have made gaming an increasingly popular form of entertainment. Research conducted in 2002 showed that 60% of U.S. residents age six and older play computer games, and that over 221 million computer and video games were sold in the U.S.[3] Earlier research found that 35% of U.S. residents surveyed said that video games were the most entertaining media activity, while television came in second with 18% saying it was most entertaining. The gaming industry reported sales of over $6.5 billion that same year.[4] Datamonitor estimates online gaming revenues will reach $2.9 billion by 2005.[5] Additional research has claimed that 90% of U.S. households with children rented or owned a video or computer game[6] and that U.S. children spend an average of 20 minutes a day playing video games.[7]

Research conducted by the Pew Internet and American Life Project showed that 66 percent of U.S. teenagers play or download games online.[8] While 57 percent of girls play online, 75 percent of boys reported that they play Internet-games. Although teenagers are reported to play video and computer games for nearly 4 hours a week, some researchers have found that college aged men report playing these games over 15 hours per week.

General Findings

Responses to questions about college students' use of video games (*e.g.*, those requiring consoles and television sets, like Nintendo, Sega, Xbox, etc.), computer games (*e.g.*, those that require a PC only) and online games (those that require an Internet connection,

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[3] Interactive Digital Software Association (2003). Available: http://www.idsa.com/pressroom.html.
[4] Sherry, J., Lucas, K., Rechtsteiner, S., Brooks, C., Wilson, B. (2001, May 26). *Video game uses and gratifications as predictors of use and game preference*. Paper presented at the International Communication Association convention. Available: http://icdweb.cc.purdue.edu/~sherryj/videogames/VGUG.pdf; and Anderson, C. A (2001, August 14). *Violent video games and aggressive thoughts, feelings and behaviors* [On-line]. Available: http://psychserver.iastate.edu/faculty/caa/abstracts/2000-2004/02A.jcc.pdf
[5] Datamonitor (August 30, 2002). *Online gamers console themselves*. Available at http://www.datamonitor.com/
[6] Quittner, J. (1999, May 10). *Are video games really so bad?* Time.
[7] Jensen, E. (1999, Nov. 18). *Study finds TV tops kids' big diet of media.* Los Angeles Times, pp. A1, A29.
[8] Lenhart, A., Rainie, L., Levis, O. (2001). *Teenage life online.* Available: http://www.pewinternet.org/reports/pdfs/PIP_Teens_Report.pdf

typically for multiplayer interaction) lead to the undeniable conclusion that college students comprise an active video, computer, and online gaming community. Indeed, gaming is a regular part of college students' lives. Seventy percent (70%) of college students reported playing video, computer or online games at least once in a while. Some 65% of college students reported being regular or occasional game players. All of those surveyed reported to have played a video, computer or online game at one time or another. Of the 27% of college students who said they do not occasionally or regularly play video, computer, or Internet games at all, "lack of interest" (20%) and "waste of time" (13%) were their primary reasons for not playing. Only a handful of students cited a lack of electronic gaming resources (2%) or unfamiliarity (.5%) as their reasons for not gaming. The universe of entertainment options for them clearly includes gaming as an important category of activity.

Surprisingly, slightly more women than men reported playing computer and online games (approximately 60% women compared to 40% men) while about the same number of men and women reported playing video games. Part of the reason more women than men play computer games may be that video games are generally focused on action and adventure (often violent in nature), while computer games are typically traditional games (*e.g.* solitaire, board games). Video games are also often rigid in their game options and narrative structure. In most video games the types of characters one can choose are pre-set by the game designers, and gender roles are stereotyped and exaggerated. Computer games generally do not require the player to choose a character. Online games may be more popular for women than men partly because gender can be disguised and manipulated in an online game, and because online gaming sites specifically designed for women can provide a comfortable gaming environment. The racial profile of college student gamers is roughly similar to the overall college student population, with a slight skew toward non-white students playing games in comparison to the overall population (Table 1).

Table 1. Racial characteristics:

	Overall	Video Gamer	Computer Gamer	Online Gamer
White	72%	63%	63%	61%
African-American	11%	9%	11%	12%
Asian	6%	14%	14%	13%
Hispanic	9%	9%	8%	10%

Source: Pew Internet & American Life Project College Students Gaming Survey, n=1162. Margin of error is ±3.5%.

Computer games held a slight edge in popularity (Table 2) compared to computer and online games. When asked which they play the most, 30% said video games, 27% said computer games, and 14% said online games. But when asked which they played at least once a week, 37% said computer games, 31% said online games, and 27% said video games. The differing responses likely have to do with the technologies involved and college students' whereabouts. While computer games may be played anywhere there is a computer (*e.g.*,, most computer operating systems

Table 2. Do you ever:

Play computer games	71%
Play video games	59%
Play online games	56%

Source: Pew Internet & American Life Project College Students Gaming Survey, n=1162. Margin of error is ±3.5%.

include some games as part of their standard installation), online games require Internet access, and video games are generally played in the home on gaming consoles like the ones made by Nintendo, Sega and others. This assertion is further supported by students' own reports that they play video games most at their parents' or friend's houses and play online games at a school computer lab.

Computer games have an edge over video games and online games when time-use is considered. Just over one fourth (27%) reported playing video games once a week or more often, and slightly more (31%) reported playing online games once a week or more often. But over a third (37%) reported playing computer games once a week or more often. Daily, twice as many college students play an online (14%) or a computer (13%) game as play a video game (6%). The computer's prominence as a tool related to gaming is illustrated by the finding that nearly half (45%) of college students reported going online simply to play or download games.

Table 3. First started playing this type of game during:

	COLLEGE	JR. HIGH / HIGH SCHOOL	ELEMENTARY SCHOOL
Video games	2%	15%	69%
Computer games	9%	49%	28%
Online games	22%	43%	6%

Source: Pew Internet & American Life Project College Students Gaming Survey, n=1162. Margin of error is ±3.5%.

Students' commitment to gaming comes as little surprise considering their long history of interaction with video and computer games. By high school 77% of our respondents had played computer games, and just over two-thirds (69%) of them had been playing video games since elementary school. Table 3 illustrates the trend over time – college students first encountered video games as children in elementary school, and are just beginning to discover the relatively recent phenomenon of online games in high school and college. The fundamental point, however, is that gaming is a part of growing up in the U.S., and by the time the current cohort of college students graduates virtually all of them will have had some kind of experience with gaming. And although only 14% of college students reported that online gaming is the game format they played most, the continuing saturation of wireless technology (particularly in cell phones, and personal digital assistants) with gaming capabilities, along with the availability of broadband connections, will likely affect these numbers significantly in the future and allow college students to maintain and even increase their online gaming activities once they leave the college environment.

Gaming and College Life

College students have readily accepted online gaming into their lives and have adapted gaming activities to the unique environment of college life. College students are notorious "night owls" due in part to all night study sessions and regular (if not continual) socializing, and their gaming activity reflects this. Close to half (41%) of college gamers reported playing after 9 p.m. Only 8% reported gaming before noon, while another 37% play between 5 p.m. and 9 p.m.

In our observation of college students in campus computer labs it was common to see students who appeared to be stopping by their dormitory computer lab for a post-class/pre-dinner gaming session. The atmosphere in the labs was usually very relaxed during these hours, and the types of computer use by students, including gaming, seemed to provide relaxation. In observations of computer use in public computer labs on college campuses it was found that that male students more frequently than female ones often had online games open on their computer's screen alongside their schoolwork (typically written papers).

However, the games most commonly seen were billiards, solitaire, crossword puzzles, poker and other arcade and card games, rather than multiple player games. These are readily available via the web, and many students had browser windows open with such games, to which they would turn to take a break while writing a paper. Among the reasons those games are most common is that they are not intended to be a lengthy distraction from work, they are easily accessible on the Internet and do not require fast processors, bandwidth or sound, and they do not require installation of specific programs on the computer.[9] A number of students were seen quickly entering a lab, playing some games in an apparent effort to kill time, and then leaving. The manner of some such students suggested a routine, perhaps an after-class relaxation ritual. We sometimes observed students sitting next to one another and playing an online game together on different, but adjacent machines. In most all cases gaming was one of several simultaneous activities and rarely the sole thing to which a student paid attention.

Further observation showed a distinct difference between types of campus computer labs. In residence hall, or dormitory, computer labs, students were directly observed playing various online and offline games on public computers. These students typically had no class materials around them and seemed to be visiting the lab purely for entertainment reasons. Gaming in labs located in academic buildings was much less frequently observed. Public settings, such as school computer labs, the library and Internet cafes lack appeal for student gamers, with only small numbers (5%, 2% and 2% respectively) citing these locations as their favorites for gaming. Reasons for this may include restrictions on the types of computer use allowed on public machines. Although most college students (66%) were unaware of restrictions on playing games in campus or dormitory computer labs, the 16% who were aware of use restrictions reported that campus computer labs had more rules regarding gaming, downloading programs, or looking at pornography than computer labs located in dormitories.

Table 4. Where do you play games the most?	
Parent's home	31%
Friend's home	27%
Dorm room	23%
Source: Pew Internet & American Life Project College Students Gaming Survey, n=1162. Margin of error is ±3.5%.	

Although college students have access to many settings that can accommodate gaming, including campus computer labs and dormitories, they tend to make their home the primary gaming environment (Table 4). Comfortable surroundings and accessibility to gaming equipment (i.e. TV set, gaming

[9] During one observation a student was seen trying to load a multiple player online game onto a computer. After several unsuccessful attempts, likely due to security software on the computer, he gave up and left.

consoles and accessories, computers, and the Internet) appear to be important features in for college students when choosing a place to play games. This suggest that gaming is placed alongside other entertainment forms in their residence, and that it likely forms part of a larger multitasking setting in which college students play games, listen to music and interact with others in the room.

Gaming vs. Studying

According to students, gaming has little impact, either positive or negative, on their academic lives. About two-thirds (66%) felt that gaming had no influence on their academic performance. However, in response to another question close to half (48%) of college student gamers agreed that gaming keeps them from studying "some" or "a lot." In addition, about one in ten (9%) admitted that their main motivation for playing games was to avoid studying. Nevertheless college student gamers' reported hours studying per week match up closely with those reported by college students in general, with about two-thirds (62%) reporting that they study for classes no more than 7 hours per week, and 15% reported studying 12 or more hours per week.

While some educators have noted the possible benefits of gaming as a learning tool, most gamers (69%) reported having no exposure to video, computer, or Internet gaming in the classroom for educational purposes. However, one third (32%) of students surveyed admitted playing games that were not part of the instructional activities during classes.

Impact of Gaming on College Students' Social Lives

Students felt that gaming had mostly positive, and few negative, effects on their social lives. Most college student gamers seem to associate positive feelings with gaming, such as "pleasant" (36%), "exciting"(34%), and "challenging" (45%). Fewer students reported feeling frustrated (12%), bored (11%), or stressed (6%) by gaming. Specifically, students cited gaming as a way to spend more time with friends. One out of every five (20%) gaming students felt moderately or strongly that gaming helped them make new friends as well as improve their existing friendships. When asked if gaming has taken away time they might spend with friends and family, two-thirds of respondents (65%) said gaming has had little to no influence in this regard. Gaming also appears to play a surrogate role for some gamers when friends are unavailable. Nearly two-thirds (60%) of students surveyed agreed that gaming, either moderately or strongly, helped them spend time when friends were not available.

Based on college student responses, video and online gaming seem especially well suited to their social nature, while computer gaming appears a more solitary activity. Nearly half (46%) of video gamers reported playing multi-player games, while only 1 in 5 (20%) of them reported playing online games. During our observations of computer use in public settings, some students were seen sitting at neighboring computers directing each other to interesting games and entertainment on their terminals, and sharing "war stories" about victories and defeats in particular games. Some were also seen typing into instant

message-like dialogue boxes featured on interactive, multi-player games such as Yahoo! Towers.

College students are indeed aware of possible negative consequences from gaming, although they seem to perceive these risks as minimum. Despite some agreement among them that gaming can have a positive impact on friendships, more than half (57%) felt moderately or strongly that time spent gaming with friends was not "quality time." Still, almost one in three (28%) reported that gaming took them away from other leisure activities either "some" or "a lot." A majority of college students (62%) said that only "some" or "vulnerable" players[10] are negatively influenced by video, computer, or online games. And an even greater majority (76%) felt that only some or few college students exposed to gaming become "gaming addicts."

Specific Game Preferences

College students' specific gaming preferences varied more within video gaming than in computer and video formats, but all contained elements of excitement and engagement. College students ranked realistic graphics (23%) as the most important feature of a good game, with excitement a very close second (22%), and interactivity (15%) third in importance. Racing (26%), role-playing/adventure (17%), and arcade (16%) games were the most popular among college video gamers, while card games were the predominant interest of both computer (70%) and Internet (15%) student gamers. All other game types were played in marginal numbers among Internet gamers.

Students reported little interest in "socially undesirable" games. Less than 4% reported playing sex games of any kind (video .5%, computer .5%, Internet 1% or other 1%) and only a small number (4%) have gambled online. Self-reporting on such behaviors is notoriously inaccurate, especially in regard to pornography use. While it is possible that the number of users of such games may be higher the confidential and anonymous nature of this survey ought to have promoted accurate responses.

[10] "Vulnerable" players are those who respondents believed might be more at risk of social isolation due to gaming, while "some" players includes all types of gamers.

Implications of College Students' Gaming for the Future

Despite the fact that online gaming is one of the fastest growing entertainment industry branches, there is remarkably little data on the development and acceptance of this new medium and even less about its impact on adults. Market research tends to focus on game adoption and revenue and is largely predictive. Research by social scientists tends to focus on potential social problem areas, such as gaming addiction, social isolation, or emerging violence and aggression primarily in children 18 years and younger. So far, studies dealing with everyday use and the integration of gaming in children's social lives are still neglected. Based on the studies available, one does not even know who is playing electronic games based on categories of race, gender, age, religion, and income, all of which are important in understanding who does or does not have access to online gaming technology and whether it is used at home, at school, at work, or at some other publicly accessible gaming operation.

This study attempted to remedy some of those shortcomings. In our research, for example, significant gender differences were found. While men mainly reported their main reason for playing games as being for fun (45%), most women reported playing them mainly when bored (33%) and half (22%) as many women as men said their main reason for playing games is for fun. Women were much less likely to believe that gaming improved their relationship with friends than men believed (51% of women compared with 34% of men). Women reported playing computer games the most, while men reported playing video games the most (Table 5).

Table 5. Which one of the following do you play the most?

	Video games	Computer games	Internet games
Male	53%	19%	12%
Female	17%	32%	15%

Source: Pew Internet & American Life Project College Students Gaming Survey, n=1162. Margin of error is ±3.5%.

Young people in academic settings have been found to be heavy users of the Internet, and early adopters of new technology.[11] This makes them an ideal group for studying trends in Internet and technology use and therefore and ideal population on which to focus the research of gaming use. While the study of new technology use can only claim to capture a snapshot of a continually metamorphosing geography, it is our hope that this early attempt to more clearly define the path of electronic and online gaming will provide a strong foundation for future research in the field.

Perhaps the most important trend spotted is the integration of gaming into other activities. Students would take time between classes to play a game, play a game while visiting with friends or instant messaging, or they would play games as a brief distraction from writing papers or doing other work. The compartmentalization of leisure activities that their parents have internalized is largely unknown to the current group of college students. That is not to say that they are unable to relax – quite the contrary. But their leisure is taken in sips rather than gulps, as a breather between other activities.

[11] See Jones, Steve, et al, "College Students and the Web" (available at: http://www.pewinternet.org/reports/toc.asp?Report=73)

Gaming is also leading today's college students toward considering interaction as a routine component of entertainment. The number that were observed either playing multiplayer online games, instant messaging while gaming or chatting with friends in the same room while gaming, along with the number that reported playing games frequently at a friend's house, leads to the conclusion that gaming is less a solitary activity and more one that is shared with friends and others. Increasing adoption of "always on" broadband technologies and Internet enabled cell phones will likely further contribute to the interactive uses of gaming and entertainment today's college student will pursue.

Methodology

This report is based on the findings of a survey given to college students at two-year and four-year public and private colleges and universities in the continental United States. Paper surveys were randomly distributed at a wide range of higher education institutions by researchers at the University of Illinois at Chicago between March 2002 and June 2002 and between August 2002 and October 2002. Conducting a survey in this manner allowed researchers to guarantee that participants would remain anonymous as the surveys asked questions regarding students' feelings and attitudes about certain aspects of Internet usage as well as other information that might be considered personal or sensitive. Paper surveys also made it possible for researchers to reach college students in a manner that telephone surveying would not have allowed.

Surveys were distributed to undergraduate and graduate students enrolled in degree-seeking programs at 27 institutions of higher education across the United States. The sample was intended to produce results that would correspond to the demographics for college students reported in *The Chronicle of Higher Education*'s annual almanac issue.[12] The sample was tested against known population parameters (gender, race, age) and found to be reflective of the national population of college students as reported by *The Chronicle*. Each student was asked to fill out either a survey about his/her academic uses of the Internet or his/her social uses of the Internet. In all, 1162 surveys were returned between March 2002 and June 2002, and September 2002 and October 2002. For results based on the total sample, one can say with 95% confidence that the error attributable to sampling and other random effects is plus or minus 3.5 percentage points. In addition to sampling error, question wording and practical difficulties in conducting surveys may introduce some error or bias into the findings.

Ethnographic data was collected by a team of graduate student researchers at the University of Illinois at Chicago. The researchers were recruited to observe the behaviors of college students at numerous Chicago area institutions of higher education. The researchers were trained in ethnographic methods of observation and data collecting, and rotated the times of the day and days of the week they spent in various public settings where college students could be found using the Internet. Observations took place between March 2002 and June 2002.

Additional material is based on the findings of a survey of Americans about their use of the Internet. These results are based on data from telephone interviews conducted by Princeton Survey Research Associates in 2001, among a sample of 16,125 Internet users, 18 and older, who have broadband Internet access. For results based on the total sample, one can say with 95% confidence that the error attributable to sampling and other random effects is plus or minus 2 percentage points. In addition to sampling error, question wording and practical difficulties in conducting telephone surveys may introduce some error or bias into the findings of opinion polls. At least 10 attempts were made to

[12] *The Chronicle of Higher Education*, Almanac Issue 2001-2, 158(1), August 31, 2001 and Almanac Issue 2002-3, 159(1), August 30, 2002.

complete an interview at every household in the sample. The calls were staggered over times of day and days of the week to maximize the chances of making contact with a potential respondent. Interview refusals were re-contacted at least once in order to try again to complete an interview.