

The Pennsylvania State University

The Graduate School

Department of Communications

**VIDEO GAME HEURISTICS AND ONLINE FAN REVIEWS:  
A COMPARATIVE ANALYSIS OF POPULAR VIDEO GAMES**

A Thesis in

Media Studies

by

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Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Master of Arts

August 2009

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## ABSTRACT

Understanding video game fans and the communities that they create allows for a better understanding of the fans' desires for both the games and the community. This study explores the contents of fan comments posted with online game reviews. Reviews were chosen for six games in different popular genres and from three major review sites. The reviews were analyzed for valence of comments, as well as four major heuristic categories and several specific subcategories. Results demonstrated that comments were more likely to be posted by registered users, indicative of the commitment that the fans have to their communities. The comments posted also show a lack of conversation between posters, which may be attributed to the multitude of other readily available outlets for discussion among gamers in a less public place. Results for heuristic comparisons highlight how gamers discuss different aspects of the game experience depending on the game they have chosen. However, certain games show overlap in the most important heuristic categories. These similarities could be attributed to a similar style of game play. As an exploratory study in genre comparisons, there were a number of significant differences and overlaps between different genres for heuristic categories. This research could be expanded by sampling a larger number of games per genre for comparison. By understanding how gamers communicate about the games they play, it reveals what is most important to them. The results show that the gamers are more likely to post individual ideas about the game play experience rather than hold discussions with other gamers or reply to the review posted by the site. In addition, the aspects of the game play experience that are most important to gamers vary significantly between games as shown by the variation in the number of comments per post.

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## **ACKNOWLEDGEMENTS**

I would like to thank everyone who helped to make this goal possible. I am grateful to my friends and colleagues in the Penn State Communications graduate program, who always had an open mind and a plethora of ideas to move me forward. I am thankful to have worked with the many professors in the Communications program who had open minds and were excited about extending an understanding into this growing field. Finally, I am indebted to my family and friends who never gave up on the vision of my studies.

## Introduction

Online communities are used by gamers for sharing game insight on sites that specialize in game news and game journalism. There are many different game review sites, and game journalists. Some of these sites have become so hugely popular that their reviewers have followings of their own, much as film reviewer Roger Ebert does in the film community. Perhaps one of the most illustrative examples of how important these sites are to the community is the scandal referred to by gamers as GertsmannGate.

Jeff Gertsmann was head of the review team for the popular gaming site GameSpot. GameSpot had huge advertising banners and sidebars for Eidos Interactive's *Kane and Lynch*. When *Kane & Lynch* was released at the beginning of November 2007, Gertsmann gave the game a very negative rating, 6 out of 10 (Evan, 2007). This was on comparatively on target, as Metacritic lists the game at a 65% overall score (Metacritic, 2007). What was interesting about Gertsmann's review was the actions that followed. On November 30<sup>th</sup>, word hit the web that Jeff Gertsmann had been fired from GameSpot. At which point several other major game review and news outlets (Joystiq, 1Up and Kotaku) picked up the story. The next day, Gertsmann's review showed heavy editing, the most negative parts of the review completely deleted (Orland, 2007). Early the morning of December 1<sup>st</sup>, all major advertising for *Kane and Lynch* had been pulled off of the GameSpot pages, and GameSpot denied that Gertsmann's dismissal had anything to do with his review (Orland, 2007). Over the next week, gaming and non-gaming media alike noticed the story. *The Dallas Morning News* (Godinez, 2007) and the *UK Herald* (Stuart,



2007) both picked up the story and blogs and gaming sites were writing furious posts about a corrupt system (McWhertor, 2007; Jeremy, 2007). To this day, whether or not Gertsman was actually fired over the review remains questionable. CNET (the owners of GameSpot) tried to negate the bad publicity, but the damage was done (Stuart, 2007). Gamers looked elsewhere for reviews, and the community of gaming journalism was rocked as gamers lost faith in the media's ability to produce unbiased work (Hruschak, 2008). The speed and complete blanket of coverage from so many sources is a testament to how seriously the gaming community takes these sites and the posted reviews.

The video game industry is easily the fastest growing mode of entertainment media in the United States, jumping from \$2.6 billion dollars in sales in 1996 to \$9.5 billion in 2007 according to the Entertainment Software Association (ESA, 2008). From April 2007 to April 2008, ten single titles brought in over \$4 million each, with the top earning game, *Call of Duty 4: Modern Warfare*, bringing in \$8.4 million (Edge, 2008). These figures represent only US sales. However, large markets also exist in China, Japan and Europe, with fans of the most popular games stretched around the globe.

The industry finds its roots in the 1970's with the development of *Pong*, then the Atari System, and arcade games (Kent, 2001). From that moment, the world of the game opened up, and it has spawned hundreds of developers and producers of games worldwide. In recent years, a few key players can sum up the games market. The Japanese company Nintendo made the top of the 2007 list according to Game Developers (Wilson, 2008). This company made its debut in electronic entertainment in 1974 (Kent, 2001), and won the hearts of gamers with titles such as *Donkey Kong* and *Mario Brothers* and most recently *Wii Sports*. This franchise's success is due in no small part to its ability

to produce both software and hardware, and remain on the cutting edge of development with the production of the Wii system, and its multiple additions.

United States giant, Electronic Arts (EA) follows Nintendo, from year to year swapping places with the Japanese giant. The largest publisher of sports games in the world (Wilson, 2008). EA's claim to fame is twofold, first is the company's ability to develop and maintain series of games that renew constantly such as the *Madden* games, *FIFA*, the *Sims* and copyrighted games like Harry Potter. The second key to their success is the manner in which EA continually absorbs other publishers and developers into their company. Other top companies in the gaming market include Take-Two studios with *BioShock* and *Grand Theft Auto*, Ubisoft with *Assassin's Creed* and *MYST*, Sony with the Playstation, and Activision with *Guitar Hero* and *Call of Duty* (Wilson, 2008).

The internationalism of the gaming companies is reflected in the culture of the gamers. This globalization and creation of culture is in no small part due to gamers' ability to share information and experiences over the Internet. The online communities built by gamers represent a key method for gamers to connect and share their experiences playing a game and their opinions and fanaticism about a game. In academic study, Massively Multi-Player Online Games (MMOGs) heavily represent the world of online gaming communities. Gamers have many other outlets online that add to the dynamic of the culture (Bartle, 1990; Kolo, 2004; Steinkuehler, 2005; Taylor, 2006). These communities range from fan based communities for a specific game, to groups of players coming together to create mods: fan created add-ons to a game that allow them to add hours of game play to the titles that they enjoy best. Such communities provide a home

for gamers online to share ideas and spread codes, cheats and the ideologies that are associated with being a gamer of a specific game.

The larger overarching gamer culture often subdivides itself based on single titles, series or by genre. This subdivision is illustrated in the manner that fan sites are created. For the communities that focus on fanaticism about a game or title, the genre serves as a comparison point to include or exclude other titles from a group of games. These communities, even if focused on a specific title, will often show overlap with titles from the same genre or perhaps the same developer. For example, games like *Half-Life* and *Halo* are both First Person Shooters (FPS) and have huge online followings that support the game and create fan sites that not only provide information about the game for their fellow gamers, but also recommend other games within their genre based on the criteria that they find favorable in their own game. The site Grunts-R-Us (a fan site for the *Halo* series) provides an outlet for the players to discuss all aspects of the game, from forums to fan fiction, as well as detailed outlines of all the different *Halo* games and their major components. Comparatively, Cyrodiil Chronicle (fan site for *The Elder Scrolls*), provides news, discussion forums, walkthroughs and cheats to their community of gamers in the Adventure/RPG genre and fans of the *Elder Scrolls* series.

While some fan sites are specific to a genre, there are also many sites that serve the entire gaming community. Sites such as Gamespot.com, IGN.com and gamezone.com serve as a hub of information for the gaming community. These sites provide gamers with cheats, walkthroughs and information on most games, regardless of the game genre. They also provide community boards to discuss game news and connect with other gamers to discuss different games and gaming strategies. These large networks often

connect to other smaller networks, hosting communities for gamers by platform, genre or game series. These sub sites give gamers a smaller home community that can extend into the larger community.

However, even the designation of genre for a fan community can be problematic, as fan designations of genre can be broad, or highly specific. Video games may fall under the umbrella of more than one larger genre, or may be put into a very specific subgenre of games. For example, recent release *Left 4 Dead* is classified in the Action genre by 1Up.com, whereas IGN.com classifies it as a First Person Shooter and places it into an even more specific fan genre of Survival Horror games. Both FPS and Action are industry-recognized genres, listed amongst the mega genres in the Entertainment Software Associations 2008 essential facts (ESA, 2008). Survival Horror is a less used genre pertaining only to games with certain narrative structures, but can contain elements of larger industry genres (Hand, 2004, p. 117). These differences provide an opening into the study of game genre, why games not only overlap within industry genres, but also the characteristics that help to classify them in this manner.

Scholars argue that the general inability to come to a consensus on a single taxonomy of game genre may be in part due to a struggle to understand what part of the gaming experience the classification should be based upon. There are two conflicting schools of thought the most important aspect of the video game experience. Narrativism presumes that the narrative structure of the game is most important and is closely tied to the ideas of remediation and classification based on comparisons to other media. Ludology focuses on the actual aspects of play within the game, and how the player interacts with these aspects. "I suggest that the primary problem with conventional video

games genres is that rather than being a general description of the style of ergodic interaction that takes place within the game, it is instead loose aesthetic clusters based around video games' aesthetic linkages to prior media forms"(Apperley, 2006).

This thesis will explore how fan comments differ from game to game, and how online word of mouth through board posts provides an outlet for gamers to speak about what they desire in a given game or genre. Game genres will be explored based on industry-recognized genres, in effort to understand what parts of game play and the video game as a whole are most important to a genre, based on the content of gamer comments. This study seeks to gain a greater understanding about what gamers' desire from a game by looking at what their comments reveal about their gaming experiences, as well as how they interact with the other posters and the review on the sites examined.

## **Review of Literature**

### **Brief History of Video Game Industry**

*Early Systems.* Before one can discuss the gaming world today, and understand where it is heading in the future, the origins of the video game industry must be examined. As games, technologies, consoles and modes of play have changed and advanced, so have perception of games, both as a popular media phenomena and an art form (Berger, 2002). The early 1970s saw the development and explosion of video games. While the first arcade game actually was released in 1971, the public found *Computer Space* too difficult to play, and did not take to the arcade game idea until the release of *Pong* by Atari in 1972. When this game debuted in a local bar, Andy Capp's in Sunnyvale, California (Soehlke, 2009), the machine broke down within two weeks because the coin drop was overfilled (Kent, 2001). The same year, the first home system debuted. The Odyssey, manufactured by Magnavox, sold about 100,000 units, and might have sold more, were it not for the misconception that the system only worked with Magnavox television (Kent, 2001). With these first two steps, the gaming industry was born, and competitors began to manufacture games and systems to garner the attention of a new entertainment audience.

The number of companies developing and competing in video game production continued to multiply through the mid 1970s, when Fairchild Camera & Instrument released Channel F in 1976. This was the first home console to have replaceable cartridges, so one system could support several different games (Kent, 2001). The Atari 2600 was released a year later in 1977, and it became much more popular due to its association with the game *Pong*. With the ability to program cartridges that fit into different systems, it was possible to separate video game production from hardware development. This led to splits in the gaming companies, and a whole

new plethora of games and competitors (Kent, 2001). In 1976, Exidy Games released *Death Race 2000*, a game based on the movie of the same name released in 1975. This game was significant to the industry in two ways. It was the first example of successfully crossing media, as it was based on a movie, and secondly, it is the first incident of public outcry against video game violence (Berger, 2002). The idea of hitting pedestrians with cars dates back to this game. Though the pedestrians were only stick figures, the public was so upset that the game was pulled from the shelf.

In 1978, the world of arcade games exploded. Nintendo imported *Computer Othello* from Japan, a game based on the board game by the same name. Midway imported *Space Invaders* from Taito, bringing about another revolution in arcade gaming: the display of the high score, giving arcade games a competitive aspect. Atari introduced the trackball to arcade gaming; this new controller was featured in their football game (Berger, 2002). The year 1979 marked the release of *Asteroids*, which aside from being Atari's best seller, also expanded upon Space Invader's high score utility to allow players to place their initials next to high scores (Kent, 2001). In 1979 Milton Bradley released the Microvision, a hand held gaming device that sports its own LED screen (Kent, 2001). Now games were situated in our homes and other public places of play, they had become portable, and the video game could be played wherever we wanted.

The 1980s brought several huge releases into the gaming industry, in arcade style games and in home consoles, as well as many industry changes. In 1981, Nintendo released both *Donkey Kong* and *Mario*, though it was not until 1986 that the NES system became available worldwide (Kent, 2001). The American game market suffered a huge crash in 1984, when American audiences seemed to give up on gaming, suffering from too many poorly made games for the latest installment of the Atari system (Kent, 2001). Some gamers turned to PC gaming, which was still attempting to find a foothold. However, while American game companies struggled with poor market values, Nintendo was determined to bring back the video game, something that

American investors called a passing fad. They released the Nintendo Entertainment System (NES) in 1986 accompanied by a small robot called Robotic Operating Buddy (R.O.B.), and rather than advertise the system, they advertised the robot as the most important part of the package (Game Spy, 2003). The NES was a hit: it sold 1 million systems in its first year, and three million in its second even after taking R.O.B. out of the packaging. While Nintendo brought about major graphics changes to the quality of console game, the PC games made advancements in sound. In 1988, the makers of the *King's Quest* series (the then most popular adventure game series) got together with the makers of the first sound cards for the PC (Game Spy, 2003). Together they pushed forward not just gaming, but the use of the computer, as the sounds that came from the speakers were no longer just beeps, but real music and voices for the next installment of *King's Quest*.

**Modern Gaming.** In 1993 the Entertainment Software Review Board (ESRB) was formed in order to provide video games with ratings to inform the public about game content. While game makers rebounded from the new rules set upon them by a public of anxious parents, the Sony Playstation was released in 1995 and iD Software released the First Person Shooter *Quake*. *Quake* was the first game meant to be played over the Internet. Not only did the game come with the ability to play online without hacking the system into believing you were on a Local Area Network connection (the previous method of online play for free) it also allowed players to create their own servers which could house up to 16 and then 32 players at a time (Game Spy, 2003). By 1998, there was no denying the popularity and power of the video game industry as part of the entertainment world. Nintendo released their latest installment of the popular *Zelda* series, *Ocarina of Time*, which grossed over \$150 million in sales (Kent, 2001). In comparison, the highest grossing movie of that year was *A Bug's Life*, which grossed \$114 million.



In 1999, video games moved onto cell phones, and in the year 2001, they moved onto the silver screen with the release of *Tomb Raider* based on the popular action game of the same name (Kent, 2001). In the interim, the rating system came back to haunt game developers and both Sears and Wards department stores decide to stop selling M rated games (Game Spy, 2003). The year 2004 brought about the current conqueror of the online gaming scene, *World of Warcraft*, as well as First Person Shooter (FPS) giant, *Half-Life 2*, which showed leaps and bounds in the advancement of graphics and AI. Also notable is the first major set of consolidations for publishing and developing mega company Electronic Arts (EA Games). Over the next few years, EA would continue to absorb companies into its fold, though the ethics of these practices has often been called into question, becoming the only major power to challenge and at times surpass Japanese goliath Nintendo (Arendt, 2008).

The 2005 release of *Guitar Hero* (IGN, 2005) was late in the year, and its popularity rockets it to top selling places over the beginning of 2006, and launching the US market for music and rhythm games. The Wii, the latest in game technologies, was launched in late 2006, and soon became the highest selling console on the market, selling faster than most stores could keep it on the shelf throughout 2007 (IGN, 2007).

In 2008, *World of Warcraft* expansion *Wrath of the Lich King* sold 2.8 million copies in the first 24 hours, making it the fastest selling game of all time (IGN, 2008). As the industry continues to push forward, advances in hardware and software drive the ability to continue to produce games. PC gamers constantly update their computers to stay ahead of the graphics wave, and console players are looking for ways to hack into their games and modify the content as PC gamers have the ability to do. Popular games have begun to transcend the console/ PC boundaries, as they and many of their current peers in the market have been released to both platforms, though one often takes priority over the other in release dates.

## Genre Theory Scholarship

The classification of games began long before video games came onto the scene. Most notable perhaps in the work of Roger Caillois (2001), who built on Huizinga's (1998) ideas of play from Homo Ludens, and outlined two manners of classifying play. The first is through the pattern of play, which he breaks down into four categories: Agon, games of competition, Alea, games of chance, Mimicry, games of simulation and Ilinx, games that pursue vertigo. The second set of categories fall on a continuum which designates how bound to rules the game is, Padia, allowing improvisation and therefore lacking a rule system, while the style of play Ludus, is bound to a specific rule system.

From this complex manner of understanding games, the argument around understanding types of video games and therefore videogame genre situates itself upon a single major continuum; Interaction (Ludological) vs. Representation (Narratological). In “Simulation Versus Narrative: Introduction to Ludology,” Gonzalo Frasca (2003) defines these two approaches to the study of video games; the narratological; those approaches that rely on narrative paradigms, and the ludological; which rather than seeking to understand games through their narrative or representational strategies, “focus[es] on the understanding of [their] structure and elements—particularly [their] rules—as well as creating typologies and models for explaining the mechanics of the games” (p. 222).

The prevailing system of game genres is based on comparison to previous media forms. The most recognized genres of video games, while substantially different from literary or filmic genres, still emphasize representation over interactivity. Bolter and Grusin (1999), for example, argue that interactivity is supplementary to representation, that it merely makes the representation more realistic, as an object can be potentially manipulated and acted upon even though it is

virtual. Their work in remediation speaks to the theory that this new media is not 'new' but in a sense recycled from old media, and therefore, needs to be considered in the same manner.

While this argument rarely points directly to genre, it is the basis of the idea for genre, classification of video games by those characteristics that are most important. "I suggest that the primary problem with conventional video games genres is that rather than being a general description of the style of ergodic interaction that takes place within the game, it is instead loose aesthetic clusters based around video games' aesthetic linkages to prior media forms" (Apperley, 2006, p. 7). This is the argument for the ludological side of the spectrum, that current forms of genre classification are inappropriate for games, as they do not take into account the major notion of play and interactivity that forms the basis of videogames as entertainment. The opposite side argues that it is impossible to separate video games from previous forms of entertainment, noting that players bring context to games from all other previous media experiences (Bolter & Grusin, 1999).

In his 2001 book chapter "Genre and the Video Game" Mark J.P. Wolf attempted to classify video game genres along the lines developed by the Library of Congress's Moving Imagery Genre-Form Guide. Wolf comes up with 42 different genres, all very specific to the contents of the game, and the manner in which they are represented. This taxonomy was done specifically through the lens of remediation. Consalvo (2006) widens this argument yet again with the notion that game players do not escape previous media experiences. Instead, she argues that they bring a wide range of medium-specific and general media assumptions to the production of taking meaning from a game: "They do not . . . discard knowledge of all other media while engaging with a primary text. Rather, they approach all of these media intertextually with knowledge of all informing all of their actions" (pp. 331-332).

On the ludological side of the spectrum, critics have noted that the representational or narrative approach to classification most closely follows the former classification of other media

and has proved relatively useless in understanding and classifying today's games. Although Caldwell (2004) is confounded by the diverse representational strategies of video games, other scholars have approached the question of genre with a will to capture its dynamism and variety. Take for example Wolf's 42 genre classifications, which may be easily condensed if the focus of classification was on how the game was played, rather than the representational structure. Espen Aarseth is perhaps the most outspoken author on this side of the continuum. His 1997 text, Cybertext: Perspectives on Ergodic Literature opens the door to exploring the narrative of gaming and online texts, within the field of "ergodic" literature comparative to the ancient Chinese I Ching, where ergodic is defined as the concept of "story living". These are open, dynamic texts where the reader must perform specific actions to generate a literary sequence, which may vary for every reading.

This concept is further explored by Newman (2002), who underscores the importance of the ergodic work of the player rather than the mechanical rules of the game as the central determinant of the players' experience when working through the understanding of video games. Aarseth (2004) continues the argument in "Genre Trouble: Narrativism and the Art of Simulation," where he refutes the configuration of interactivity as secondary to either narrative structure or visual representation. Interactivity is favored by the ludologist, who believes in the agency of the game player, and the narrative is the supporting cast to the decisions of the player and the manner in which the game is played.

***Popular Genre.*** While the current classifications are slowly shifting in favor of type of game play, most of the current system is based in remediation, creating genres of games where the boundaries are fuzzy at best and extremely fluid at their worst. In The Nature of Computer Games: Play as Semiosis, David Myers (2003) emphasizes that game genres are the result of a particular dynamic of technological contexts and popularity and are therefore neither "fundamental or lasting." This seems to be the reaction of most scholars to the current system,

who recognize that assigning genre to games is more complex than it seems. Genre classification is something “that needs to be rethought with a critical perspective in mind, because the current established genres accepted by the audience and industry do not take into account the complex layering of genre that occurs within video games” (Apperley, 2006, p. 9).

One point of view on current classification is that while it is possible to create such categories, video games have yet to be understood well enough to instate such a set of understandings. In the introduction to “Theoretical Frameworks for Analyzing Turn-Based Computer Strategy Games,” Nick Caldwell (2004) seeks to create a “critical vocabulary” for computer games, concluding that different genres of game, even different subgenres of game are needed to understand the diversity of the gaming world. “Games might share some basic purpose—to entertain—but each new game that appeared on my screen could well have been in a different medium, or a different language, altogether” (p. 42).

Some scholars even believe with the fluidity of the development of video games, and the many different manners in which the games continue to change, it is impossible for scholars to develop a single manner in which to classify games by characteristics. Rather, the field requires scholars to be able to change focus and classification based on what is studied. “It is therefore impossible for us to devise a single, absolute taxonomy. Many taxonomies are admissible. Indeed, attempting to construct several alternative taxonomies is a useful way to examine the common traits of computer games” (Crawford, 1984, p. 33). This is an interesting way to view the purpose of classification, though it may be pertinent, as one could then study the game as a narrative, classifying them by the narratological rules, or as play by the ludological view. Crawford's taxonomy breaks down into two major sections, Skill and Action or Strategy games, each containing several sub sections, Crawford believes much like Caldwell that the area of video games is still much too early in its progression to develop a formal taxonomy because of the constant shift as the technologies, the industry and the fans assert themselves.

A central cause for the conflict among scholars is the fact that many recent releases have begun to take on the characteristics of more than one of the popular genre classifications. Some of the most widely recognized popular genres include Action, Shooters, Role-playing, Adventure, Sports, Racing, Strategy, Puzzle, Simulation and, most recently, Music and Rhythm games. These genres can be found as the basis of the discussions of game genre on Wikipedia, as well as some of the many categories of genre on popular video game websites such as IGN, 1Up, TotalVideoGames, and Metacritic.

Each of these genres allows the game to be sorted based on the type of game play that the player anticipates. As games become larger and more immersive, it becomes easier for a design team to incorporate aspects of multiple genres from this popular classification. Therefore one often has to be open minded in genre classification, and be able to “think of each individual game as belonging to several genres at once” (Apperly, 2006, p. 19). For example, one of the most popular cross genre examples is Action/Role-playing. The Action genre is defined simply by the need to destroy one’s enemies through combat, and the Role-playing genre defined by interactions with other characters. Often a complex plot changes depending on how you choose to play the game. It is easy to see how a game with over 60 hours of game play, both of these key features can be incorporated.

The study of video game genres is still in its infancy as the debate continues in game scholarship about the most important aspect of video games, and the reasons that games are classified. In the interim, popular genres provide a manner for the fans to understand what to expect from a game, though even in these instances, it may be confusing because of the overlap that is seen in so many popular releases. The ESA, gives several ‘super-genres’ for consideration (ESA, 2008, p.7) based on overall sales. For the console, these genres include Action, Family Entertainment, Sports, Shooters, Role-playing and Racing. On the computer, super-genres include

Strategy, Role-playing, Family Entertainment, Shooters, and Adventure games. The origin of these genres remains however in the narrative structures of the game.

The Action genre is defined by players needing to complete physical actions as the focus of game play, whether fighting actions (*Super Mario*) or a series of jumping and running combinations (*Prince of Persia*) (Egenfeldt-Nielsen, 2008, p.44). The genre of Shooters is often seen as a sub genre of Action, but has gained in popularity as First Person Shooters became widely popular and are now classified as their own genre. Shooters are defined by the central game play goal being to shoot and destroy enemies, like in *Space Invaders*. First Person Shooters are the most popular sub genre of Shooters, indicating as the name suggests that the game is played from the first person perspective; while shooting at the enemies, a popular example of this genre is the *Halo* series (Wolf, 2001). The Sports genre is defined as any game that simulates a sporting event, whether the goal is to play the game or to manage the teams within a league (Wolf, 2001). These games range from the popular *Madden Football* series to golf and baseball games. The Role-playing genre encompasses games whose focal point lies in the narrative and the manner in which the player interacts with it through their character (Wolf, 2001). These games may be either turn based, meaning actions happen in turns for each player, as in *Neverwinter Nights*, or may be real time, meaning that actions happen as they would in reality, overlapping one another, as in *Mass Effect*.

Strategy games are those that center on the player employing multiple strategies in order to win in a conflict. Most often, these are games of battle or war, where the player assumes the role of some level of commander, as in *Starcraft* (Egenfeldt-Nielsen, 2008, p.44). The Racing genre is defined by the objective to cover more ground than an opponent, most often in the form of car racing as in the series *Need for Speed* (Wolf, 2001). The genre, Family Entertainment is the only one of the group that does not have a researched definition, therefore, based on the genre

title, the genre was defined as games rated Teen or lower, that include a multi- player option allowing the entire family to play.

### **Heuristics and Game Play**

Video games, like all games, are meant to provide entertainment and enjoyment, often through escape. Therefore, the heuristic or usability qualities judge how well the game allows the player to have fun. However, even in defining fun in gaming the ludological and narratological split is present amongst scholars. Chris Crawford (1982) believes they are superior to other means of escape because they are participatory. This ludological view is often countered by the narratological view of mediation for escape, citing that media must immerse the audience in the environment provided. In cognitive psychological terms, Lombard (2000) describes the immersion or the “illusion of nonmediation” as an occurrence when “a person fails to perceive or acknowledge the existence of a medium in his or her communication environment and responds as he or she would if the medium were not there” (p. 77). Therefore, in order to create immersion in an interactive environment the users must actually forget they are participating through a medium. Thus, it makes sense that in the game development community interfaces are considered best if invisible or at least unnoticed by the player (Sanchez-Crespo Dalmau, 1999).

Fun relates to more than just the user’s ability to immerse in the game; it also relates directly to game play. Since the concept of a game “implies that there is an ‘object of the game’” (Malone, 1980), or goal, it is not surprising that Myers (1990), in his study of Game Player Aesthetics, found ‘challenge’ to be, “the most preferred characteristic of a favorite game” (p. 383). As Karat, Karat, and Ukelson (2000) point out in their discussion of interfaces and motivation, people find satisfaction in mastery of a tool to reach a desired goal and so are willing to invest a great deal of time in doing so. Offering this type of challenge and the opportunity to



master a skill seems to provide sufficient motivation for some people to engage in games. The resulting satisfaction makes the activity fun. MicroProse's Dan Buntin believes that fun lies in unexpected opportunities for growth and that games offer an intrinsic reward of needed brain stimulation (Aycock, 1992). Myers' (1990) results also displayed that curiosity, for video arcade game players, rated low on preference, and fantasy seemed unimportant in popularity determination. Several others have disagreed with his conclusions. Malone (1982) found that fantasy was even more important than visual and auditory performance feedback. Malone's discussion in his dissertation regarding fantasy preference might explain why Myers received those results. Fantasy may be a factor that is very specific to the individual, so large differences in fantasy preference might reduce the overall correlation between fantasy and preference (Malone, 1980). Malone is not alone in his belief that fantasy is one of the biggest reasons people like to play games. Richard Garriott who assisted in the development of *Ultima* claims that what makes that particular game fun is its immersion in a separate reality (Aycock, 1992).

With all of these sections describing what 'fun' in a video game is, it only makes sense that game designers develop a way to evaluate how 'good' the game is. Designers use a set of heuristics in order to assess the usability of a game. Heuristics is a software measure of usability defined as principles that can assist in creating or evaluating a design (Federoff, 2002). Chuck Clanton (1998) offers a way to condense the different usability issues of games into three areas: game interface, game mechanics, and game play. Game interface is the device through which the player interacts with the game. Game mechanics are the physics of the game, which are developed through a combination of animation and programming. Game play is the process by which a player reaches the goal of the game. All three relate to the game being both functional and satisfying.

Game interface includes whatever is used to physically control the game such as a controller, joystick, mouse, or keyboard. Also, it is the visual representation of software controls

that players use to set up their games, engage in a tutorial, move through a game, obtain their status in the game, save their games, and exit the game. The interface is not typically identified as being a major aspect of user satisfaction, though it is noted on *Gamasutra*, an online resource for developers of electronic games, that a poorly constructed interface can keep a player from enjoying game play (Shelley, 2001). Game mechanics are the aspects of the game that are typically tested by Quality Assurance (QA) personnel in game companies (Federoff, 2006, p. 12). The job of QA is to ensure no broken games (games with programming bugs) are shipped. Game mechanics include the ways the player is allowed to move through the game environment (walk, run, jump, drive a car, drive down the road, drive off the road, etc.).

Game play includes the problems and challenges a player must face to try to win the game. Crawford (1982) defines game play as pace and cognitive effort. Bruce Shelley (2001) agrees in *Gamasutra* by equating fun with interesting decisions having to be made in a required amount of time. All of these aspects differ according to genre (e.g., Adventure, Role-playing, and First Person Shooter) and platform (e.g., coin-operated machine, personal computer, and console). For instance, adventure games have typically been played on the computer, but are now moving to consoles. How will this change the genre? Adventure gamers are not accustomed to the buttons of a controller, and console gamers are not used to the cerebral puzzles involved in adventure gaming. The usability of a game is similar to other software in this manner; the usability of the product cannot be evaluated without taking context into consideration (Federoff, 2002, pg. 13).

Federoff (2002) breaks down an extensive list of game heuristics into these three categories, citing that mechanics is the smallest category of the three, containing only two notable instances, one on prompt feedback (Bickford, 1997; Malone, 1982; Sanchez-Crespo Dalmau, 1999) and the second on the ease of getting the player involved in the game (Bickford, 1997). However, both game play and interface have extensive lists of subsections that are intended to be

applicable to all genres of video games. The focus of game interface seems to center around two main ideas, first, minimalism and second ease of use. Minimalism is supported by Sanchez-Crespo (1999), who believes that interface should be non-intrusive, and by Bickford (1997) and Shelley (2001), who say that the options and menu layers should be able to be hidden and kept to a minimum. Ease of use is the more widely explored sector, with the belief that the interface should be consistent (Sanchez-Crespo, 1999), keeping in line with trends that a user need not read the entire manual to understand it (Norman, 1990). This ease of use also covers the ease of interpreting feedback, where a player's score should always be easy to find (Malone, 1982) and feedback should be immediate and useful to the player (Norman, 1990).

Game play as a heuristic category breaks down into several sections; goals, balance, and immersiveness. The idea of setting goals is expressed in several manners. Clanton (1998) believes that there should be a clear goal presented early in the game, and Malone (1982) believes that each level should include multiple goals. The most widely commented on section is balance, the game's ability to challenge without frustrating (Crawford, 1982; Malone, 1982). Balance also includes fair game play (Clanton, 1998) the ability to "win in multiple manners" (Shelley, 2001), and a variable difficulty (Norman, 1990) making the game easy to learn but hard to master. Immersiveness expresses the player's ability to become absorbed in the game, the simplest manner expressed is to create a great story and visual and audio that interests the player (Shelley 2001). Immersiveness also includes replay value and the believability of the artificial intelligence (AI) of the game (Bickford, 1997). Once thing all researchers agree on is that the game should provide rewards to the player for completion of the tasks set before them.

### ***Research Questions:***

Each game is a unique blend of game elements, that may vary based on a number of factors, including publisher and genre of game. Studies in video game heuristics have been limited to game design, understanding the basic elements that are important to game construction

and how they interweave to provide a quality game play experience. This study seeks to understand how the fans perceive each of these heuristic categories, and if there is a difference between how these heuristics are valued between different games. This study also seeks to provide an exploratory base for comparisons between genres, to understand if there is a difference between heuristics for different games that might be useful in understanding game genres. This will provide an understanding of what gamers value within their game play experience, and the potential differences between what is valued between games will provide a look into what games are judged on based on how they are perceived by the gamers.

**RQ1:** For all games, what major heuristic categories do gamers comment on most often?

- 1A: For all games, what game interface subcategories do gamers comment on most often?
- 1B: For all games, what game mechanics subcategories do gamers comment on most often?
- 1C: For all games, what game play subcategories do gamers comment on most often?
- 1D: For all games, what reputation subcategories do gamers comment on most often?

**RQ 2:** Within a game, what major heuristic categories do gamers comment on most often?

- 2A: Within a game, what game interface subcategories do gamers comment on most often?
- 2B: Within a game, what game mechanics subcategories do gamers comment on most often?
- 2C: Within a game, what game play subcategories do gamers comment on most often?

- 2D: Within a game, what reputation subcategories do gamers comment on most often?

**RQ 3:** Between games, what major heuristic categories do gamers comment on most often?

- 3A: Between games, what game interface subcategories do gamers comment on most often?
- 3B: Between games, what game mechanics subcategories do gamers comment on most often?
- 3C: Between games, what game play subcategories do gamers comment on most often?
- 3D: Between games, what reputation subcategories do gamers comment on most often?

### **eWord Of Mouth**

Word of mouth is a common measure in marketing, defined as “all informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services or their sellers” (Hu, Pavlou & Zhang, 2006, p. 324). What is significant about word of mouth is that the effectiveness is tied directly to the relationship between the buyer and the recommender. Effectiveness for word of mouth may be affected by strong or weak ties depending on the closeness of the relationship between the decision maker and the recommendation source (Brown & Reingen, 1987). This is what makes word of mouth in face to face communication so effective, as when one knows and trusts the person who is doing the recommending, it is easy to ‘take their word for it’ and use the same products that they do.

Today, word of mouth has been adopted by online communities in the forms of forums, boards and even online messaging and chats that allow consumers to share information about products. This version of word of mouth, referred to as eWOM, has been defined as: “any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet” (Hennig-Thurau & Gwinner, 2004, p. 39). This new platform for word of mouth has only begun to be explored. Online communication can occur over many different platforms, and the outlets for eWOM are as varied as the users who generate the content. There have been several studies recently attempting to uncover the effectiveness of eWOM, how it is used and created within online communities. These studies have also uncovered several interesting differences and difficulties with eWOM in comparison to regular word of mouth.

The effectiveness of eWOM has been measured in several different studies that have for the most part come to the same conclusion: that a negative review has much more consequence than a positive one. In Chevalier and Mayzlin's 2003 study of eWOM on company websites, the authors examined the effect of consumer reviews on relative sales of books on Amazon and Barnes and Noble sites. They found that an improvement in a book's average review score led to an increase in relative sales and the impact of 1-star reviews was greater than the impact of 5-star reviews. Hennig-Thurau and Walsh (2004) studied the motives for those who gain information and create eWOM, and found that the impacts of the negative are greater than the positive. “Comparison of the impact of positive and negative articulations shows, as anticipated, that negative customer articulations on opinion platforms tend to have a greater impact on consumer buying behavior than positive ones”(p. 61).

Other studies have found that those who are familiar with a product or company are less receptive to eWOM. “Further, consumers patronizing a familiar retailer are less receptive to negative WOM information and seek less information” (Chatterjee, 2001, p. 19). This is not

unexpected as one of the primary motives for the use of eWOM is to gather information on a product or company that one is unfamiliar with.

Studies have found that perhaps the most prevalent reason for consumers to write reviews is to either praise a great product or condemn a poor one. “We assume that consumers only choose to write reviews when they are very satisfied with the products they purchased (brag), or very disgruntled (moan)” (Hu, et al., 2006, p. 326).

The creation of eWOM can occur in various manners, though the most well known are consumer reviews, which may occur either on the website of the product or on separate opinion platforms. It is in this manner that tension can occur between the motives of the person(s) maintaining the site or board and the people placing and using the reviews found there. Walsh provides a positive view of the corporate run sites. “Cooperation could take the form of a company integrating comments addressing individual consumer opinions in opinion platforms. Companies may also try to move consumer articulations away from opinion platforms to their own discussion forums in which consumers can themselves articulate on company-related issues” (Henning-Thurau, 2003, p. 66). The danger however of eWOM on the site of a company is that the person(s) maintaining the board are doing so with the interest of the company in mind. Henning-Thurau (2003) presents an equally grim view of opinion boards. “Articulations on virtual opinion platforms are published in a part of the Internet that is controlled not by a company or by the consumer, but by a third party, the platform conductor” (p. 52). Who controls the content of the site can be of concern; a third party having control over the publishing of comments and opinions, that may also choose to screen the comments to their liking. It however is something that cannot be escaped; those who seek out word of mouth will need to navigate this censorship with care.

Another potential pitfall of eWOM is the nature of identity online. Online identities are highly fluid, one person is able to exist under many different names at once, or able to change

their digital identity at the drop of a hat. One such problem occurs when community members build a reputation only to hurt others then disappear completely and assume a new name (Friedman & Resnick, 2001). This ability to change one's identity breaks down the fragile basis on which WOM is built on, the trust that one is being provided accurate information from a known source. Dellarocas (2003) also addresses this problem; he believes that it is also possible for rival companies to spread dishonest feedback online. "They can use fake online identities to post dishonest feedback and thus try to inflate their reputation or tarnish that of their competitors" (p. 633). It is not to say that such practices are not conducted in face-to-face communication or other forms of word of mouth, just that it is much easier for it to occur online, where identity is fluid or even non-existent in anonymous postings.

Regardless of the drawbacks, the use of eWOM is summed up nicely by Mayzlin (2003) who notes that online feedback mechanisms are a low-cost and effective channel for acquiring and retaining customers. Online feedback has the potential to be either very useful or highly detrimental to a product or company. The nature of online communication makes this WOM even more volatile than its predecessor, as the basis of trust is easily manipulated.

***Research Questions:***

Fan responses to an online review of a video game are a prime example of eWOM. As there has been no exploration of reactions to online game reviews, little research in game discussion boards and no research in video game related eWOM, this study will explore how gamers relate to one another in this specific medium and attempt to determine if there is any pattern within the valence of their comments. This information will provide a look into how the online fan community functions on these sites and helping to understand what kind of information and networking might provided.



**RQ 4:** Do registered or non-registered posters make more comments on online review boards?

**RQ 5:** Is there a pattern within the valance of fan comments posted on online review boards?

- 5A: Is there a pattern within the valance of comments on game interface posted on online review boards?
- 5B: Is there a pattern within the valance of comments on game mechanics posted on online review boards?
- 5C: Assuming game success due to high sales, is there a pattern within the valance of comments on game play posted on online review boards?
- 5E: Assuming game success due to high sales, is there a pattern within the valance of comments on reputation posted on online review boards?

**RQ 6:** Does dialogue occur between board posters or about reviews?

- 6A: Is this dialogue more likely to be positive or negative?

**RQ 7:** Between sites, does dialogue occur between board posters or about reviews?

- 7A: Between sites, is this dialogue more likely to be positive or negative?

**RQ 8:** Between registered and non-registered users, does dialogue occur between board posters or about reviews?

- 8A: Between registered and non-registered users, is this dialogue more likely to be positive or negative?

## Online Communities

Scholars have attempted to understand virtual or online communities through the current definition of 'community'. However, due to the lack of a geographic tie, one of the most important aspects of this definition, scholars have sought to redefine what the term community is when used online. One of the most prevalent definitions of online communities is groups of people with shared interests or goals for whom electronic communication is the primary form of interaction (Dennis, Pootheri, & Natarajan, 1998). Other definitions include groups of people who meet regularly to discuss a subject of interest to all members (Figallo, 1998), and groups of people brought together by shared interests or a geographic bond (Kilsheimer, 1997). Other definitions cite interpersonal interaction as the basis of online community. These interpersonal interactions may include forging a sense of shared identity, engaging in supportive and social relations and developing feelings of belonging (Jones, 1997; Rheingold, 1993; Wellman, 2001). Online communities range in definition based on common purpose or design. Technology oriented definitions describe online communities by the software that supports them, while gamers may define their communities spatially, due to avatar closeness or grouping. Professional communities are defined as having members with common occupations and 'texting communities' are designed similar to a phone tree allowing people to keep in contact (Preece & Maloney-Krichmar, 2003).

With so many definitions for community, and the possibility that none are completely accurate or in line with the original sociological definition for community, researchers have begun to use other terms to define online communication spaces. The distinction between an online group and an online community proves the most challenging, as the traditional definition of community often involves both a sense of geographic closeness and emotional ties. However,

the majority of what may be called an 'online community' lacks this closeness, causing some scholars to search for other terms, an 'online group' being the most widely used. Some other terms include, 'online social space' (Farnham, Smith, Preece, Bruckman & Schuler, 2001) or even more loosely a 'third place', an abstract place of social gathering (Steinkuehler, 2005).

Online communities have several unique characteristics that have led to their growth, and inspired the debate about the definition of community. First, it is often easy to become a member of these communities, with little personal cost. "Most Purely online communities without any physical basis are usually low-cost, "easy-entry, easy-exit" groups" (Howard & Jones, 2004, p. 33). Without a great deal of commitment needed to be part of the community, it is possible to become a member of several different groups at once, especially with the overabundance of groups readily available online. The second aspect of online communities relates to the nature of identity online. One of the first scholars in the field of online identity, Sherry Turkle, conducted groundbreaking research into how the anonymity of online identity allows people to form relationships who may have had a difficult time doing so offline. Her research, combined with her knowledge of psychotherapy, explains how people who lack confidence make friends easier online due to the ability to remove the face-to-face aspect (Turkle, 1995). Turkle also explains how people can create an infinite number of identities online; these personas may or may not correspond with their actual identity.

Online communities are also unique because written language is the basis for these communities, forming the ties between people and creating identity. "The focus on language practice is particularly well suited to the study of online communities in which language stands in the place of geography, institutions, and artifacts often taken for granted in offline communities" (Baym, 1999, p. 23). The language used in online communities conveys what is occurring within the community, how it functions, and the identity of the members. Kenneth Burke links language to identity in his theories that identity is formed by language and language is formed by identity

(Burke, 1950). His theory that language both creates and is created as a series of symbols which provides identity to a person or thing highlights why language in online communities is so important. The basis of online communities is primarily their use of language; therefore, the creation of identities is formed through the written word. Properties of the written word make the study of online communication in communities even more distinctive. “Language, as the building block of what occurs in cyberspace, is more ephemeral than the written word and more fixed than the casual spoken word. This tension can pose problems for on-line communities where words have both the spontaneity and immediacy of social speech and the permanence of writing” (Jones, 1998, p. 213). Therefore, the study of the language of these communities can reveal what a group deems important, how identity is formed as an individual or member of the group and the community norms and expectations.

### **Fan Communities**

The online fan community is a specific branch of online communities that develops around fanaticism about certain media. The media ranges from books and television shows to video games and grouped by attributes such as author, actor, genre, or series. “Grappling with the social nature of these new types of community requires understanding them not just as online communities (organized through a network) or as audience communities (organized around a text) but also as communities of practice organized, like all communities, through habitual ways of acting” (Baym, 1999, p. 4). These fan-based communities have a very different focus; they share a fanaticism that shapes the language of the group and their interactions. Fans flock to these communities, often using these sites as a starting point, either to connect to other fans or to find information about their media of choice. “Fan communities fulfill a variety of functions, from simple news gathering to in-depth discussions. Many exist as de facto fic [fan fiction] archives,

share images or other media, or allow discussion about the shows, actors, or related fannish topics; some host RPGs..." (Hellekson & Busse, 2006, p. 12). These activities all serve to bring the community of fans closer together through interaction. In the case of fan fiction or RPGs, the interaction allows the fans to experience the story, characters or world that is important to them.

In the case of discussion boards and topics, the community is brought together through common knowledge and language. For example, members of a Harry Potter fansite would all understand common abbreviations such as OotP (Order of the Phoenix), and many could tell you what house they belong to, in reference to the alliances in the book. This shared language allows the members of the community to communicate in a manner unique to their community. "Thus, the structures that organize online groups are emergent, an unpredictable outcome of the tensions between the many preexisting influences on peoples messages and the linguistics and cultural resources they choose to draw on..." (Baym, 1999, p. 141). What is most appealing about fansites online is the ability to operate outside the influence of the corporation that produces the artifact. "The interactivity of online communication can create communities that can exist quasi-independently and transparently from manufacturer or producer control" (Howard & Jones, 2003, p. 182).

An emerging form of online community is based around Massively Multi-Player Online Games (MMOGs). These communities are based in an older form of online community that developed around Multi-User Dungeons (MUDs), text based games that formed communities based on not only the actual playing of the game, but on sharing information about the game and helping other players (Bartle, 1996; Curtis, 1996). As these games evolved into the MMOGs that are popular today, (*World of Warcraft*, *Ultima Online*, *Linage* and *EverQuest*) scholars have begun to investigate how the members of these communities interact with one another, and how these communities form and grow. These communities feature two levels of community identification and interaction, the first as a player of the game and the second as a fan.

Seay, Jerome, Lee and Kraut (2004) studied online communication within MMOG's and revealed that the majority of both in game and out of game discussion involved sharing game related information. In game discussion was defined as broadcasts over the chat system inside the game, while out of game discussion was any dialogue on related sites that may include discussion boards and forums or over e-mail and text (Seay et al., 2004). These results tie the gaming community closely to the fan based community because of the dedication of the communication to a single media topic. The difference being that the gaming community is directly involved with the media, and often uses the communication to coordinate with others about events within the game.

Within these larger gaming communities, each game divides itself into smaller groups, most commonly known as guilds. A guild is a group of players that have come together for the purpose of playing the game and lending support to one another. This may take the form of playing as members of the same party (a group of players with different specialties completing quests together) or by providing other information about the game to one another to help lower level members gain experience (Steinkuehler, 2004). Some guilds are more difficult to get into, as they require more commitment to the game while others consist of casual gamers. The membership of a guild can range from six to over a hundred players, who may or may not be familiar with all members of the guild (Taylor, 2006).

## **Methodology**

For the purposes of this study, a quantitative content analysis of user board postings that followed reviews on popular websites was conducted. The use of this methodology allows for the dissection of a large sample, and the reflection of cultural patterns within a group (Berelson, 1952). After determining the sampling frame and collecting the sample, each comment was coded for 36 total variables that were compiled based on general sample demographics, poster information, and game heuristics.

### **Sample Selection:**

The selection of the research sample occurred in several layers. The first step in identifying the sample involved selecting the genres for study. The Entertainment Software Association (ESA) publishes an Essential Facts of the industry every year, with data collected by the NPD group, a marketing research group. The 2008 Essential Facts broke down the list of mega-genres by total units sold in 2008, for both the PC and the various consoles combined. After combining the total percentages for both markets, seven major genres were separated from the list: Action, Family Entertainment, Sports, Shooters, Role-playing, Racing and Strategy. Three of these genres, Shooters, Family Entertainment and Role-playing, were highly popular on both media, while the majority of Strategy sales were on the PC, and Racing, Sports and Action had higher sales on the console.

From these genres, another publication of NPD data was consulted (Edge, 2008) that listed the top selling games from April 2007-April 2008. From these rankings based on sales, one game was picked from each genre. In the Shooter genre, *Call of Duty 4* was chosen, being ranked

first in sales. *Call of Duty 4* was released in November 2007 by Activision and Infinity Wars, and is the fourth major installment in the series by the same name rated M for Mature. *Guitar Hero III* was chosen for Family entertainment, as the first game with no assigned genre, and a multiplayer aspect, ranked at third. Released in October 2007 and rated T for Teen, *Guitar Hero III* is the third in its series released by Activision and Neversoft. *FIFA Soccer* was ranked fourth in sales, the first of the Sports genre, but was later replaced by fifth ranking *Madden 08*; the sample size of comments for *FIFA* on the chosen boards was significantly too small for comparison. *Madden 08* was released in August 2007, and Rated E or Everyone, joining a long list of *Madden* titles produced and published by EA games. The representative game for the Racing genre, *Need for Speed : ProStreet*, ranked sixth on the list, and the Action title, *Assassin's Creed* ranked eighth. *Need for Speed: ProStreet* was also joined a long list of games by the same name by EA Games and was rated E10: Everyone ten and up, and released in November 2007. *Assassin's Creed* was released in November 2007 by Ubisoft and rated M for Mature. *Mass Effect*, ranked thirty-fourth on the list was the first Role-playing title, followed by the Strategy title *Command and Conquer 3* the strategy title ranked thirty-ninth. *Mass Effect* was released in November 2007 by BioWare and rated M for Mature. *Command and Conquer 3* by EA games was released in March 2007 and rated T for Teen.

Once the sampling frame for the games was selected, the boards from which the sample of comments was to be collected were chosen. Three highly visited review sites, run by separate corporations, none of which had major ties to game developers or publishers, were chosen. These decisions were made to avoid bias in editing of user comments, and to provide the greatest range on audience. IGN.com is a unit of Fox Interactive Media inc., and is associated with other major media sites such as Gamespy, RottenTomatoes, and Vault Network. TotalVideoGames.com is a unit of TVG media, based in the UK, with no other major media ties. 1Up.com is a unit of UGO



entertainment, part of the Hearst Corporation. These three sites were also chosen for the ease of access to the comments posted by the users of the boards.

Each of these boards follows a similar set up. A home screen displays upon entering the site, showing major game industry news and advertisements for new releases. From that page a visitor can navigate to a number of pages having to deal with games from a given genre, platform, or general game news. The pages that display the reviews start with the games overall ranking, followed by the review, then the posted comments. Each page includes a set of links to various other places on the website that have information about the game, including discussion boards, walkthroughs and cheats. Each page also displays links to multiple places where the game may be purchased, and recommendations of other games on the same platform, or in the same genre.

From these board postings, a systematic sample of posts was collected with several limits. First, all posts were dated between the release date of the game and December 31, 2008. The posts were then systematically selected, starting with a post number selected by a random number generator and sampling every third post until December 31, 2008. Each sample was to include at least fifty posted comments. However, when sampling began, the Strategy genre did not have enough posts, and unlike the Sports genre, there was not another game for consideration in the top 100 games so the genre was eliminated from the study. This may have been in part due to the release only for the PC, which may also account for the lower sales data, as PC games are a more exclusive audience for top selling games. Games released for the console are often released for several consoles at once, while PC games are limited to gamers whose computers have the capability to run the game. This selection method resulted in sample sizes ranging from 50 to 100 posts.

## Coding

Once the sample was collected, it was determined that coding for these comments should be done by clause, allowing for the coding of several different ideas, even within one sentence, as many comments are not grammatically correct, making the sentence an unfeasible unit for measurement. The variables for coding were determined in several different sections. (See Appendix A for Code book). Variables 1-8 provide basic information about the post, the date, length by word, genre, which of the three sites it was posted to, the game rating, and platform on which it is played. Variables 9-14 provide information about the valence and presence of conversation between posters; whether the post contains a fan comment, replies to another poster or the review, and whether the poster is a registered user. Variables 15-31 are separated into three major heuristic categories; interface, mechanics, and game play. These major categories were derived from the Federoff study (2002) while the minor categories were derived from the various other studies that supplemented the definitions of each category (Bickford, 1997; Crawford, 1982; Malone, 1982; Norman, 1990; Shelley, 2001). Each of these was further separated into several specific sub categories that detail the separate considerations of the overarching heuristic values. Each of the three major categories was also measured for the overall valence of the comments within each variable. The interface variable was broken down into the categories of controls and menus. The variable of game mechanics includes the categories of graphics and sound, world interactions, Artificial Intelligence (AI), and technical issues. After a testing of the code book on several randomly selected posts not included in the sample, a fourth category of evaluation was added, which considers the game's reputation. This category takes into consideration three sub sections, the game's publisher and developer, other games before the title in the series, and general comparisons to other games. Valence across the categories was measured on a five point Likert scale, with one being strongly disagree and five being strongly agree. Where multiple

instances of a valence comment occur, an average of the valence for these comments was recorded.

With the code book complete, a second coder, with little knowledge of video games was trained to complete coding for inter coder reliability. Two training sessions were conducted in which both coders worked through a set of comments, and the results were compared in order to gain an understanding of what may be missed or confusing within the code book. After these sessions, an appendix was added to the code book, detailing a long list of key terms and concepts for each variable (Appendix B).

The comment samples were transferred to a spreadsheet, to protect against possible deletion from the online source, and to assign a unique comment number. An online survey tool was used to collect the data, the survey created for ease of data entry. The second coder was given 141 of the total comments collected, 13.5% of the total sample. After coding, the data was transferred to a statistics program for analysis.

## Results

### Descriptive Statistics

Total sample size of comments was  $n = 1044$ , the average comment length  $M = 67.72$  ( $SD = 73.32$ ) with a range of words per post from 2 to 1074. The breakdown by game shows that *Assassin's Creed* accounted for 16% ( $n = 163$ ) of the population with an average comment length of 85.8 ( $SD = 76$ ), *Guitar Hero III* was 14% ( $n = 149$ ) with an average comment length of 53.8 ( $SD = 55.2$ ), *Madden 08* was 16% ( $n = 170$ ) with an average comment length of 78 ( $SD = 111$ ), *Call of Duty 4* was 20% ( $n = 214$ ) with an average comment length of 59.8 ( $SD = 68.3$ ), *Mass Effect* was 18% ( $n = 186$ ) with an average comment length of 74.4 ( $SD = 56.1$ ), *Need for Speed* was 16% ( $n = 162$ ) with an average comment length of 54.1 ( $SD = 49.3$ ). Comments made on games rated M accounted for 47% of the sample ( $n = 563$ ) while the other ratings each had a similar amount of comments T  $n = 164$ , E10  $n = 147$  and E  $n = 170$ .

There was generally even distribution between the three different boards that were sampled, though there was some variation in the length of the comments posted. IGN had the highest number of posts ( $n = 382$ ) with an average post length 75.5 words ( $SD = 76.8$ ) ranging from 4 words to 835 words. TVG ranked second in number of posts ( $n = 337$ ) with an average post length of 45.1 words ( $SD = 49.5$ ) ranging from 3 words to 540 words. 1Up ranked last in number of posts ( $n = 325$ ) with an average post length of 82.1 words ( $SD=83.8$ ) ranging from 2 words to 1074 words. The majority of the posts were made by registered users ( $n = 912$ ) with an average post length of 70.7 words ( $SD = 75.8$ ) ranging from 2 words to 1074 words. Unregistered users accounted for a small percent of the population ( $n = 131$ ), with a shorter average post length of 46.8 words ( $SD = 48.5$ ) ranging from 3 words to 267 words.

### Within Subject Comparisons for Total Sample: What Gamers Care About

A series of repeated measures ANOVAs were conducted to determine the significance for the number of posts between the major heuristic categories and their subcategories for the full sample. For the repeat measures ANOVA for the major heuristic categories, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 112.9, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .941$ ). The results show that there was a significant difference between the heuristic categories  $F(2.82, 2939) = 120.9, p = .001$ . This indicates that there was significant difference in the heuristic categories gamers' value. Pairwise comparisons indicate that interface was the significantly least commented on ( $p < .001$ ) in all comparisons. The top three categories were closely intertwined, where game play showed higher comment numbers than mechanics ( $p < .001$ ), though not significantly higher than reputation ( $p = .425$ ) and reputation did not vary significantly from mechanics ( $p = .146$ ).

The repeated measures ANOVA for interface assumes sphericity with only two conditions, therefore, the results show there was a significant difference between the subcategories of interface  $F(1, 261) = 120, p < .001$ . Pairwise comparisons revealed that controls were more likely to be commented on than menus ( $p < .001$ ). For the repeated measures ANOVA for mechanics subcategories, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 104, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .88$ ). The results show that there was a significant difference between mechanics subcategories  $F(2.64, 1286) = 14.1, p < .001$ . Pairwise comparisons show that AI was significantly the least commented on category ( $p = .001$ ), while there was no difference between graphics and sound and technical issues ( $p = 1$ ).

For the repeat measures ANOVA for game play subcategories, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 169, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .882$ ). The results show that there was a significant difference between game play subcategories  $F(2.64, 1613) = 8.8, p < .001$ . Pairwise comparisons show all of the differences between subcategories were significant, Flow being the most commented on ( $p < .001$ ), followed by balance ( $p < .029$ ), then plot ( $p < .029$ ) and finally characters least commented on ( $p < .027$ ).

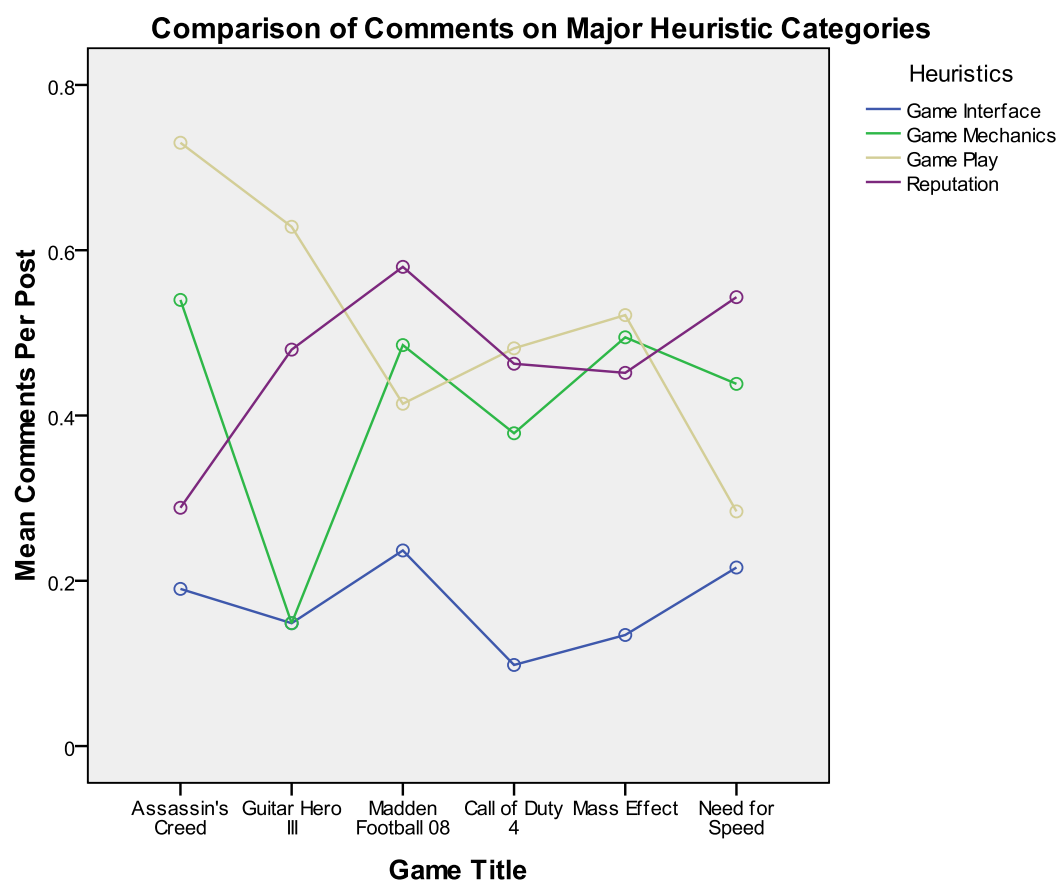
For the repeat measures ANOVA for reputation subcategories, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(2) = 149, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .811$ ). The results show that there was a significant difference between reputation subcategories  $F(1.62, 901) = 44.1, p < .001$ . Pairwise comparisons show that the differences between all pairs were significant making other games the most commented on ( $p < .001$ ), than previous games in series ( $p < .001$ ) followed by least commented on publisher ( $p < .001$ ).

### **Within Game Comparisons: What Gamers of Different Games Care About**

A series of two way repeat measures ANOVAs were conducted in order to discover what gamers valued in each separate game. Figure 1 demonstrates the differences between games for each of the four major heuristic categories. For the two way repeat measures ANOVA for games and major heuristics, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 95.8, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .952$ ). The results show that there was a significant difference for the

main effect of heuristics  $F(2.85, 2960) = 125, p < .001$  and significance for the interaction of heuristics and game title  $F(14.2, 2960) = 14.6, p < .001$ .

Figure 1



For the two way repeat measures ANOVA for *Assassin's Creed* and major heuristic categories, Mauchly's test indicated that the assumption of sphericity had been met ( $p = .203$ ). The results show that there was a significant difference between the major categories  $F(3,486) = 58.1, p < .001$ . Pairwise comparisons show that game play was significantly higher than the others ( $p < .001$ ) were, mechanics was significantly second ( $p < .001$ ) separating it from both the top and bottom categories. There was no significance between the bottom two categories of

reputation and interface ( $p = .221$ ). For the two way repeat measures ANOVA for *Guitar Hero III*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 16.9, p = .005$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .953$ ). The results show that there was a significant difference for major heuristic categories  $F(2.85, 420) = 49.8, p < .001$ . In pairwise comparisons game play proved significant as most commented on, ( $p = .049$ ) in all comparisons, while reputation proved to be a significant second separating from both top and bottom categories ( $p = .049$ ) in all comparisons. There was no significant difference between mechanics and interface ( $p = 1$ ).

For the two way repeat measures ANOVA for *Madden 08*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 18.7, p = .002$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .950$ ). The results show that there was a significant difference for major heuristic categories  $F(2.84, 478) = 18.3, p < .001$ . In pairwise comparisons, interface proved to be the least commented on ( $p = .001$ ), while the top three categories were interwoven. Reputation was significantly more commented on than game play, ( $p = .005$ ), there was no significance between reputation and mechanics ( $p = .441$ ) or game play and mechanics ( $p = .877$ ). For the two way repeat measures ANOVA for *Call of Duty 4*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 57.6, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .888$ ). The results show that there was a significant difference for major heuristic categories  $F(2.66, 567) = 34.4, p < .001$ . Within pairwise comparisons, interface was significantly the least commented on ( $p < .001$ ) in all pairs, while the other three categories, mechanics, game play and reputation had no significant difference between them ( $p = .146$ ).

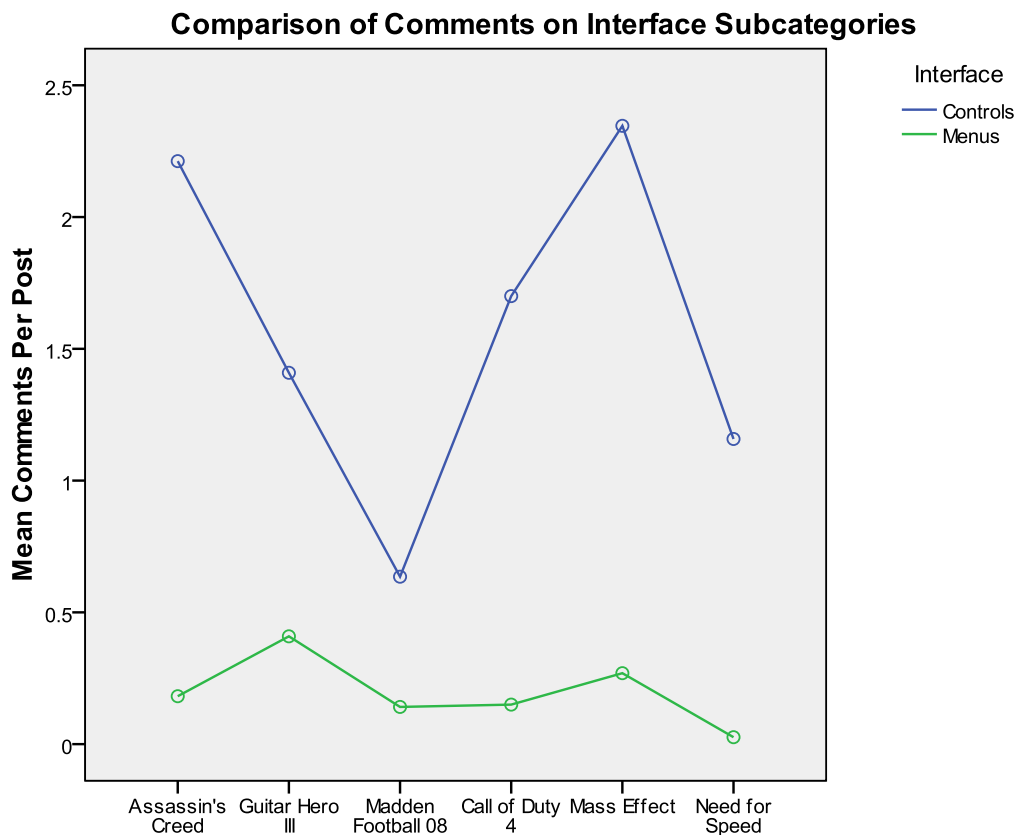


For the two way repeat measures ANOVA for *Mass Effect*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 28.4, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .933$ ). The results show that there was a significant difference for major heuristic categories  $F(2.79, 517) = 29.4, p < .001$ . Within pairwise comparisons, interface was significantly the least commented on ( $p < .001$ ) in all pairs, while the other three categories, mechanics, game play and reputation had no significant difference between them ( $p = 1$ ). For the two way repeat measures ANOVA for *Need for Speed*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 19, p = .002$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .938$ ). The results show that there was a significant difference for major heuristic categories  $F(2.81, 452) = 18.2, p < .001$ . The pairwise comparisons showed that there was significant difference between the top categories of reputation and mechanics and the bottom two categories of interface and game play ( $p < .001$ ), but no separation within the pairs ( $p = .429$ ).

Figure 2 demonstrates the differences between games for each of the interface subcategories. For the two way repeat measures ANOVA for games and interface sphericity was assumed with only two conditions. The results show that there was a significant difference for the main effect of interface  $F(1, 256) = 139, p < .001$  and significance for the interaction of interface and game title  $F(5, 265) = 6.76, p < .001$ . For each game the pairwise test proved that the controls were significantly more commented on than menus ( $p = .001$ ) for every game. For the two way repeat measures ANOVA for *Assassin's Creed*, sphericity was assumed with only two conditions. The results show that there was a significant difference for interface subcategories  $F(1, 32) = 24.2, p < .001$ . For the two way repeat measures ANOVA for *Guitar Hero III* sphericity was assumed with only two conditions. The results show that there was a significant difference for interface subcategories  $F(1, 21) = 15.4, p = .001$ . For the two way repeat measures

ANOVA for *Madden 08* sphericity was assumed with only two conditions. The results show that there was a significant difference for interface subcategories  $F(1, 84) = 20.9, p < .001$ .

Figure 2



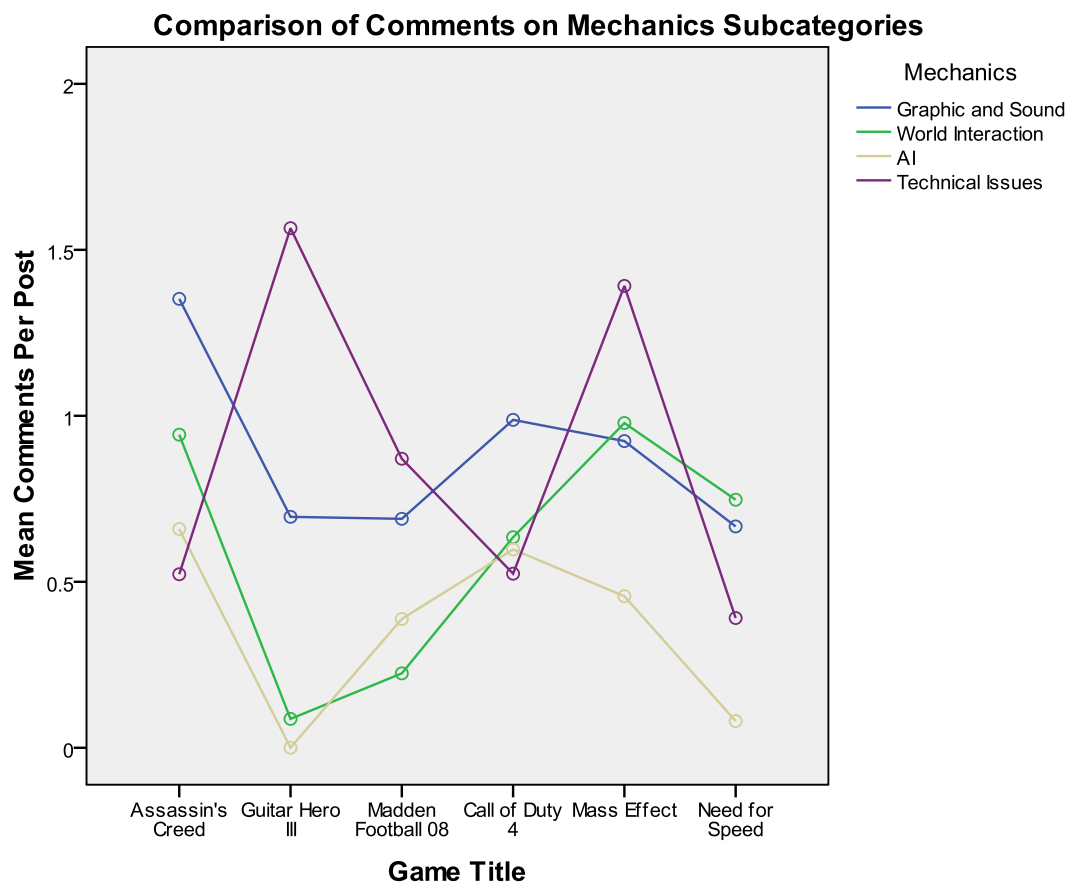
For the two way repeat measures ANOVA for *Call of Duty 4* sphericity was assumed with only two conditions.

there was a significant difference for interface subcategories  $F(1,25) = 37.9, p < .001$ . For the two way repeat measures ANOVA for *Need for Speed* sphericity was assumed with only two conditions. The results show that there was a significant difference for interface subcategories  $F(1,75) = 26, p < .001$ .

Figure 3 demonstrates the differences between games for mechanics subcategories. For the two way repeat measures ANOVA for games and mechanics, Mauchly's test indicated that

the assumption of sphericity had been violated  $\chi^2(5) = 94.1, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .901$ ). The results show that there was a significant difference for the main effect of heuristics  $F(2.7, 1303) = 15.4, p < .001$  and significance for the interaction of mechanics and game title  $F(13.5, 1303) = 4.95, p < .001$ .

Figure 3



For the two way repeat measures ANOVA for *Assassin's Creed*, Mauchly's test indicated that sphericity was assumed ( $p = .216$ ). The results show that there was a significant difference for mechanics,  $F(3,261) = 8.19, p < .001$ . Pairwise comparisons reveal that the only significant difference was between graphics and sound, the most commented on, and the two least

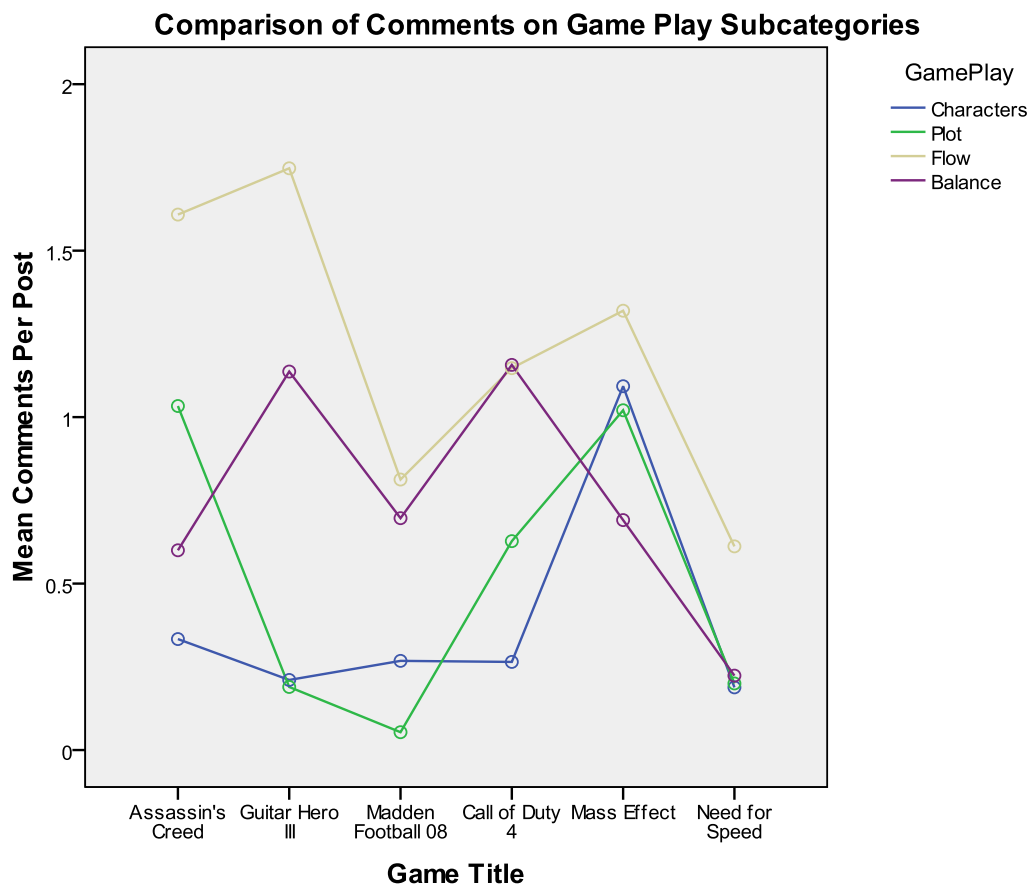
commented on AI and technical issues ( $p = .001$ ). For the two way repeat measures ANOVA for *Guitar Hero III*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 64.7, p < .001$ ; therefore, degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity ( $\epsilon = .48$ ). The results show that there was a significant difference for mechanics  $F(1.43, 33.6) = 5.7, p = .012$ . Pairwise comparisons show that technical issues were more likely to be commented on than AI or world interaction ( $p = .045$ ). For the two way repeat measures ANOVA for *Madden 08*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 40.2, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .846$ ). The results show that there was a significant difference for mechanics  $F(2.53, 292) = 8.22, p < .001$ . Pairwise comparisons show that world interaction was significantly more commented on than graphics and sound or technical issues ( $p = .006$ ). For the two way repeat measures ANOVA for *Call of Duty 4*, Mauchly's test indicated that sphericity was assumed ( $p = .538$ ). The results show that there was no significant difference for mechanics  $F(3, 243) = 2.27, p = .08$ .

For the two way repeat measures ANOVA for *Mass Effect*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 41.2, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .773$ ). The results show that there was a significant difference for mechanics  $F(2.32, 211) = 5.93, p = .002$ . Pairwise comparisons reveal that AI was significantly the least likely to be commented on ( $p = .032$ ). For the two way repeat measures ANOVA for *Need for Speed*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 39.9, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .85$ ). The results show that there was a significant difference for mechanics subcategories  $F(2.55, 219) = 9.021, p < .001$ . For

*Need for Speed*, pairwise comparisons reveal that while AI was significantly the least likely to be commented on ( $p = .012$ ) none of the other comparisons were significant ( $p = .177$ ).

Figure 4 demonstrates the differences between games for game play subcategories. For the two way repeat measures ANOVA for games and game play, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 176, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .884$ ). The results show that there was a significant difference for the main effect of game play  $F(2.65, 1604) = 49.2, p < .001$  and significance for the interaction of game play and game title  $F(13.2, 1604) = 49.2, p < .001$ .

Figure 4



For the two way repeat measures ANOVA for *Assassin's Creed*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 72, p < .001$ ; therefore, degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity ( $\epsilon = .731$ ). The results show that there was a significant difference for game play  $F(2.193, 261) = 25.5, p < .001$ . Pairwise comparisons for *Assassin's Creed*, reveal that flow was the significantly most commented on ( $p = .033$ ), while the other categories remain nearly indistinguishable from one another, the only other major significance between characters and plot ( $p < .001$ ). For the two way repeat measures ANOVA for *Guitar Hero III*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 80.6, p < .001$ ; therefore, degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity ( $\epsilon = .745$ ). The results show that there was a significant difference for game play  $F(2.23, 209) = 21.9, p < .001$ . Pairwise comparisons for *Guitar Hero III* reveal significance between the top pair of sub categories, flow and balance and the bottom pair, plot and characters ( $p = .003$ ). However there was no significance within the pairs ( $p = .226$ ) between flow and balance and ( $p = 1$ ) between plot and characters.

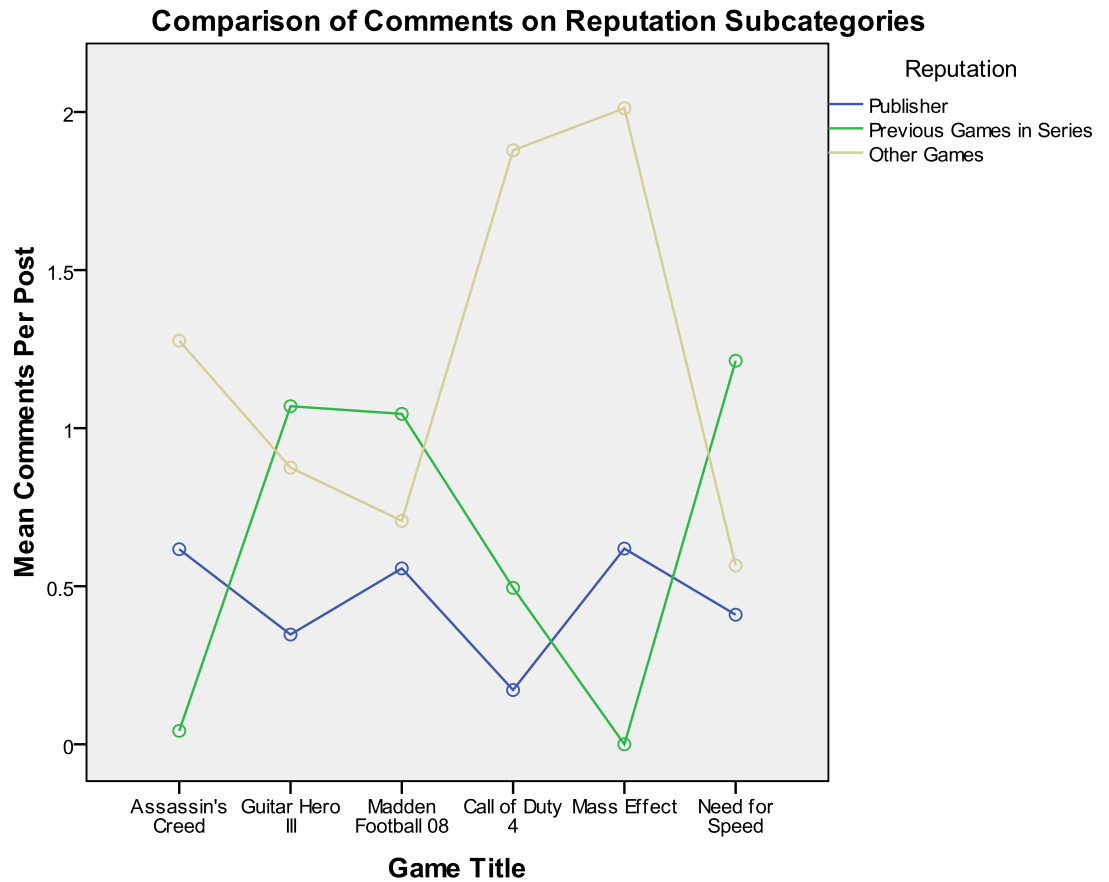
For the two way repeat measures ANOVA for *Madden 08*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 129, p < .001$ ; therefore, degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity ( $\epsilon = .687$ ). The results show that there was a significant difference for game play  $F(2.06, 228) = 9.28, p < .001$ . Pairwise comparisons for *Madden 08* show that plot was significantly the least commented on ( $p = .017$ ). While flow was significantly more commented on than characters ( $p = .004$ ), there was

no difference between flow and balance ( $p = 1$ ) or characters and balance ( $p = .163$ ). For the two way repeat measures ANOVA for *Call of Duty 4*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(5) = 32.7, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .828$ ). The results show that there was a significant difference for game play  $F(2.48, 250) = 13.9, p = .001$ . Pairwise comparisons of *Call of Duty 4* showed no difference between balance and flow ( $p = 1$ ), however they were both more commented on than plot ( $p = .025$ ) and characters ( $p < .001$ ). Characters were significantly the least commented on ( $p = .039$ ).

For the two way repeat measures ANOVA for *Mass Effect*, Mauchly's test indicated that the assumption of sphericity was assumed ( $p < .114$ ) The results show that there was a significant difference for game play  $F(3, 228) = 3.36, p = .019$ . Pairwise comparisons show that there were significantly more comments on flow than balance ( $p = .009$ ). For the two way repeat measures ANOVA for *Need for Speed*, Mauchly's test indicated that the assumption of sphericity was assumed, ( $p = .067$ ). The results show that there was significant difference for game play  $F(3, 252) = 6.22, p < .001$ . Pairwise comparisons show flow was the most commented on ( $p = .017$ ).

Figure 5 demonstrates the differences between games for reputation subcategories. For the two way repeat measures ANOVA for games and reputation, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(2) = 113, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .853$ ). The results show that there was a significant difference for the main effect of reputation  $F(1.7, 939) = 59.6, p < .001$  and significance for the interaction of reputation and game title  $F(8.52, 939) = 24.1, p < .001$ .

Figure 5



For the two way repeat measures ANOVA for *Assassin's Creed*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(2) = 23.8, p < .001$ ; therefore, degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity ( $\epsilon = .708$ ). The results show that there was a significant difference for reputation subcategories  $F(1.41, 65.1) = 18.7, p < .001$ . Pairwise comparisons for *Assassin's Creed* show significant differences between all three subcategories, other games being the most commented on ( $p = .039$ ), publisher being second most ( $p = .039$ ), and previous games being least commented on ( $p = .001$ ). For the two way repeat measures ANOVA for *Guitar Hero III*, Mauchly's test indicated that the assumption



of sphericity had been violated  $\chi^2(2) = 12.7, p = .002$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .877$ ). The results show that there was a significant difference for reputation  $F(1.75, 124) = 10.81, p < .001$ . For *Guitar Hero III* pairwise comparisons show only that publisher was the least commented on category ( $p = .002$ ). For the two way repeat measures ANOVA for *Madden 08*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(2) = 28.1, p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .847$ ). The results show that there was a significant difference for reputation  $F(1.69, 223) = 5.41, p = .008$ . Pairwise comparisons show that previous games were significantly more commented on than publisher ( $p < .001$ ).

For the two way repeat measures ANOVA for *Call of Duty 4*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(2) = 58.4, p < .001$ ; therefore, degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity ( $\epsilon = .688$ ). The results show that there was a significant difference for reputation  $F(1.37, 134) = 71, p < .001$ . Pairwise comparisons for *Call of Duty 4* show significant differences between all three subcategories, other games being the most commented on ( $p < .001$ ), previous games in series being second most ( $p = .003$ ), and publisher being least commented on ( $p = .003$ ). For the two way repeat measures ANOVA for *Mass Effect*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(2) = 89.7, p < .001$ ; therefore, degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity ( $\epsilon = .600$ ). The results show that there was a significant difference for reputation  $F(1.2, 99.6) = 53.81, p < .001$ . Pairwise comparisons for *Mass Effect* show significant differences between all three subcategories, other games being the most commented on ( $p < .001$ ), publisher being second most ( $p < .001$ ), and previous games

being least commented on ( $p < .001$ ). For the two way repeat measures ANOVA for *Need for Speed*, Mauchly's test indicated that the assumption of sphericity had been violated  $\chi^2(2) = 17.3$ ,  $p < .001$ ; therefore, degrees of freedom were corrected using the Huynh-Feldt estimates of sphericity ( $\epsilon = .894$ ). The results show that there was a significant difference for reputation  $F(1.78,216) = 16.5$ ,  $p < .001$ . Pairwise comparisons show that other games were significantly more likely to be commented on ( $p = .001$ ).

### **Between Game Heuristic Comparisons:**

A series of one-way ANOVAs were conducted for each heuristic category and subcategory, to compare the heuristics between the games, and each ANOVA provided significant results.

For the major heuristic categories between games, interface showed significance with the ANOVA of  $F(5,1036) = 3.72$ ,  $p = .002$ , mechanics showed significance with the ANOVA of  $F(5,1038) = 13.6$ ,  $p < .001$ , game play showed significance with the ANOVA of  $F(5,1038) = 17.3$ ,  $p < .001$ , and reputation showed significance with the ANOVA of  $F(5,1038) = 6.8$ ,  $p < .001$ . A Bonferroni post hoc test for interface revealed that *Call of Duty 4* was more likely than *Madden 08* or *Need for Speed* to have comments on interface ( $p < .001$ ). A Bonferroni post hoc test for mechanics reveals that *Guitar Hero III* was less likely than all of the other games to comment on mechanics ( $p < .001$ ). A Bonferroni post hoc test for game play revealed that *Assassin's Creed* was more likely than *Madden 08*, *Call of Duty 4*, *Mass Effect*, or *Need for Speed* to comment on game play ( $p < .001$ ). The post hoc also revealed that *Need for Speed* was less likely to comment on game play than *Guitar Hero III*, *Call of Duty 4*, and *Mass Effect* ( $p <$

.001). A Bonferroni post hoc test for reputation revealed that *Assassin's Creed* was less likely than all other games to comment on reputation ( $p = .031$ ).

The ANOVAs for each subcategory of interface proved significant between the games, the ANOVA for controls  $F(5,258) = 8.92, p < .001$ , and the ANOVA for menus  $F(5,256) = 2.36, p = .041$ . A Bonferroni post hoc test for controls revealed that *Assassin's Creed* and *Mass Effect* were both more likely than *Madden 08* or *Need for Speed* to comment on controls ( $p = .016$ ). A Bonferroni post hoc test for menus revealed that *Guitar Hero III* was more likely to comment on menus than *Need for Speed* ( $p = .03$ ).

The ANOVAs for each subcategory of mechanics proved significant between the games; graphics and sound with an ANOVA of  $F(5,438) = 3.79, p = .002$ , world interaction with an ANOVA of  $F(5,483) = 7.38, p < .001$ , AI with and ANOVA of  $F(5,482) = 5.92, p < .001$  and technical issues with and ANOVA of  $F(5,484) = 6.47, p < .001$ . A Bonferroni post hoc test for graphics and sound revealed that *Assassin's Creed* was more likely than *Madden 08* or *Need for Speed* to comment on graphics and sound ( $p = .004$ ). A Bonferroni post hoc test for world interaction revealed *Assassin's Creed* and *Mass Effect* were both more likely than *Guitar Hero III* and *Madden 08* to comment on world interaction ( $p = .018$ ). A Bonferroni post hoc test for AI revealed that *Assassin's Creed* was more likely than *Guitar Hero III* and *Need for Speed* to comment on AI ( $p = .017$ ). *Call of Duty 4* was also more likely to comment on AI than *Need for Speed* ( $p = .002$ ). A Bonferroni post hoc test for technical issues revealed that *Guitar Hero III* and *Mass Effect* were both more likely to comment on technical issues than *Assassin's Creed*, *Call of Duty 4* and *Need for Speed* ( $p = .002$ ).

The ANOVAs for each subcategory of game play proved significant between the games; the ANOVA for characters  $F(5,606) = 13.7, p < .001$ , the ANOVA for plot  $F(5,606) = 16.9, p < .001$ , the ANOVA for flow  $F(5,606) = 8.47, p < .001$ , and the ANOVA for balance  $F(5,605) = 4.43, p = .001$ . A Bonferroni post hoc test for characters revealed that *Mass Effect* was more

likely than any other game to comment on characters ( $p < .001$ ). A Bonferroni post hoc test for plot revealed that *Assassin's Creed* and *Mass Effect* were both more likely to comment on plot than *Guitar Hero III*, *Madden 08*, and *Need for Speed* ( $p < .001$ ). *Call of Duty 4* was also more likely to comment on plot than *Madden 08* ( $p = .002$ ). A Bonferroni post hoc test for flow revealed that *Assassin's Creed* and *Guitar Hero III* were more likely to comment on flow than *Madden 08* and *Need for Speed*. A Bonferroni post hoc test for balance revealed that *Need for Speed* was less likely to comment on balance than *Guitar Hero III* and *Call of Duty 4*.

The ANOVAs for each reputation subcategory proved significant between the games; the ANOVA for publisher  $F(5,553) = 3.79, p = .002$ , the ANOVA for previous games in series  $F(5,552) = 19.7, p < .001$ , the ANOVA for other games  $F(5,551)=17.2, p < .001$ . A Bonferroni post hoc test for publisher revealed that *Call of Duty 4* was less likely to comment on publisher than *Mass Effect* and *Madden 08* ( $p = .011$ ). A Bonferroni post hoc test for previous games in series revealed that *Assassin's Creed*, *Call of Duty 4* and *Mass Effect* were all less likely than *Guitar Hero III*, *Madden 08* and *Need for Speed* to comment on previous games ( $p < .001$ ). A Bonferroni post hoc test for other games revealed that *Call of Duty 4* and *Mass Effect* were more likely to comment on other games than *Guitar Hero III*, *Madden 08* and *Need for Speed* ( $p < .001$ ).

### **Characteristics of Registered Users**

The overwhelming majority (87%) of the comments were made by registered users,  $n = 912$  with an average post length of 70.7 words ( $SD = 75.8$ ) ranging from 2 words to 1074 words. A series of Chi-Square test were run to test the relationships between registration status and types of comments made. The Chi-Square examining fan comments did not show

variation  $\chi^2(1, N = 1043) = .048, p = .827$ , suggesting that the variables are independent of one another. The Chi-Square examining interface comments did show variation  $\chi^2(1, N = 1043) = .391, p = .048$ , suggesting that the variables are dependent on one another. The Chi-Square examining mechanics comments did not show variation  $\chi^2(1, N = 1043) = .160, p = .689$ , suggesting that the variables are independent of one another. The Chi-Square examining game play comments did not show variation  $\chi^2(1, N = 1043) = .651, p = .420$ , suggesting that the variables are independent of one another. The Chi-Square examining reputation comments did show variation  $\chi^2(1, N = 1043) = .204, p > .001$ , suggesting that the variables are independent of one another.

### **Valence Results**

For the total sample, the valences recorded for the heuristics categories were evenly distributed between negative and positive comments. For interface, 33.7% recorded negative valence, 38.8% neutral and 27.5% a positive valence. For mechanics, 32.7% recorded negative valence, 32.3% neutral and 35% a positive valence. For game play, 32.4% recorded negative valence, 28.7% neutral and 38.8% a positive valence. For reputation, 37.8% recorded negative valence, 26.6% neutral and 35.6% a positive valence. Valence for fan comments in the total population was decidedly positive, with 62.9% recording a positive comment, while only 21.6% recorded a negative one.

A one-way ANOVA was used to test the differences between games on the valence of fan comments. The differences were significant between games,  $F(5,647) = 29.2, p < .001$ . A

Bonferroni Post Hoc test was conducted, and revealed that both *Madden 08* and *Need for Speed* had significantly lower valences in their fan comments than the other four games ( $p < .001$ ). The one-way ANOVA between game and interface valence showed no significance,  $F(5,172) = 1.1$ ,  $p = .36$ . The one-way ANOVA used to compare game and mechanics valence showed significance between games  $F(5,431) = 11.8$ ,  $p < .001$ . A Bonferroni Post Hoc test was conducted and showed that *Madden 08* had significantly lower valence than *Assassin's Creed*, *Call of Duty 4* and *Mass Effect* ( $p < .001$ ). The post-hoc test also revealed that *Need for Speed* was significantly lower than *Assassin's Creed* ( $p = .002$ ), and *Call of Duty 4* ( $p < .001$ )

The one-way ANOVA for game and game play also showed a significance,  $F(5,527) = 17.1$ ,  $p < .001$ . A Bonferroni Post Hoc test was conducted and showed a large number of significant differences between the games. *Madden 08* was more negative than both *Call of Duty 4* and *Mass Effect* ( $p < .001$ ), and more negative than *Guitar Hero III* ( $p = .002$ ) as well as more negative than *Assassin's Creed* ( $p = .023$ ). *Call of Duty 4* was more positive than both *Assassin's Creed* and *Need for Speed* ( $p < .001$ ), as well as more positive than *Guitar Hero III* ( $p = .002$ ). *Mass Effect* also proved to be more positive than *Assassin's Creed* ( $p < .001$ ), *Need for Speed* ( $p < .001$ ) and *Guitar Hero III* ( $p = .008$ ).

The one-way ANOVA for valence of reputation between games was significant  $F(5,483) = 18.1$ ,  $p < .001$ . A Bonferroni post-hoc test was conducted revealing a larger number of inter genre differences. *Guitar Hero III*, *Call of Duty 4* and *Mass Effect* were all significantly more positive ( $p < .001$ ) than both *Madden 08* and *Need for Speed*. In addition, both *Call of Duty 4* ( $p = .001$ ) and *Mass Effect* ( $p = .004$ ) were more positive than *Assassin's Creed*.

A series of one-way ANOVAs were used to determine if there was significant difference between the boards that were posted and the valence of comments. The one-way ANOVA for valence of fan comment between boards was not significant  $F(2,650) = .626$ ,  $p = .535$ . The one-way ANOVA for valence of interface between boards was not significant  $F(2,177)$

= 1.33,  $p = .267$ . The one-way ANOVA for valence of mechanics between boards was not significant  $F(2,436) = 1.76, p = .195$ . The one-way ANOVA for valence of game play between boards was significant  $F(2,532) = 5.12, p = .006$ . A Bonferroni post-hoc test was conducted revealing that posts made to IGN were significantly more negative than those made to 1Up ( $p = .006$ ). The one-way ANOVA for valence of reputation between boards was not significant  $F(2,488) = .594, p = .552$ .

### **Occurrence of Dialogue within Posts**

As a full population, those who commented as a majority decided not to comment on other posts (79%) or to comment on the review made by the board (85%). However, when either of these cases were commented upon, the results were decidedly negative, (61%) disagreeing with the other posters and (65%) disagreeing with the review made by the site. A series of Chi-square tests were run in order to understand if any variables were dependant on one another for the observance of discussion. The percentage of posts that replied to another user did vary by registration status  $\chi^2(1, N = 1043) = 5.63, p = .018$ , suggesting that the variables are dependent on one another. The percentage of post that agreed or disagreed with other comments approached variation by registration of  $\chi^2(1, N = 1043) = 3.67, p = .055$ , suggesting that the variables may be dependent on one another. The percentage of posts referring to the review did not vary by registration status  $\chi^2(1, N = 1043) = 1.19, p = .275$ , suggesting that the variables are independent of one another. The percentage of posts that agreed or disagreed with the review did not vary by registration status  $\chi^2(1, N = 1043) = .541, p = .462$ , suggesting that the variables are independent of one another.

For the results based on the differences by board, a second series of Chi-Squares were performed, showing all discussions to be dependent on boards. The percentage of posts replying to other comments did vary by board  $\chi^2(2, N = 1043) = 7.64, p = .022$ , suggesting that the variables are dependent on one another. The percentage of post that agreed or disagreed with other comments did vary board  $\chi^2(2, N = 1043) = 6.86, p = .032$ , suggesting that the variables are dependent on one another. The percentage of posts replying to reviews did vary by board  $\chi^2(2, N = 1043) = 27.6, p > .001$ , suggesting that the variables are dependent on one another. The percentage of post that agreed or disagreed with the review did vary by board  $\chi^2(2, N = 1043) = 7.17, p = .028$ , suggesting that the variables are dependent on one another.



## Discussion

The interpretation of these results was based on the assumption that because gamers have a limited time to post, they spend their time posting on the aspects most important to them. Therefore, the greater average number of comments per post in a single category, the more valued that heuristic was to gamers. Their limited time often prompted posters to frequently use text-speak and poor grammar, as shown in the examples used in this discussion.

The results for comparisons of heuristics for the entire population provided a gauge of what the gaming community generally valued in their game play experience. Within the major heuristic categories, the most prevalent difference was that interface was the least valued category. This result remains consistent for the within game comparisons. This is potentially because in a well-put-together game, the interface should be seamless, so this category being least reported on was a complement to the games. Game play also varied significantly from mechanics, making the categories of flow, balance, characters and plot among the most important to posters. These categories remark on the immersiveness of the game, showing that gamers may be able to overlook lesser quality graphics or technical issues when the game's interactions provide quality entertainment. Within reputation, gamers were most likely to comment on other game releases in comparison to the game they are reviewing. By comparing these games to other releases, the poster provides both a point of reference, but may also confirm their position on the board by showing that they are knowledgeable about other important games. Within mechanics, posters most valued graphics and sound, and technical issues. Several factors may have prompted this result. First, graphics are the leading edge of game play, frequently changing between generations of games, and are the first thing that a person notices about the game. Secondly, technical issues can ruin the game play experience, which is one of the first things a gamer may comment if they

were to complain about the game. For example, “Get your S@\*t together! I am so sick of loving their games but having to make excuses for the INEXCUSABLE technical issues. I love Bioware and I like the game, but with the clusterf%#k of technical issues this is sitting at a 7” (BigBadBroque, 2007, IGN).

The results for within game comparisons show that for each game there was a separation between the major heuristic categories, though the specific subcategories were not always significantly different. This separation between categories demonstrates that players of each game have a specific set of qualities that are most important to their game play experience.

For *Assassin’s Creed*, game play was by far the most valued category, and within game play, flow was most important aspect and therefore the most important part of the gaming experience. Comments on game play and flow specifically were most likely prevalent due to the complexity of the narrative. For example, one of the most prevalent comments was about the storyline twist; “There is a major twist in the Assassin's story, the kind that (if it hasn't already been spoiled for you on the Internet) would likely blow the lid covering your brain. That is if this big twist were revealed towards the end of the story and not in the first five minutes” (Ethrein, 2007, IGN). Mechanics was the second most important aspect of the game, and while there was no clear aspect that was most or least important, graphics and sound outweighed technical issues. This may be because *Assassin’s Creed* was advertised via their beautiful graphics, and immersive sound and world. These have become trademarks of action games, where players have learned to rely on directionality of sounds or light to anticipate enemy movements. Within reputation, other games were the most commented on, and usually compared to *Halo 3*, in disappointment. “This game was almost as big a disappointment as Halo 3 i was lucky i bought it used played it and took it back” (TheDude337, 2007, 1Up). This was an unexpected comparison as *Assassin’s Creed* is from the Action genre, and the *Halo* series are Shooter games.

For *Guitar Hero III*, game play also was most valued, followed by reputation, and then both mechanics and interface were indistinguishably least important. Within game play, flow was most important followed by the game's balance. The majority of comments were on the songs that were included in the game, or should have been included, and coded as balance. "Everybody, there are 3 good bonuses, Go That Far, My Curse, and Through the Fire and Flames" (Spartan316DX, 2007, IGN). This is an expected result, as the focus of the game play is on the songs; it may also be due to the plethora of songs that are available online for individual purchase giving the gamers additional songs to comment on. Reputation was the second most commented on category and the most commented on subcategories were other games and previous games. Comments about other and previous games typically linked to comments about the play list, comparing the current list to previous games, or to the other popular music game series, *Rock Band*.

For *Madden 08*, reputation, while having the highest average comment per post was only significantly different from interface and game play, the least commented on sections. This result may be because most gamers who play the series have been playing for several installments and are familiar with both the game and the publisher. Reputation for *Madden 08* contained a considerable group of negative comments for all sections of the category. "Madden sucks, EA sucks, NBA Live sucks. 2K was going to make a better football game so they bought out the license" (werwerwer, 2008, 1Up). This result was expected for *Madden 08* as the majority of gamers have been following a decline in the quality of EA products, especially the major series "Same shit. Add a new date" (Chris, 2008, 1Up.). Within game play, plot was significantly least important, which is an expected result as there is not a narrative structure to the *Madden* games.

For *Call of Duty 4*, there was no separation between the top three heuristics categories of game play, reputation, and mechanics. This clustering within the heuristics points to the idea that no one aspect of the game experience was more important for the players. It also provides

evidence for overlap between genres, as *Call of Duty 4* was a shooter, which by definition is a mechanics-based game. However, mechanics was equally important as game play, showing that the narrative aspects within game play were equally important to the gamers. Within game play, there was no separation between highest-ranking flow and balance. Balance was most commented on, in terms of how difficult the game was on the various difficulty settings, where players were concerned that the default was too easy. "First person shooters are always more fun with a harder difficulty setting. The normal difficulty is usually balanced for the "average" gamer. If you think you have any skill in FPS' then you need to remember to bump up the difficulty, you'll have a better experience that way" (stevenstreet483, 2007, IGN). This may be due in part to the players all having previous experience with the other three games in the series, making them knowledgeable gamers that are more difficult to challenge. Within reputation, other games were the most commented on. Often the other games commented on most were additional shooters released in the previous months. "Anyways this game blows Halo 3 out of the water, and (dare i say it) gears of war 2" (Evilriku, 2008, TVG). These comparisons allow fans to gauge the quality of the other game if they have played one of the two games in the comparison.

For *Mass Effect*, there was no separation between the top three heuristics categories of game play, reputation, and mechanics making them all equally more important than interface. This clustering within the heuristics points to the idea that no one aspect of the game experience was more important for the players. It also provides evidence for overlap between genres, as *Mass Effect* was a Role-Playing game, which by definition was a narrative based game in game play. However, mechanics was equally as important as game play, showing that the manner in which one interacted with the world was just as essential to gamers. The pattern of subcategory separation within reputation similar to *Assassin's Creed*, where other games was most commented on. This similarity may be due to the games both being first installments, the only two sampled games to exhibit this characteristic. *Mass Effect* was compared to other games that

had similar types of features, for example. “COH4 and Assassin’s Creed both do too, but the facial expressions and body movements are it’s graphical selling points, not it’s explosions and fights like the other games” (Jaywood05, 2007, IGN). This poster contrasts the use of graphics with other popular titles, showing how the comparisons with other games may not be necessarily from the same genre or type of game.

For *Need for Speed*, reputation and mechanics were the most important. This result may be due to *Need for Speed* being published by EA Games, the same maker of *Madden 08*; therefore, reputation was expected to be one of the higher-ranking categories. Once again, most of the comments were negative; “Damn you EA! You ruined my game again sad” (Zooowanker, 2007, IGN). Game play ranking at the bottom next to interface was expected for the racing game. Much like *Guitar Hero III* the *Need for Speed* series does not need a plot or narrative to move the game along, rather it was mostly series of individual challenges for the player interwoven with cut scenes to provide some continuity for the first play through.

Overall, comments on flow were the highest for the majority of games, while interface was the lowest heuristic. These results may be attributed to gamers valuing the immersiveness of their experience, showing that desire to be drawn completely into the game. The differences between heuristic categories for each game may be a result of various gamers holding different aspects of the game experience as vital to the game experience.

The results of between game comparisons for the heuristics show a great deal of significance across all categories. These results show where the differences lay between the significances within games from the previous question, providing further evidence that the value of game experience may vary by genre.

Within the major heuristic categories, *Call of Duty 4* was more likely than *Madden 08* or *Need for Speed* to comment on interface. The comments on interface were usually about control of the weaponry within the game “My only beef with the game is the grenade range meter,

sometimes you think youre far enough from the blast radius and you die” (Anon, 2008, 1Up).

This result may be due to *Call of Duty 4* being the only game that was part of a series with the implementation of new controls. Therefore, gamers were more likely to notice differences in the controls especially in comparison to other titles by EA Games, whose controls have changed very little since first released. *Guitar Hero III* was less likely than all other games to comment on mechanics. This result may be because this heuristic category deals with the manner in which the player interacts with the world around them, and *Guitar Hero III* has no world to interact with, it is just the gamer playing the guitar.

Posters for the game *Assassin’s Creed* were more likely to comment on game play than most games, and less likely than all other games to comment on reputation. The high level of comments on narrative was a huge support for genre crossing, where games of one genre take on game elements of another. A pure action game would not necessarily be as narrative heavy as the comments on *Assassin’s Creed* suggest. The only game that *Assassin’s Creed* could not surpass in game play comments was *Guitar Hero III*. These results may be due to the majority of comments for *Guitar Hero III* were about the songs, inflating the balance subcategory.

Within interface subcategories, both *Assassin’s Creed* and *Mass Effect* were more likely than *Madden 08* or *Need for Speed* to comment on controls. The reasons behind this separation may be two-fold. First, *Assassin’s Creed* and *Mass Effect* had complex control systems with a large number of items to keep track of. The game play style for the Action and RPG genres require a player to keep track of a large number of items and types of movements or abilities. Secondly, both *Madden 08* and *Need for Speed* are part of long series, where the gamers would already be familiar with all of the controls for the game.

Within mechanics subcategories, *Assassin’s Creed* and *Mass Effect* were more likely than *Madden 08* or *Guitar Hero III* to comment on world interaction. This result may be attributed to the immense size of the world of these games, especially *Assassin’s Creed*, a sandbox game,

where the player can at any time choose to explore the world rather than follow the main plot. However, *Madden 08* and *Guitar Hero III* are both games with limited ability to interact outside the main plot, or challenges. For the mechanics subcategories, the split between *Assassin's Creed* and the other games, specifically *Madden 08*, *Guitar Hero III* and *Need for Speed* promotes the conclusion that mechanics may be more valued among action games. *Call of Duty 4*, the shooter also proved significantly higher in comments on AI, which continues this trend, as shooters are often seen as a sub genre of action.

Within the game play subcategories, *Mass Effect* was more likely than any other game to comment on characters. This was an expected result, as *Mass Effect* was the Role-playing game, and the core of the RPG genre is interaction with characters and plot. *Assassin's Creed* and *Mass Effect* were more likely than *Guitar Hero III*, *Madden 08*, or *Need for Speed* to comment on plot. This may be in part to the style of game play, as *Guitar Hero III*, *Madden 08*, and *Need for Speed* each have small or no plot and character interaction to drive forward the game play, rather they feature individual challenges. *Guitar Hero III* and *Call of Duty 4* were more likely to comment on balance. This result is in support of the discussion of the games individually, where *Guitar Hero III* had many comments on the types of songs included and *Call of Duty 4* players were concerned with the difficulty settings. Within reputation subcategories, comments on previous games in the series were made by posters on *Guitar Hero III*, *Madden 08* or *Need for Speed* to have comments. This result can be explained as both *Madden* and *Need for Speed* are long running series and all three are games that are released yearly, while *Call of Duty 4* was not.

Overall, *Assassin's Creed*, *Call of Duty 4* and *Mass Effect* tended to be similar in their significance for each heuristic or subcategory, often in comparison to *Madden 08* and *Need for Speed*. This division within the sample could be interpreted as an affect of game play style and genre; *Assassin's Creed*, *Call of Duty 4* and *Mass Effect* are all similar in game play style incorporating both action and storyline into the game play. Also of note was the grouping of

*Madden 08* and *Need for Speed*, which are similar in two ways, the first of which was that they are both games by the same publisher, EA Games. Both games also highlight a game play style that features individual challenges rather than game play linked with a narrative.

Valence for the total population in heuristics was evenly distributed between positive and negative responses, fan comments however were overwhelming positive. These comments often served as the opening or closing of a longer comment about the game, “This game was awesome. Superior to Halo 3 in pretty much every fashion. CoD4 rules” (Skriven Knight, 2007, IGN). Positive fan comments were anticipated due to the popularity of the games chosen for the sample, though a secondary explanation may be that other posters who return negativity with more of the same may deter negative posts.

For fan comments, *Madden 08* and *Need for Speed* were significantly more negative than the other four games. Negative valence for *Madden 08* continues through mechanics and game play where it was more negative than *Assassin’s Creed*, *Call of Duty 4* and *Mass Effect*. *Need for Speed* also proved more negative than most games for mechanics and game play categories. This similarity may be because EA Games developed and published both games. The valence for reputation backs this similarity as a possible cause for the negative fan comments, as both *Madden 08* and *Need for Speed* had significantly more negative comments in reputation.

With the overwhelming majority of comments made by registered users, it should be noted that IGN, one of the boards sampled now requires registration to comment on their boards. What was unique about IGN registration was that it connects to the many different sub sites of IGN, and therefore, posters do not have to register on the main site in order to comment, reaching a much larger group of people. However, neither 1Up nor TotalVideoGames requires registration. Therefore, the high level of registration suggests that gamers invest in the sites that they post to, making the sites more than just a place for information but also of community.



Registered users made longer comments, which also supports the idea that these users are more committed to the community that they are a part of, taking the time to post more in depth comments about the games. The largest difference in comment type between registered and non-registered users was that those who were registered were more likely to comment on reputation than those who were not. A possible explanation for this is those posters who care enough about the games to become registered members, are also more knowledgeable about the games they are playing.

Overall posters were neither concerned with replying to other posters or to the review, rather in expressing their own opinions. However, when prompted to respond, it was usually in a negative manner. These negative responses often took the shape of short comments stating that someone was wrong or correcting them. "I think ur all wrong. i have completed this game and i would say that it is amazing" (Lewee, 2007, IGN). However, the results suggest that replying to posts is dependent on registration status; therefore, it is possible gamers may be taking their discussions of the game elsewhere. All of the sites sampled offer an extensive quantity of game or platform specific boards for registered users, where gamers might feel more inclined to discuss their feelings among a more specific group of peers. These places may also be the outlets for actual discussion on the game as they are limited to those who are registered and free of any unidentified comments, so posters know exactly with whom they are discussing.

Thirdly, as the posted comments in discussion were mostly negative, these replies may be the community's way of monitoring itself; gamers are likely to respond with negativity when they believe something has been unfairly represented. "Honestly after reading some of these retards postings, i wonder...DID YOU IDIOTS BUY THE GAME TO PLAY IT, OR TO CRITIQUE IT? Yes theres probably some bugs (which i have yet to encounter, becuae im too busy enjoying the game)" (Pugnap, 2007, IGN). This self-monitoring of the community might be tied to the individual's commitment to the community as demonstrated a near significance when comparing

registration status to disagreement with posts. Results also revealed that there was significant dependence between the amount and type of dialogue and the board community the comments were posted. These results suggest that there is a difference between the environments fostered by the different communities.

## Conclusion

This study provides insight into both how the gamers' comments reflect upon what they desire in the game play experience as well as how the comments reflect upon the community of fans and their communication.

Within the exploration of what gamers valued as an entire population, it was clear that the players to a greater degree did not value one aspect of game play significantly more than another. However, the characteristic of game flow was highly valued, and continued to be so within the individual break down between games. So while the study finds only slight significant difference between major heuristic categories in, the differences that are highlighted show that gamers value the game's ability to draw them in (flow), rather than the graphics the game presents. The lack of discussion on menus and controls may be contributed to the 'invisibility' of these aspects to the game player, when done with expertise; they should not be noticeable, resulting in few comments. This was reflected in the literature on heuristics, as game interface was even within literature was the least discussed topic, and Shelly (2001) noted that while not a major part of gamer satisfaction, done poorly it can prevent a gamer from enjoying the experience. The lack of distinct separation between the major heuristic categories suggested that in general no one section of the game play experience was more important than another. This finding was indicative that these heuristic categories are a good general measure of game quality and 'usefulness' as the gamers reflect on them all in equal weight just as the literature indicates the designers do.

For the examination of heuristics within each game, the study illuminates that gamers have a very clear idea of what parts of the gaming experience they value most with each game. While some games were closer to the total sample where several categories were equally valued, other games such as *Assassin's Creed* show significant separation between the different

heuristics. This difference in game value shows that gamers do value different games for different reasons. Understanding these reasons behind the different values of game play may help in the future to understand why gamers choose certain games over others based on game play style. These results may also provide insight in how games differ by genre.

The comparisons between games for heuristic categories provide a plethora of exploratory results into the possible comparisons of genre and heuristic categories. When compared side by side, games that may have fallen under the action genre (*Assassin's Creed*, *Call of Duty 4* and *Mass Effect*) often compared in the same manner against other games that did not involve a narrative aspect to drive the game forward (*Madden 08* and *Guitar Hero III*, and *Need for Speed*). This separation along the lines of the use of narrative corresponds to game design, whether the game was a series of obstacles or driven by a storyline. Both *Assassin's Creed* and *Mass Effect* provided exploratory results in cross genre, as the post valued both the major aspect of their own genre, as well as the major aspect of another genre.

The conclusion based on these results both within and between games was that while gamers have a firm idea of what was most valued within each game that they play, the most significant differences between these values was along the lines of game play style. This supports the use of interactivity as a model for genre, as the major split between games in the study was in how the gamers interacted with the challenges of the games. This is also in support of the ludological approach to understanding games, where it is the manner in which a player interacts with the game rather than the content of the game that is most important (Aarseth, 2004).

These results also support the theory that games often fall under more than one category of genre, which may be the reason for the grouping of games within this study. For example, *Mass Effect* could be classified as a RPG/Action and *Assassin's Creed* as an Action/RPG. The manner in which one genre's main qualities affect the other genres, and that gamers will comment on these shared traits equally demonstrates the expectation of multiple qualities for games. This

conclusion was supported by the prevalence of the heuristic of flow being universally the most commented on, even if it was not significantly more important than the next closest subcategory for any of the games. Understanding these differences preface future studies in genre, and the possibility of creating a more comprehensive gaming taxonomy.

The exploration of the activity of registered users showed that users commenting on these boards are more likely registered and they tend to make longer posts. This demonstrates a level of commitment to the boards, as well as to their personal online identity. This was contradictory to the ideas of Friedman and Resnick (2001) that some members may use identity misrepresentation in order to mislead others. Gamers take pride in their online identity, and some of these identities become famous, from online gaming, reviews, or other community contributions. Results show that registered users also comment more heavily on reputation, suggesting an investment to multiple games and knowledge as well. These characteristics of eWOM for gaming, specifically the knowledge and commitment of the members make it a potentially more reliable and less volatile than other markets due to the time invested by the members in building their online identities.

The results exploring valence show that there was a nearly even distribution between positive and negative comments for each heuristic categories. This was in alignment with Hu and Pavlou's (2006) theory of brag and moan, where those who comment are likely to either brag about a good product (positive valence) or moan about a bad one (negative valence). This equal spread as in alignment with other eWOM literature shows that the gaming community behaves much as other online communities in the evaluation of a product, when it comes to the details of the game. The anomaly amongst these measures was the valence of the fan comments, as they were overwhelming positive, rather than of an equal spread. This separation from the pattern suggests that despite the fans' complaints about

aspects of the game, they still enjoyed the game. This understanding of valence within gaming eWOM shows that even as fans of this media the posters act in a similar manner to other contributors to eWOM. Therefore, it is reasonable to conclude that gamers may react in the same way other eWOM communities do to various instances involving customer response.

The exploration of the dialogue on these boards showed that among these posters, there was very little conversation, either about the review itself or between posters. This lack of discussion may be due to the high availability of other discussion boards within the same site, drawing posters to take actual discussion away from the posts directly under the game review. This suggests that while gamers may be invested in large communities, their individual preferences may be fragmented into other groups where discussion takes place. This observation was important to understanding how gamer communities interact, and may influence the way that the industry, both game journalism and game developers, interact with their fans. Comments made in response to other comments were likely to be negative responses, and this negativity was directly related to registration. These replies may be the community's way of monitoring itself; gamers are likely to respond with negativity when they believe something has been unfairly represented. This self-monitoring of the community might be tied to the individual's commitment to the community as demonstrated by the high number of registered users commenting on these boards. Baym (1999) whose exploration of fan communities shows how members can be very protective of the texts that they are fans of supports these results. A comparison between boards also shows that different boards foster different atmosphere and perhaps different depths of community and community involvement. Understanding these differences can provide further understanding into the structure of these communities that has yet to be explored in depth.

This study provides an exploratory basis for game comparisons based on heuristics and understanding how the audience of fans both interprets these heuristics and communicates them to each other. The act of communicating these values forms the basis of community for these fans, and the separation between heuristics for each game reveals the type of language that these fans may use. All fans communicate about their games in the language revolving around flow and immersive qualities, though the fans of *Assassin's Creed* are more versed in the language of characters and the fans of *Madden* are more versed in the language of reputation. By understanding the type of language that the fans are most likely to use in discussing a game, we gain an understanding of community values and how best to communicate with that community. By understanding how gamers communicate about the games they play we reveal what was most important to them, which in relationship to these results was the content of the game, rather than consideration for the review or other gamers' opinions, and the aspects of game content that are most important to gamers varies significantly between games.

### **Limitations**

The largest limitation of this study was the inclusion of only one game per genre. This was problematic to the sample for several reasons. First, was each game comes with its own set of expectations, aside from that of the genre, often by reputation of the developer and publishers. For example, Ubisoft developed and published *Assassin's Creed*, the action. Ubisoft, as a developer, was familiar because of the *MYST* series, the highlight of which was the complicated puzzles and plots. Therefore, even though *Assassin's Creed* was an action game, it had Ubisoft's signature twisted plotline as a driving element. Secondly, having only one game per genre limited the ability to sample the scope of the genre. Action games run a wide gambit of games and *Super Mario Smash Brothers* was a vastly different though still widely popular action title. This was true for all of the games represented, and perhaps a larger sample of games may have provided a

larger separation between heuristic categories. These limitations result in the inability to generalize any findings to genre from the comparisons of the games.

### **Further Study**

Further study in this area may seek to compare a smaller number of genres with a larger range of games. Specifically a comprehensive comparison of shooters, RPGs and action games may provide more insight into what, if anything separates these games from one another. Another course of study may be to draw comments about the games from fan specific sites, which would provide a clearer view of what a genre specific fan desires in their genre of choice rather than sampling the ideas of a general gaming population.



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## Appendix A

### Code book

- (1) Coder #
  - [1] Laura Drews
  - [2] Sara Drews
- (2) Comment #
  - See assigned specific number attached to the comment to be coded (in column A of the sheet)
- (3) Game (Game title to be found at the top of comment sheets)
  - [1] *Assassin's Creed*: Action: M
  - [2] *Guitar Hero III: Legends of Rock*: Family Entertainment : T
  - [3] *Madden Football 08*: Sports: E
  - [4] *Call of Duty 4: Modern Warfare*: Shooter : M
  - [5] *Mass Effect*: Role-playing: M
  - [6] *Need for Speed: ProStreet*: Racing: E10
  - [7] *Command and Conquer 3: Tiberium Wars*: Strategy :T
- (4) Rating
  - [1] E
  - [2] E10
  - [3] T
  - [4] M
- (5) Platform (Listed by game title, check either PC, Console or Both)
  - [1]PC

- [2] Console
- [3] Both
- **(6)** Board (also listed by game title)
  - [1] IGN
  - [2] TotalVideoGames
  - [3] 1Up
- **(7)** Date of Comment dd/mm/yyyy (found either at the top of the post or under user name)
- **(8)** Length of Comment (# of words) \_\_\_\_\_ (word count of entire length, even copied sections from other comments, in excel sheet)
- **(9)** Made by registered user (Y/N) (0=N/1=Y)
  - If the comment is posted by a member with a specific screen name then yes
  - If the comment is posted by anonymous or unregistered user, then no
- **(10)** Refers or replies to another post (Y/N) (0=N/1=Y)
- **(11)** (Agree/Disagree) (0=Disagree/1=Agree)
  - If the comment refers in the body of the text to another posters name or comment or directly quotes from another post ( appears in large quotations or boxes) then yes if not then no
  - If commenter expresses positive comments toward the other poster then agree, if negative disagree
    - Example: “I think that JKiller really has it right when he says that “.....”” = Agree
    - Example : “DChimera Doesn't know what they are talking about” = Disagree
- **(12)** Refers to rating or review made by board (Y/N) (0=N/1=Y)
- **(13)** (Agree/Disagree) (0=Disagree/1=Agree)

- These comments refer to the official reviewer's comments or the rating made by the site.
  - “IGN only rated this a 7???”
  - “The review said that it was a repetitive game.”
- (14) Fan Comment (Y/N) (0=N/1=Y) if N choose 999 for Valence
- (15) Valence interval scale 5 (positive) -----1(negative)
  - Comments referring to the overall quality of the game with no specific details. I.e. : “this was a really good game” or “This game was horrible” If present Y if not N
  - If present: Valence scaled on five point scale with 3 as neutral- Examples:
    - “This was a totally awesome game” = 5 (Use of the superlative or use of double adjective)
    - “This was a good game” or “This was a great game” = 4 (Use of positive expression, single adjective)
    - “This game was ok” or “This game wasn't that great” = 3 (neutral stance on game)
    - “This game was bad” or “this game sucks” = 2 (negative expression, single adjective)
    - “This game was absolutely horrible” = 1 (use of double adjective or superlatives)
- (16) Game interface (Y/N) (0=N/1=Y)
- (17) Valence interval scale 5 (positive) -----1(negative)
  - These comments are about how the player interfaces with the game through the controls and menus. If present yes, if not, no and enter 999 in controls and menus.
  - Valence: Following the same guidelines as in Fan Comments overall valence is to be an approximate average of the valence base on all comments within this section.
    - i.e.: “I had a hard time getting my character to swing the sword when I clicked”

- “The inventory was well organized”
- (18) Controls (# of) (counted by clauses see example at end of book)
  - These comments are about how the character or objects are controlled within the game. They include comments on use of buttons or keys in controlling a character or weapon or about the point of view that the characters can assume.
    - “Using the Tab key for all of your different weapon changes was a good idea”
    - “ Using the green key for forward and the red for back made sense”
    - “The third person POV was really hard to use”
- (19) Menus (# of) (counted by clauses see example at end of book)
  - These comments are about the different menus within the game, and may include comments on screens such as a loading menu, saved games, inventory, maps, and health.
    - “The map was really hard to open and close:
    - “Just numbering the saved games made it hard to find the one I wanted”
    - “Being able to click my health bar to go into my aid inventory was a good idea”
- (20) Game mechanics (Y/N) (0=N/1=Y)
- (21) Valence interval scale 5 (positive) -----1(negative)
  - These comments are about how the game works, and include comments about the graphics of the game, how the player interacts with the game, the AI or artificial intelligence of the non-player characters (NPCs) and any technical issues or 'bugs' that the game might have. If none occurs, check no and enter 999's for subcategories.
    - “The game keeps shuddering, and load times are slow”
    - The AI of the NPCs is good, but the ideal motions of the grass swaying is really annoying”
    - “It sucks that I can't actually sit in the chairs”

- Valence: Following the same guidelines as in Fan Comments, overall valence is to be an approximate average of the valence base on all comments within this section.
- (22) Graphics and sound (# of) ( counted by clauses see example at end of book)
  - These comments are made on the depiction of the world through the graphics and sounds, both ambient and sound track
    - “The cartoon graphics were really cheesy”
    - “Being able to hear the foots steps get louder and softer with the enemy was great”
    - “The distance rendering was really impressive”
- (23) World interaction (# of) ( counted by clauses see example at end of book)
  - These comments are about the player’s ability and realism of interacting with the game world. They will include comments on the ability to interact with objects, move them, and physics engines.
    - “The new physics engine makes gravity work really well”
    - “When you shoot something the blood spatter is very realistic”
    - “I wish that you could run tanks over fences rather than go around them”
- (24) AI (# of) (counted by clauses see example at end of book)
  - These comments are about the other characters or the computer’s ability to interact with the player.
    - “The characters actually went about daily chores and slept at night”
    - “The other teams were true to the abilities of the players on them, The Texans sucked and Pittsburgh rocked”
- (25) Technical issues (# of) (counted by clauses see example at end of book)
  - These comments are about technical details in the games and include load times, game speed, ability to perform, configuration and any glitches or bugs.

- “The load times were really fast”
  - “Every time I tried to change my armor the game froze”
  - “The game stutters on higher settings.”
  - “The game was really buggy”
- (26) Game Play (Y/N) (0=N/1=Y)
- (27) Valence interval scale 5 (positive) -----1(negative)
  - These comments are about the game's ability to draw a player in and include comments on the other characters in the game, the plot, the flow or immersiveness of a game and the balance or fairness of the game. If none occurs, check no and enter 999's for subcategories.
  - Valence: Following the same guidelines as in Fan Comments, overall valence is to be an approximate average of the valence base on all comments within this section.
- (28) Characters (# of) (counted by clauses see example at end of book)
  - These comments are about the characters in the game, both the player characters (PCs) and Non-player characters (NPCs) about customization, characteristics and interactions
    - “I liked all the options on designing your car and driver”
    - “The dialogue options were to limited for party members”
    - “The members of the town were very believable”
- (29) Plot (# of) (counted by clauses see example at end of book)
  - These comments refer to the storyline of the game, and include comments on how much sense it makes, believability and goals.
    - “The story helped me get a handle on the game”
    - “The plot got really stupid after a while”
- (30) Flow (# of) (counted by clauses see example at end of book)

- These comments refer to the immersiveness of the game. These comments will include repetitiveness, ability to follow the game hours of game play and game replay value.
  - “I couldn't tell when I was on the right track”
  - “There is a good 50 hours of game play even after the story
  - “This game was super repetitive”
- (31) Balance (# of) (counted by clauses see example at end of book)
  - These comments refer to how easy or hard the game was and how fair the missions, and rewards were. They will include comments on levels, advancements, rewards and tasks.
    - “The last levels were almost impossible
    - “Some of the Characters are just too powerful”
    - “I should have gotten a lot more for completing that side quest”
- (32) Reputation (Y/N) (0=N/1=Y)
- (33) Valence interval scale 5 (positive) -----1(negative)
  - These comments are about the way a game compares to other games. These comments will include mentions of other games in the genre, games by the same publisher and previous games within the series. If none occurs, check no and enter 999's for subcategories.
  - Valence: Following the same guidelines as in Fan Comments, overall valence is to be an approximate average of the valence base on all comments within this section.
    - “*Call of Duty 3* was much better”
    - “Valve puts out great products”
    - “*Halo* was a lot better than this”
- (34) Publisher (# of)( counted by clauses see example at end of book)

- These comments refer directly to the maker of the game.
  - “The development team has done better than this”
  - “EA always needs patches”
- (35) Previous games in series (# of) ( counted by clauses see example at end of book)
  - These comments refer to other games within a series of games
    - “This is much better than the first *Guitar Hero*”
    - “ The other *Need for Speed* games were better”
- (36) Other games (# of) (counted by clauses see example at end of book)
  - These comments will refer to other games by comparison
    - “I liked *Halo* a lot better”
    - “I should have bought *Civilization* instead”

#### NOTES:

- Within posts games may be referred to by shortened names, either a part of the original title or an abbreviation of the title, these are only some examples:
  - *Assassin’s Creed* = AC, or AsCreed
  - *Guitar Hero III: Legends of Rock* = GHIII, G Hero: LoR
  - *Madden Football 08* = Madden08
  - *Call of Duty 4: Modern Warfare* = CoD4
  - *Mass Effect* = ME
  - *Need for Speed: ProStreet* = N4S, NfS : ProStreet
  - *Command and Conquer 3: Tiberium War* = CaC3, Tiberium
  - *Gears of War* = GoW
  - *Neverwinter Nights* = NWN



## Appendix B

### Extended Variable Definitions

- Fan comments = Anything that states only an opinion about the game
- Game interface = the way that a player interacts with the game
  - Controls = the way that the player manipulates the character and world
    - use of keys or buttons
    - number of clicks
    - Camera angle
    - point of view
    - ability to switch weapons or items
    - Ability to aim or find what you have to click on
  - Menus = use of the various menus, (screens that provide choices with a game other than dialog)
    - Save and load games
    - Inventory
    - Map
    - health
    - spells
    - Team/party lists
- Mechanics = how well the game runs on a technical level
  - Graphics and sound = the look and depiction of the graphics and the use of sound
    - Sound track
    - ambient sounds = sounds of the environment (Footsteps, birds, wind)
    - look of the graphics
    - graphics rendering (the ability to see things from a distance)
    - movement of inanimate objects on their own (i.e. swaying grass, billowing flags)
    - Mouth flaps
    - realistic or cartoon style
  - World interactions = interacting with inanimate objects
    - gravity
    - physics engines
    - blood spatter
    - ability to move things that should be movable and vice versa
    - lighting
  - AI = The computer's control over animate people or things
    - Environmental changes from day to night (moving shadows, shops closing, new wildlife)
    - Animals
    - NPCs interacting with each other or doing their own thing
    - party member or team member ability to act on their own
    - path finding

- 'radiant AI'
  - Technical issues = anything that involves game performance or nonperformance, and specs
    - Graphics or soundcard specs
    - Bugs
    - stuttering
    - freezing
    - Ability to run on high or low resolution
    - load time
    - configuration
    - frame rate / pop-up's
- Game Play = how the player experiences the game
  - Characters = personal interactions with characters or use of own character
    - acting
    - voice over
    - dialog
    - customization of personal character aspects (looks, class, etcetera)
  - Plot = game storyline
    - story
    - point of the game
    - knowing start and finish
    - Knowing what you have to do
    - originality
  - Flow = game immersiveness
    - game is put together (i.e. game is sloppy)
    - game play hours (size of game)
    - repetitiveness
    - realistic feel
    - addictive
    - immersive
    - cut scenes
    - game formula (game play type, i.e.: mentions of playing within a genre)
  - Balance = fairness of game play
    - enemies too easy/hard
    - levels to easy/hard
    - not enough rewards
    - leveling up
    - stats
    - classes
    - character growth
- Reputation = in comparison to other games
  - Publisher = maker of game
    - Valve
    - EA
    - Take two
    - Bethesda
    - Ubisoft

- Activision
- Nintendo
- infinity wars
- 2K games
- BioWare
- Harmonix
- Series = reference to other games in the series
  - *Guitar Hero I and II*
  - Other Madden games
  - *Call of Duty 1-3*
  - *Other Need for Speed*
  - *Command and Conquer 1 and 2*
- Other games = comparison to any other video games
  - *Neverwinter Nights NWN*
  - *Halo*
  - *Grand TheftAuto GTA*
  - *2K football*
  - *BioShock*
  - *Civilization*
  - *Oblivion, Morrowind TES*

Other games might be referred to by abbreviation

## Appendix C

### Game Summaries

#### *Assassin's Creed*

*Assassin's Creed* is a single player Action-Adventure game, which was developed and published by Ubisoft, and released in November 2007 for the console, and April 2008 for the PC. The story line has multiple interwoven levels, one that takes place in the present, set in the year 2012 and the other in the past, the year 1191 in the Holy Land. In the present, Desmond Miles, the main character, is kidnapped by the company Abstergo and used in an experiment that extracts memories of a person's ancestor through their DNA. The ancestor that Abstergo is interested in is Altaïr Ibn La-Ahad, a member of the Assassin's Brotherhood during the Second Crusade. The majority of the game play focuses on reliving these memories through the experiment. In a conflict between the Assassins and the Knights Templar, Altaïr broke the three tenets of the Assassin's Creed and is given a series of assassinations to carry out to regain his rank. Thus, the style of game play is one of stealth, requiring the player to carry out multiple assassinations using different tactics to avoid capture. With each assassination, Altaïr gathers vital information, eventually learning that his leader is actually a member of the Knights Templar. When he confronts his former leader, he discovers a plot to take over the world using the artifact, "Piece of Eden" that Altaïr recovered. The leader wants to brainwash the population in order to end all war and bring about a true reign of peace under him. When Desmond emerges in present time, he finds out that Abstergo is a present day sect of the Knights Templar looking for the artifact. The end of the game shows Altaïr's memories "bleeding" into Desmond's, allowing him to use "Eagle Vision" to read strange messages on the walls, some relating to the end of the

world, several of which refer to December 21, 2012. On this date, Abstergo plans to launch a satellite to end all war, reminiscent of events past. The game is a sandbox game with extensive opportunity for the player to interact with the world outside of the main quest, from side quests like gathering flags or, rescuing people, or just exploring the city.

To complete each assassination Altaïr is required to meet with an agent and perform intelligence gathering, which may include eavesdropping, interrogation, pick pocketing or completing tasks for informers. Once fully informed about the target, the player chooses the best way to complete the assassination while avoiding capture. An alertness meter provides information to the player about how obvious Altaïr is to enemy guards, as well as the current state of alert in the local area. The player must consider how much attention they will draw when carrying out the assassinations and other tasks. Altaïr can mingle in a crowd, talk with residents, and perform other tasks to blend in with his surroundings using low profile commands. High profile commands that draw attention, like running, climbing buildings and attacking adversaries may raise the local area's awareness level. If an area progresses to high alert, the crowds quickly disperse, while guards attempt to capture Altaïr. To reduce the alert level, the player must guide Altaïr to a place of concealment, while eluding the guards.

The player's health bar represents the amount of DNA synchronization between Desmond and Altaïr's memories. Synchronization may be lost in two ways, injury or death of Altaïr or for breaking the Assassin's strictest rule: Do not harm innocents. When total synchronization is lost, Desmond is ousted from Altaïr's memory and the game restarted at the last stable memory. When the synchronization bar is full, "eagle vision" is available to the player. The camera perspective changes to Altaïr's point of view and the people appear in colors representing ally, enemy, person with information or the assassination target. At times, the Animus project computer may experience a glitch, modifying the depiction of the world and providing the player a better perspective during cut-scenes.

Altair's actions are controlled with keyboard and mouse or a joystick/gamepad.

With the game controller, actions concerning the legs involves the A button, the left arm is the X button, the right arm the B button and the Y button controls the head. Adding the right trigger moves Altair from low profile activities like walking to high profile activities like running. On the keyboard, the game uses industry standard key mapping, using WASD for movement, mouse movement for direction changes, left mouse for weapons, right mouse for high profile actions, space for legs and shift for hands.

### ***Guitar Hero III: Legends of Rock***

*Guitar Hero III: Legends of Rock* is the third game in the *Guitar Hero* series published by Activision and released in October 2007. The goal of the game, like the previous games in the series, is to create a character and play all the songs at all the different venues. Each location has songs that get progressively harder to play. To earn points and maintain their performance the player uses the guitar controller to play the notes as they scroll towards the bottom of the screen. The controller has fret buttons that match the color of the scrolling notes and a strum bar. The fret button is held down for the length of the note and chords can be played by holding two to four notes simultaneously. The game simulates hammer-ons and pull-offs for sections with a rapid series of notes.

As the player tries to complete the song, missing a note results in the performance meter dropping. The player will fail the song if the performance meter drops too low. With the completion of ten consecutive correct notes, a multiplier is earned that will increase the player's score. Star Power is earned by playing sections marked by starred notes. Activating Star Power by tilting the guitar vertically doubles the scoring multiplier and correct notes increase the performance meter faster, while there is less penalty for incorrect notes.

The single-player Career mode in *Guitar Hero III: Legends of Rock* features eight tiers with a total of 42 songs. The player finishes a tier by successfully completing a set of songs; the number of songs in the set is determined by the selected difficulty level. When the set is successfully completed, the band can play an encore performance of an extra song to complete the tier. The player earns money for each completed song that can be used at the game's store to unlock new characters, outfits, guitars and finishes, bonus songs, and videos. In this edition of *Guitar Hero* Career mode has a new feature, boss battles based on the game's multiplayer Battle

mode. Three times during Career mode, the player must compete against a boss character to progress.

Also new to *Guitar Hero III*, is a storyline for the Career mode, which takes place in the cut scenes between venues. The story starts with the garage band having a lot local success. A shady music producer named Lou offers them a contract, promising them fame and performances around the world. The band discovers that Lou is actually the devil and the contract is actually for their souls. In order to break the contract they must battle Lou in the underworld at "Lou's Inferno". Winning the battle, the band returns to the mortal world as "Rock Legends".

*Guitar Hero III: Legends of Rock* offers multi-player modes. Co-op mode allows two players, one on lead guitar and the other on bass guitar to play together. The Co-op mode has six tiers of songs and is played similar to single player Career mode. There is also has a battle mode where players duel one another on the same song.



### *Need for Speed: ProStreet*

*Need for Speed: ProStreet*, released November 14, 2007, is the 11<sup>th</sup> installment in the EA *Need for Speed* racing game series. In *ProStreet* there are four different game modes: Drag (a race in a drag strip, point to point), Grip (similar to Circuit races but with four different types of Grip races available), Speed (similar to a Sprint race) and Drift.

*ProStreet* features customization of cars to improve performance. The changes affect the aerodynamics of the cars, and players can test them in an enclosed chamber called the "Wind Tunnel". There are 55 playable cars in *ProStreet*, with cars designed specifically for each type of race. A new feature of *ProStreet* is damage modeling; objects inflict cosmetic or heavy damage, which reduces performance of a car. Players use money won in the races to purchase, customize, tune and repair their cars to improve their racing performance.

The controls for *ProStreet* are based on the game pad, where different buttons and button combinations allow for different actions. The arrow pad or joystick steers, while the A button accelerates and the B button breaks. The L and R buttons shift gears, and the start button allows the player to pause the game.

The game begins with Ryan Cooper, a former street racer, winning a challenge day with a Nissan 240SX. Ryan continues to dominate the "Race Days", eventually receiving invitations to the organizations of the Kings of Drag, Drift, Grip and Speed Challenge. Victorious in each event, Ryan acquires each King's Crown. Ryan ultimately faces Ryo Watanabe, the Showdown

King, who drives a Mitsubishi Evolution X. Ryan defeats Ryo, earning the final crown, and the title of Street King, best racer in the world.

### ***Call of Duty 4: Modern Warfare***

*Call of Duty 4* is the fourth installment in the *Call of Duty* First Person Shooter series, developed by Infinity Ward and released November 6, 2007. Special Air Service (SAS) members along with Sergeant "Soap" MacTavish, Captain Price, and "Gaz" find a nuclear device onboard a cargo ship while on a mission in the Bering Sea. When the ship is assaulted, the team escapes with the cargo manifest providing proof of unification of the Russian Ultranationalist Party and a rebel sect in the Middle East. A platoon from the USMC 1st Force Recon, led by Lieutenant Vasquez and Sergeant Paul Jackson, invade a Middle Eastern country in search of Al-Asad, but only locate a television station broadcasting Al-Asad's propaganda.

The SAS discover that Al-Asad fled the country before the Marine Corp invasion. Nikolai, an informant, aids the SAS in locating Al-Asad. The interrogation provides information that Zakhaev provided the nuclear bomb. The SAS under the command of Captain Price, in a joint operation with the Russian military led by Sgt. Kamarov, pursue Zakhaev. In the engagement of Zakhaev, Gaz and several members of the strike force are killed. During the mêlée, Zakhaev approaches Soap and Price, but his attention is diverted by the arrival of a Russian military helicopter. Price takes advantage of the distraction, passing his pistol to Soap, who kills Zakhaev. At the conclusion of the battle it is unknown what happens to Price; however Soap survives and becomes a captain in

the SAS.

New weapons and technology are introduced in *Modern Warfare*. As campaigns and challenges are completed the player gains access to these weapons. The player can carry up to two weapons in addition to grenades. Additional technology, including a grenade launcher attachment, claymores, C-4, night-vision goggles, and the ability to call in airstrikes is available to players.

AI-controlled teammates fight alongside the player, providing cover fire, shooting down enemies, and clearing rooms for entry. The use of cover provides the player time to recover health or avoid enemy fire. During game play, the player can take on the role of various characters, resulting in a change of perspective.

A multi-player mode is available in team-based and death matches. The player must use strategies to complete the specific objective. Players have the ability to use a variety of weapons including Unmanned Aerial Vehicle (UAV) reconnaissance scans, air strikes, and attack helicopters. There are two ways for a match to end, the first team to reach a predefined number of points, or the team with the most points at the end of the allotted time wins. Sudden Death mode is activated in the event of a tie; the team that survives (there is no re-spawning) or achieves the objective first are the winners. Controls follow industry standards for keyboard and mouse, WASD to move, space to jump, R to reload, CTRL to duck, left mouse to shoot, right mouse to aim.

### *Mass Effect*

*Mass Effect* is a Sci-Fi Role-playing game developed by BioWare and released November 20, 2007. *Mass Effect* is set in the year 2183 A.D. The various species use technology left behind by the extinct race of Protheans called Mass Relays to travel across the galaxy. Captain Anderson and his executive officer, Commander Shepard are aboard the *SSV Normandy* traveling to the human colony of Eden Prime to recover an unearthed Prothean beacon. When Shepard locates the beacon and he receives a vision, images of biological creatures being slaughtered by machines. The Citadel Council makes Shepard the first human member of **Special Tactics and Reconnaissance** branch (Spectre) and assign him the mission to hunt down Saren, a rogue member of Spectre. Shepard is joined in Spectre by Kaiden, Ashley, Garrus, Wrex, and Tali.

Shepard is given command of *Normandy*, and uses the ship to gather intell and complete missions on several planets. He learns a Salarian spy unit has uncovered one of Saren's bases on the planet Virimire. Shepard is confronted by *Sovereign*, which the Protheans and Geth consider a Reaper. *Sovereign* explains that the Reapers permit organic life to develop, allowing species to discover the mass relays and expand along those pre-existing routes before exterminating them when they reach a certain level of advancement. On the surface of Ilos, Shepard follows Saren into an ancient bunker deep within the planet, and encounters a Prothean computer system named Vigil, which explains the Reapers' methodology. Shepard pursues Saren through the Conduit and

confronts him. If Shepard's charm/intimidate skills are high enough, he can convince Saren that he has fallen under *Sovereign's* indoctrination, prompting Saren to kill himself. If Shepard's charm/intimidate skills are low, they are forced to battle and Shepard must kill Saren. At this point, Shepard has a choice between ordering the Alliance fleet to save the Council or go directly after *Sovereign*. The precise ending of the game depends on several factors, including whether or not Shepard opts to save the Council during the final battle, and whether Shepard has a higher "Paragon" or "Renegade" meter.

Although most of the game's screen shots and concept art show the same "default" male Commander Shepard, the player can fully customize Shepard's appearance, gender, abilities, and even military background. The player can choose from one of six classes: Soldier, Engineer, Adept, Infiltrator, Sentinel, and Vanguard, each of which comes with a special set of skills. For conversation, a radial command menu, divided into six equal sections like a pie chart, is shown at the bottom of the screen when a conversation is initiated. Each section is assigned a brief description of the response's intent, usually a short phrase such as "What's going on?" The dialog choice sets a particular tone or intent such as nice or aggressive. Choices made in dialogue are vital to the game's morality system. Side stories and character interaction are affected by the player's chosen morality. *Mass Effect* morality is based on giving points as a "Paragon" for choosing more polite and professional military actions, or as a "Renegade" for taking a more ruthless and take-no-prisoners approach. "Paragon" and "Renegade" points are scored on two separate scales, therefore, taking a "Paragon" option does not negate a past "Renegade" option.

Players control their character's actions and direct their squad mates' attacks, but

do not have direct control of the squadron. During combat, the player can pause the game to give commands to teammates, switch weapons or cue up actions. The player and his allies use firearms (modifiable with various upgrades throughout the game), tech abilities (to interfere with enemy equipment and abilities), and biotics (similar to magical attacks). The OmniTool, which three of the main classes can use: Engineers, Infiltrators, and Sentinels, activates tech abilities and biotics. The character's initial skill sets have abilities and special powers that can be enhanced by experience. Some special abilities include a biotic lift used to pick up objects and enemies, and a tech ability that reduces the shields of enemies. Two other abilities, charm and intimidate, are dependent on points, storyline progression, and the amount of paragon or renegade points the player attains; raising the levels of these will not unlock any attacks, but instead open new dialogue options within the game. Controls for the keyboard follow standard mapping, WASD moves the character, E interacts with objects, Q draws the weapon, Left click fires, right click zooms, F heals, and CTRL allows the player to take cover.

### *Madden 08*

*Madden 08* is the 19<sup>th</sup> installment in the *Madden Football* series developed by EA games and released on December 11, 2007. This game does not employ a storyline to move the game along; rather the game is played as a series of football games or as complete season controlled by the player. Old animation was a limited range of movements for each command while new animation responds more realistically to player input. Mid-air collisions, major, one-handed catches, hurdles, sideline catches and gang tackling are available in the new animation. Season Mode and tournaments held online have also been brought back for *Madden 08*. A new feature called Hit Stick 2.0 allows players to use the joystick to hit high or low. Each position comes with a specialized set of controls on both the game pad and the keyboard that have remained very similar throughout the series. A new fatigue system keeps quarterbacks from scrambling behind the line of scrimmage with every play and affects teams when they play in different weather. In *Madden 08* "co-op" mode has returned to the game. Players can team up with a friend and take on the computer or two human opponents.

There are two game play modes, players can compete with official NFL teams or created teams in one or two games. The second mode allows the player to become the manager of the team for an entire season, managing the roster and calling the plays. During a game, the player can control any character on the field. The game allows the player to control and customize NFL players following the real player's abilities or create



their own players. For the first time, specific NFL players can receive an attribute of 100 for the skill they are known for; examples include: Peyton Manning (awareness), Reggie Bush (acceleration), Lorenzo Neal (impact blocking), and LaDainian Tomlinson (joke move and elusiveness)

Star players have "weapons" which can enhance their performances and create game-changing plays. These weapons are a representation of star player's skills and include Cannon Arm QB allowing deep passes, Elusive Backs that can spin or juke their way out of a tackle, Possession Receiver are the best at catching the ball in traffic, Stiff Arm Ball Carrier have strong stiff arms capable of shedding defenders. In addition, a player's position can be modified. For example, switching wide receiver Troy Brown of New England to corner back can increase his overall skill.

**Appendix D**  
**ANOVA Summary Charts**

*Table 1*

<u>Summary of One Way ANOVAs For Major Heuristic Categories</u>						
	<i>Assassin's Creed</i> <b>(AC)</b>	<i>Guitar Hero III</i> <b>(GH)</b>	<i>Madden 08</i> <b>(M08)</b>	<i>Call of Duty 4</i> <b>(CoD)</b>	<i>Mass Effect</i> <b>(ME)</b>	<i>Need for Speed</i> <b>(NFS)</b>
<b>Interface</b>			-CoD ( $p < .001$ )	+ M08 ( $p < .001$ ) +NFS ( $p < .001$ )		-CoD ( $p < .001$ )
<b>Mechanics</b>	+GH ( $p < .001$ )	-All ( $p < .001$ )	+GH ( $p < .001$ )	-AC ( $p = .019$ ) +GH ( $p < .001$ )	+GH ( $p < .001$ )	+GH ( $p < .001$ )
<b>Game play</b>	+M08 ( $p < .001$ ) +CoD ( $p < .001$ ) +ME ( $p < .001$ ) +NFS ( $p < .001$ )	+NFS ( $p < .001$ )	-AC ( $p < .001$ )	-AC ( $p < .001$ ) +NFS ( $p < .001$ )	-AC ( $p < .001$ ) +NFS ( $p < .001$ )	-AC ( $p < .001$ ) -GH ( $p < .001$ ) -CoD ( $p < .001$ ) -ME ( $p < .001$ )
<b>Reputation</b>	-GH ( $p = .012$ ) -M08 ( $p < .001$ ) -CoD ( $p = .01$ ) -ME ( $p = .031$ ) -NFS ( $p < .001$ )	+AC ( $p = .012$ )	+AC ( $p < .001$ )	+AC ( $p = .01$ )	+AC ( $p = .031$ )	+AC ( $p < .001$ )

Where (+) means significantly greater number of comments and (-) means significantly less

comments followed by the games that the significance refers to

Table 2

**Summary of One Way ANOVAs For Interface Subcategories**

	<i>Assassin's Creed</i> ( <b>AC</b> )	<i>Guitar Hero III</i> ( <b>GH</b> )	<i>Madden 08</i> ( <b>M08</b> )	<i>Call of Duty 4</i> ( <b>CoD</b> )	<i>Mass Effect</i> ( <b>ME</b> )	<i>Need for Speed</i> ( <b>NFS</b> )
<b>Controls</b>	+ M08 ( $p < .001$ ) + NFS ( $p = .016$ )		- AC ( $p < .001$ ) - ME ( $p < .001$ )		+ M08 ( $p < .001$ ) + NFS ( $p = .005$ )	- AC ( $p = .016$ ) - ME ( $p = .005$ )
<b>Menus</b>		+ NFS ( $p < .03$ )				- GH ( $p < .03$ )

Where (+) means significantly greater number of comments and (-) means significantly less comments followed by the games that the significance refers to

Table 3

<b>Summary of One Way ANOVAs For Mechanics Subcategories</b>						
	<i>Assassin's Creed</i> <b>(AC)</b>	<i>Guitar Hero III</i> <b>(GH)</b>	<i>Madden 08</i> <b>(M08)</b>	<i>Call of Duty 4</i> <b>(CoD)</b>	<i>Mass Effect</i> <b>(ME)</b>	<i>Need for Speed</i> <b>(NFS)</b>
<b>Graphics and Sound</b>	+ M08 ( $p=.003$ ) +NFS ( $p=.004$ )		-AC ( $p=.003$ )			-AC ( $p=.004$ )
<b>World Interaction</b>	+ GH ( $p=.018$ ) +M08 ( $p<.001$ )	-AC( $p=.018$ ) -ME ( $p=.011$ )	- AC ( $p<.001$ ) -ME ( $p<.001$ ) -NFS ( $p=.019$ )		+ GH ( $p=.011$ ) + M08 ( $p<.001$ )	+M08 ( $p=.019$ )
<b>AI</b>	+ GH ( $p=.017$ ) +NFS ( $p<.001$ )	-AC ( $p=.017$ )		+ NFS ( $p=.002$ )		-AC ( $p<.001$ ) -CoD ( $p=.002$ )
<b>Technical Issues</b>	- GH ( $p=.041$ ) -ME ( $p=.001$ )	+AC ( $p=.041$ ) +CoD ( $p=.045$ ) +NFS ( $p=.018$ )		-GH( $p=.045$ ) -ME ( $p=.002$ )	+AC ( $p=.001$ ) +CoD ( $p=.002$ ) +NFS ( $p<.001$ )	-GH ( $p=.018$ ) -ME ( $p<.001$ )

Where (+) means significantly greater number of comments and (-) means significantly less comments followed by the games that the significance refers to.

Table 4

**Summary of Significance from One Way ANOVAs For Gameplay Subcategories**

	<i>Assassin's Creed</i> <b>(AC)</b>	<i>Guitar Hero III</i> <b>(GH)</b>	<i>Madden 08</i> <b>(M08)</b>	<i>Call of Duty 4</i> <b>(CoD)</b>	<i>Mass Effect</i> <b>(ME)</b>	<i>Need for Speed</i> <b>(NFS)</b>
<b>Characters</b>	-ME ( $p < .001$ )	-ME ( $p < .001$ )	-ME ( $p < .001$ )	-ME ( $p < .001$ )	+ ALL ( $p < .001$ )	-ME ( $p < .001$ )
<b>Plot</b>	+ GH ( $p < .001$ ) +M08 ( $p < .001$ ) +NFS ( $p < .001$ )	-AC ( $p < .001$ ) -ME ( $p < .001$ )	-AC ( $p < .001$ ) -CoD ( $p = .002$ ) -ME ( $p < .001$ )	+M08 ( $p = .002$ )	+ GH ( $p < .001$ ) +M08 ( $p < .001$ ) +NFS ( $p < .001$ )	-AC ( $p < .001$ ) -ME ( $p < .001$ )
<b>Flow</b>	+M08 ( $p = .001$ ) +NFS ( $p < .001$ )	+M08 ( $p < .001$ ) +NFS ( $p < .001$ )	-AC ( $p = .001$ ) -GH ( $p < .001$ )		+ NFS ( $p = .024$ )	-AC ( $p < .001$ ) -GH ( $p < .001$ ) -ME ( $p = .024$ )
<b>Balance</b>		+NFS ( $p = .003$ )		+ NFS ( $p = .001$ )		-GH ( $p = .003$ ) -CoD ( $p = .001$ )

Where (+) means significantly greater number of comments and (-) means significantly less comments

followed by the games that the significance refers to

Table 5

<b>Summary of Significance from One Way ANOVAs For Reputation Subcategories</b>						
	<i>Assassin's Creed</i> ( <b>AC</b> )	<i>Guitar Hero III</i> ( <b>GH</b> )	<i>Madden 08</i> ( <b>M08</b> )	<i>Call of Duty 4</i> ( <b>CoD</b> )	<i>Mass Effect</i> ( <b>ME</b> )	<i>Need for Speed</i> ( <b>NFS</b> )
<b>Publisher</b>			+ CoD ( $p=.011$ )	-M08 ( $p=.011$ ) -ME ( $p=.007$ )	+CoD ( $p=.007$ )	
<b>Games in Series</b>	-GH ( $p<.001$ ) -M08 ( $p<.001$ ) -NFS ( $p<.001$ )	+AC ( $p<.001$ ) +CoD ( $p=.018$ ) +ME ( $p<.001$ )	+AC ( $p<.001$ ) +CoD ( $p=.005$ ) +ME ( $p<.001$ )	-GH ( $p=.018$ ) -M08 ( $p=.005$ ) -NFS ( $p<.001$ )	-GH ( $p<.001$ ) -M08 ( $p<.001$ ) -NFS ( $p<.001$ )	+AC ( $p<.001$ ) +CoD ( $p<.001$ ) +ME ( $p<.001$ )
<b>Other Games</b>		-CoD ( $p<.001$ ) -ME ( $p<.001$ )	-CoD ( $p<.001$ ) -ME ( $p<.001$ )	+GH ( $p<.001$ ) +M08 ( $p<.001$ ) +NFS ( $p<.001$ )	+GH ( $p<.001$ ) +M08 ( $p<.001$ ) +NFS ( $p<.001$ )	-CoD ( $p<.001$ ) -ME ( $p<.001$ )

Where (+) means significantly greater number of comments and (-) means significantly less comments followed by the games that the significance refers to