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A (very) brief history of cheating

In the history of mankind, for as long as there have been social structures, there have been cheaters – people who attempt to circumvent the rules and find illicit or even illegal shortcuts toward their goals. In today’s so-called modern society, as advanced as we would like to think we are, this fundamental aspect of human nature has not changed one iota. Oh, methods of cheating certainly have become more advanced, but the motivations behind those methods remain as base as ever. The November 1999 cover story for *U.S. News & World Report* was on academic cheating; it had the disturbing tagline: “‘Everyone’s doing it’, from grade school to graduate school”.¹ According to the article, anywhere from 75%-98% of all students admitted to having cheated at least once. It seems that the passage of time has not tempered the human instinct to cheat, merely refined it, as cheaters have become more and more inventive.

In addition to traditional academic cheating, however, another arena has recently risen for cheaters: online multiplayer gaming. The introduction of network play was probably the single most revolutionary event in gaming since the personal computer. Most new games now have some sort of online component, and some games are played entirely online. For the most part, this shift towards online gaming has been a great advance, bringing with it completely new paradigms of gameplay. However, it has also spawned a new breed of high-tech cheater, one who has the potential to cause the “world’s gaming community...to die a slow and painful death”.² Some might regard this statement with skepticism, thinking, “He must be exaggerating; it’s only a game.” If cheating were confined to single-player games, this disbelief would be warranted. In the world of online gaming, however, the threat cheaters pose is a very real and very serious one, with grave ramifications, should it be left unchecked.

Consider the following scenario: millions of gamers avidly participate in an online game involving a persistent world in which the players’ characters are slowly built up over time. One day, a malicious cheater decides to hack into the servers containing the game information, and deletes a multitude of characters. The company restores an old backup, but by then it is too late; many players are outraged at their wasted effort, and stop playing the game. This scenario is not fiction; it occurred only within the last few months, to one of the most popular online games ever made. In the short run, only the company is hurt. Now imagine this sort of incident occurring on a more frequent basis. As more and more gamers become frustrated and disillusioned, they may decide to turn away from gaming completely, eventually leading to the realization of the grim prediction earlier. With gaming would die one of the most innovative facets of the computing industry. In short, cheating in online multiplayer games is not an issue to be taken lightly.

¹ Carolyn Kleiner and Mary Lord, “The Cheating Game,” *U.S. News & World Report* Nov. 1999

² Rupert Loman, “Opinion Article: ‘Online Cheats’”, <http://www.theoga.com/news.asp?nid=137>

This paper will explore one game company's experiences with and efforts to combat online cheating. In fact, this is the very company that fell victim to the hacker described previously – Blizzard Entertainment. I will chronicle the development of two of Blizzard's most popular games – *Diablo* and *Diablo II* – within the context of cheating. It will be followed by an analysis of the implications of the events Blizzard experienced for computer game design. Finally, I end by drawing some conclusions about how various factors – technology, business, and culture – affected Blizzard's game designs, and, by extension, game designs in general.

Humble beginnings

Brothers Erich and Max Schaefer loved to play games, especially fantasy role-playing (FRP) ones. FRP's take place, for the most part, in the players' imaginations. One player, the dungeon master, acts as narrator and adjudicator, tying the players' actions to the fantasy world. FRP's reached their height during the 70's and the 80's, the most popular one probably being Dungeons & Dragons (D&D).

Erich was two years older, but both he and Max had been playing these kinds of games together for as long as they could remember. A typical session consisted of their usual friends, Kenny Williams, Grant Wilson, Chris Root, Karl Greenfield, and several others. Gathered in Erich's darkened bedroom, listening to a Rush album booming in the background, the friends sat hunched over the rules, maps, and other implements of a D&D game. Players would tell the dungeon master what they wanted to do. The dungeon master would roll some dice to determine the consequences of their actions, and the players would groan or cheer.

This obsession with games was not limited to just D&D. In fact, the Schaefer brothers played dozens of other FRP games at the time, including *Traveler*, *Squad Leader*, and *Top Secret*. When the first computer games came out for the Apple II, that became their next interest.

This attraction of computers would eclipse their passion for gaming, at least temporarily. They spent nearly ten years “wandering the techie wilderness, dabbling in desktop publishing”.³ Then, in September 1993, they returned to their original passion, with the formation of a company called Condor Games. Their first few contracts were relatively small, consisting of porting Acclaim's *Quarterback Club* football games to handheld systems, as well as a Sega Genesis version of *Justice League Task Force*.

Despite these humble beginnings, the Schaefer brothers would make history in a few years with a game called *Diablo*. They wanted

to make a game that incorporated all of the elements [they] really liked about “classic” RPGs [role-playing games], but with modern enhancements, like outstanding graphics, sound, and, of course, multiplayer support.⁴

Excited by their idea, Erich and Max pitched it to a company called Blizzard Entertainment, whom they knew because they had worked on a Super Nintendo version

³ Karl Taro Greenfeld, “How I Missed the Gold Rush”, <http://www.time.com/time/magazine/printout/0,8816,31251,00.html>

⁴ Richard Greenhill, “Diablo, and Online Multiplayer Game's Future”, <http://www.gamesdomain.com/gdreview/depart/jun97/diablo.html>

of *Justice League Task Force*. Blizzard Entertainment was so impressed with their idea that they acquired Condor Games and renamed it Blizzard North. Thus was born a company whose name today is almost synonymous with excellence in games.

Eureka!

In January 1997, after over a year and a half of grueling development, Blizzard Entertainment released *Diablo*. Erich and Max originally expected to sell about 100,000 copies. Within the first month, *Diablo* had shot to the top of sales charts, and stayed there for the next four months, at which point it had sold 750,000 copies worldwide.⁵ It ended the year as the best-selling RPG. As of January 2001, *Diablo* had sold 2.3 million copies worldwide, and had won numerous “Game of the Year” awards.⁶ It was, by any definition of the term, a “runaway best-seller”.⁷

What was so special about this one game that made hardcore and casual gamers alike rave about it? The premise behind the hack-and-slash game was simple: you assume the role of one of three possible classes. Your job is to guide your character through a series of wonderfully drawn dungeons, increasing in power by killing fearsome monsters, and eventually winning by vanquishing the game’s namesake, Diablo. The entire game is portrayed from an isometric perspective, and the game can be played entirely with simple point-and-click of the mouse. For any number of reasons, *Diablo*’s design could be considered revolutionary. However, possibly the critical feature that allowed it to take the world by storm was its multiplayer capabilities; at the time, *Diablo* was the first game designed, from the ground up, for Internet gamers. For the first time, thousands of gamers who were total strangers could now meet online and lose themselves, for a few hours at least, in a fantastically beautiful world, conquering demons, saving the world, and making a few friends in the process.

In the weeks following *Diablo*’s release, gamers reveled in this wondrous new style of gameplay. New players joined games constantly, happily asking for advice and help. Veteran players were just as happy to oblige. In this way, a strong virtual community was built, as everyone enjoyed playing the game and making friends.

Paradise Lost

Then, the cheaters came. As a social construct, despite being virtual, the online world of *Diablo* was just as susceptible to cheaters as the real world. Imagine yourself as a player, having spent countless hours laboriously developing your character to a very high level, possessing powerful equipment. Then one day, you encounter a ridiculously high level character, possessing unimaginably powerful equipment, asking questions like “How do I attack a monster?” Such obviously new players had discovered ways of illegitimately altering their characters. Using a technique called “duping”, they could duplicate any item they owned, or even fabricate them out of thin air. Moreover, they

⁵ Blizzard, “Press Release: June 25, 1997”, <http://diabloii.ugo.com/articles/press/062797-pressrelease.asp>

⁶ Blizzard, “Press Release: January 25, 2001”, <http://www.blizzard.com/press/010125.shtml>

⁷ Matt Pritchard, “How to Hurt the Hackers: The Scoop on Internet Cheating and How You Can Combat It”, http://www.gamasutra.com/features/20000724/pritchard_01.htm

could also raise their character's statistics to impossibly high numbers. Alone, such cheats are not obviously detrimental. However, consider the effect on the player who has worked so hard to legitimately improve his character. The ability to instantly create a godlike character invalidates all of the legitimate player's hard work. He may feel so disillusioned at having wasted his time that he simply stops playing the game entirely.

The cheating did not stop there. The negative effects of the two cheats described above were indirect. However, players soon gained the abilities to perform "autokills" and "townkills". Using the former, malicious players could kill any other player at the click of a button. With the latter, cheaters could kill other players in town, formerly a safe haven where combat was prohibited.

To make matters worse, once-legitimate players now turned to cheating to defend themselves from unscrupulous players. One cheat site proudly proclaims:

Tired of getting town-killed? Punish the curs before they get you. Tired of players you can't kill? Become godly yourself (hey Jesus did it)... Bottom line, if cheating on Battle.net has ruined the game for you, then ruin it for some other poor non-llama!!!⁸

The developer of the cheat program rationalizes it by saying:

Once I was an upstanding *Diablo* player. Played by all the rules (yes shocking isn't it?) And got tired of being killed continually by other cheaters. Well, one day my outlook dimmed considerably, and I realized the power of the Dark Side. Since then I have had to satisfy myself with ruining it for others.⁹

With mentalities like this, it is no wonder that the problem rapidly perpetuated itself and grew in scope. Cheating had turned a game that "offered over 100 hours of gameplay into a mere 5-minute wonder".¹⁰ It became such a problem that many people either outright refused to play it online, or would only play on a LAN with trusted friends.

In Blizzard's defense, as trailblazers in the multiplayer domain, they couldn't have been expected to be completely prepared for the onslaught they faced. According to Blizzard, they "took measures to prevent most cheating...but the fact of the matter is, we're outnumbered [by hackers]".¹¹ To its credit, Blizzard produced multiple patches to address the problems as they arose. Nevertheless, they were fighting a losing battle from the start. As Bill Roper, producer of *Diablo*, describes it,

When the game comes out, there are tens of thousands of programmers out there using the same tools that we use, who immediately start to find ways to break it. We, as developers, are outgunned in sheer number of man-hours. They can put the same amount of time in trying to take apart our code as we do in writing it in days because they have so many more people working on it.¹²

Thus, *Diablo's* success was tempered by the rampant cheating that took place in the multiplayer domain. It is also what made it one of Blizzard's top priorities as they set

⁸ "Diablo Cheating for Fun and Profit", <http://www.netcheats.com/info/diablocheats.html>

⁹ "Diablo Cheating for Fun and Profit", <http://www.netcheats.com/info/diablocheats.html>

¹⁰ Greenhill

¹¹ Greenhill

¹² "Interview with Bill Roper", <http://pc.ign.com/news/5979.html>

their sights on developing the sequel, *Diablo II*, a mere three months after the release of the original.

Developers and designers of *Diablo II* used what they learned from *Diablo* to build in more safeguards against cheating from start. In *Diablo*, character information was stored on the player's computer. This made the game run faster, but was also the key factor that allowed cheating. In *Diablo II*, Blizzard decided to retain this design for the sake of speed, but also introduced an alternate design where all character information was stored on Blizzard servers, called the Realms. Players could choose to play in either mode, but the two modes were not compatible; characters could only stay in one mode. Through this re-architecting, Blizzard hoped to make cheating much harder, if not impossible. The issue of cheating was obviously quite important to fans as well, as practically every pre-release interview with designers and developers of *Diablo II* included at least one question about how Blizzard planned to address the issue.

Déjà vu?

Widely touted as the most anticipated game in history, *Diablo II* was released in June 2000, after three arduous years of development. Prior to that, fans had anxiously awaited the day of its release, eagerly snapping up any pre-release tidbit they could get their hands on. As of January 2001, *Diablo II* had sold over 2.75 million copies worldwide, easily outstripping *Diablo* sales.¹³ The critical question is: did Blizzard do a good enough job of combating cheating? Or would fans become as disenchanted with the sequel as they had the original?

In the mode in which the character's information is stored on the player's computer, there were some important changes. Most notably, cheaters have not been able to reproduce the autokill and townkill cheats. There are still a plethora of character modifier's available online, most notably at <http://www.diabloworld.com/files-d2.shtml>. Using these programs, the player can modify every aspect of his character, down to his clothing, and manufacture many items. While the psychological consequences of these cheats remain the same, their physical consequences have been abated, as cheaters are no longer able to kill other players with abandon.

Playing on the Realms, however, is a completely different story. Because characters are stored on Blizzard's servers, they are not as easily manipulated as characters stored on the player's computer; in fact, there has not been a single incident of a hacked Realms character. For the most part, playing in the Realms has been cheat-free.

This statement needs to be qualified in two ways. First, a cheat has recently been released that allows Realms characters to see monsters on the entire map. While still a cheat, it has had very little effect on other players.

Secondly, and much more serious, the supposedly secure Realms servers were hacked during the last week of December 2000. Hundreds of characters had their items stolen, and many of the top characters were deliberately killed. On January 8, 2001, Blizzard responded by saying that it had backups, and would restore any dead characters to the level they were at as of December 19, 2000.

¹³ Blizzard, "Press Release: January 25, 2001", <http://www.blizzard.com/press/010125.shtml>

Nevertheless, the damage was done. Players' confidence in Realms games was shaken at best, shattered at worst. Although that has been the only major incident in the nine months since *Diablo II* was first released, who's to say there won't be more? Will players turn away from *Diablo II* as they did *Diablo*? For now, at least, sales remain strong. But only time will really tell.

Hard lessons

The trials and tribulations suffered by Blizzard have a number of important implications for computer game design. First, and most significant, they made the issue of cheating a much greater concern to other game developers. Of course, other multiplayer games have always experienced cheaters, but never to the scale and scope of *Diablo*. While unfortunate that a company had to experience the negative backlash before other developers began to take note, the result is that most multiplayer game developers now regard cheating as a serious problem from the beginning, and take steps to prevent it from the beginning.

As an example of this influence, *Diablo* was responsible for the coining of the term "PK" – Player Killers. Since then, it has been folded into the language of gamers, and can be seen everywhere. For example, *Everquest*, a recent multiplayer game, built in a strict division between PK and non-PK characters into its design.

Blizzard's decision to store character information on its servers is a move that has been imitated by other game developers. For example, in the massively multiplayer, persistent-world games such as *Everquest*, *Asheron's Call*, and *Ultima Online*, all information is stored on the servers. While no server is 100% secure, as demonstrated by the recent Blizzard hacking incident, they are certainly safer than the players' computers.

Perhaps the most interesting consequence of rampant online cheating is the formation of third-party anti-cheat organizations. The most notable of these is PunkBuster Online Countermeasures (www.punkbuster.com). Currently, they have developed a beta version of a program designed to counter cheats in *Counter-Strike*, an extremely popular first-person shooter in which cheating has become a problem. The first paragraph of their mission statement aptly sums up the current situation:

We have a vision: NO MORE cocky, bragging, selfish, immature Cheaters flaunting their ability to "get away with it" in the Online Multiplayer world. Our ambitious mission is simply to level the "Online Playing Field". It seems that the more popular an online multiplayer game becomes, the more it is attacked by those who would gain an unfair advantage over their competitors by exploiting bugs or outright hacks of the game's original code. Cheaters have banded together and openly tout their "abilities". They sponsor websites and other forums where information about how to cheat is disseminated. It is high past time for honest people to fight back and that is what PunkBuster is all about - catch the vision with us!¹⁴

Unlike the days of *Diablo*, when disillusioned players would just stop playing, it seems that an anti-cheat movement is forming; legitimate players are now willing to stand up and fight for their rights as gamers.

¹⁴ "About [PunkBuster]", <http://www.punkbuster.com/about.html>

Design factors

The previous section explored how lessons learned from *Diablo* and *Diablo II* affected subsequent game designs and the game industry as a whole. But what factors affected the designs of the first two games themselves, within the context of cheating? I've already briefly mentioned or hinted at some of them; in this section, I will treat the technological, cultural, and business factors that affected their designs in more detail.

Technological

It is hard to say which of the three factors most influenced the game designs, but if I had to choose, it would be technological. The architecture employed in *Diablo* is called peer-to-peer; it is the version in which all character information is stored on the players' computers. It is a design that inherently requires a great amount of trust. If player A's computer tells player B's computer that A's attack does 5 points of damage to B, B's computer has to accept it, with no way of verifying its validity. Thus, it becomes quite easy to modify the amount of damage to say, 1000 points. Despite its shortcomings, this design has a singular advantage: it is *fast*. Peer-to-peer communication requires no intermediary, so Internet gameplay remains as uninterrupted – not “lagged”, in gamespeak – as possible. In the early, congested days of the Internet when *Diablo* was first released, this was an important priority.

In fact, it is a testament to the speed and efficiency of this design that Blizzard chose to keep it as an option for *Diablo II*. The alternative architecture is known as client-server, in which all players' computers communicate not with one another, but with a central Blizzard server. This server verifies that actions are legitimate, and then sends the results back to the players, similar to the dungeon master's role in a paper D&D game. In an ideal world, this would be the perfect solution. In practice however, although much safer and secure, it is also slower, and requires a server infrastructure from Blizzard. Thus, instead of replacing peer-to-peer communication with client-server in *Diablo II*, Blizzard chose to offer both, leaving players to decide whether they valued speed or security more.

Cultural

Close behind the technological factors are the cultural factors. I am referring to the gamers, who have a culture all their own. Despite its shortcomings, *Diablo* was an extremely addictive and popular game. Players spent hours developing their characters, acquiring the best equipment and defeating the hardest monsters. In the process, they developed a strong psychological attachment to their characters. When the cheats appeared, a major reason that players were so unhappy was this feeling of possession. Unhappy fans can be very vocal. Unhappy fans don't spend money on your products. As evidenced by several of the quotes above, *Diablo* had many unhappy fans among its tremendous fan base. If Blizzard wanted to capitalize on that existing fan base for *Diablo II*, they had to make sure they successfully addressed the cheating issue.

Did they achieve this goal? It seems that the decision to offer the secure Realms alternative was a successful one. There has been much less grumbling about *Diablo II* than its predecessor. Almost a year after its initial release, sales of *Diablo II* are still strong. Lest they rest on their laurels however, Blizzard needs to be constantly alert for the latest cheats, as evidenced by the recent hacking incident. Players were furious,

generating such angry comments as “Blizzard had better be restoring backups RIGHT NOW or they have one hell of a mess on their hands”.¹⁵

One player has even gone so far as to start a Boycott Blizzard Campaign.¹⁶ While the author doesn’t expect to accomplish anything dramatic, he is hoping to make a statement. Blizzard might do well to take note, as the often moody and whimsical gamers can make or break a game.

Business

Tying together both technological and cultural factors are the business factors. I don’t doubt Blizzard’s claim that they are driven by the desire to make games people want to play; but frankly, they are also in the business of making as much money as they can. Imagine Blizzard in some hypothetical world, in which they had a choice between making games people wanted to play and making no money, versus making games no one wanted to play but would make tremendous amounts of money. Which do you think Blizzard would choose? This is obviously an unrealistic example, but the point I am trying to make is that Blizzard has a delicate line to walk between keeping the players happy and remaining viable as a company. Oftentimes, the two goals coincide, as Greg Costikyan describes in “The Future of Online Gaming”:

An online game’s success or failure is largely determined by how the players are treated. In other words, the customer experience – in this case, the player experience is the key driving online success.¹⁷

However, there are many occasions where they do not coincide. In Blizzard’s case, for example, they could have based *Diablo II* completely on the client-server architecture, making players happy. However, that would have required spending massive amounts of money deploying and maintaining the huge server infrastructure required to support it, which is not a sound business decision.

Thus, business factors can be seen as a balancing act between technological and cultural factors. Ideally, all three coincide. When they don’t, however, any game developer, not just Blizzard – has some difficult design decisions to make.

The future awaits...

Blizzard learned some hard lessons from the cheaters in both *Diablo* and *Diablo II*. On the positive side, having realized how large a problem online cheating is, other game developers are following suit and creating their game designs accordingly. But where does that leave us, the gamers? Are we destined to play online games ruined by cheaters, created by companies that don’t have the resources to compete against hackers? As hinted at in the introduction, will cheating really doom the future of online multiplayer games? Perhaps. As one optimistic author reminds us, however,

¹⁵ Robert Lemos, “Diablo II Gaming Heroes Hacked, Looted”, <http://www.zdnet.com/zdnn/stories/news/0,4586,2669736,00.html>

¹⁶ “Boycott Blizzard!”, <http://www.gamersedge.net/diablo2/default.htm>

¹⁷ Pritchard

The maggots of real society continue to make the innocent suffer to enhance their own existence, but yet, the majority of us strive on, trying to fight back against the injustice. The gamesplaying world will undoubtedly do the same.¹⁸

Game on!

¹⁸ Greenhill

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