

A Study of Raiders with Disabilities in World of Warcraft

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ABSTRACT

In the last decade, online video games in persistent virtual worlds have gained increasing popularity. Since some portion of the player population possesses a disability of some sort, as more players join in to play online games, the number of players with disabilities increases. To study how players with disabilities play and compete in games designed for mainstream, disability-free players, we conducted an online survey to gather information on how disabilities affect the ability to play, the steps players take to counter the impact of their disabilities, and the impact of disabilities on players' social interactions in raiding guilds.

Categories and Subject Descriptors

H.5.1 [Multimedia Information Systems]: Artificial, augmented and virtual realities

General Terms

Design, Human Factors

Keywords

Games, MMO, World of Warcraft, disabilities, game design

1. INTRODUCTION

World of Warcraft, produced by Blizzard Entertainment, launched in 2004. It has maintained a prominent position in the MMO market since its release. At the time of this writing, it had 12 million players worldwide and was available in nine languages. In this paper we examine the experiences of players with disabilities who raid in World of Warcraft. Raiding, in which groups of 10 or 25 players engage in difficult contests, requires expert play skill, strong communication, tight team coordination, and a high level of knowledge of the game [3, 7, 11].

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Players generally assume that other players have full working function of their bodies because, in the context of online gaming, they cannot see other players and have no way of knowing what disabilities others might have.

But this assumption does not always hold true. Some portion of the people who play online games have a disability such as multiple sclerosis, hearing loss, profound deafness, low-vision, or nerve damage. Many disabilities have a direct impact on game play, especially for raiding. Our study analyzes how various disabilities affect the ability to raid.

While it is well-known that people with disabilities participate in virtual worlds [1, 8], detailed studies of the impact on specific gaming activities such as raiding are lacking.

People with disabilities may have more limited options for recreation, so they have come to play World of Warcraft for easily accessible entertainment. In the survey we discovered that players with disabilities enjoy World of Warcraft and other games in part because their disabilities are not readily apparent to others online. Players with disabilities reported that they have taken steps to compensate for their disability so that they can play effectively just as any other player. We analyze how players deal with the mechanical aspects of a disability as well as its social implications in guild interactions.

Although our sample of 22 respondents is small, survey respondents reported 13 different disabilities. These results demonstrate a wide range of disabilities with which people can play World of Warcraft ("WoW"), and, in particular, [the results](#) make clear that difficult game contests are accessible to players with disabilities. We believe our results point the way for future investigation by uncovering key themes, and providing data and discussion on disabilities and online video gaming that are largely absent in the literature. The goal of the research is exploratory and descriptive, to initiate investigation of the ways in which disabilities may affect video game activities. Further research is needed for statistical treatment of the topic.

2. RAIDING IN WORLD OF WARCRAFT

Raiders typically play together in guilds. Guilds are named groups with dedicated chat channels and other facilities for keeping track of membership and game activities [7, 10, 11]. To join a raiding guild, players usually fill out an application which is examined by guild officers and guild members to see if the applicant is likely to be a good fit socially and with respect to raiding skill. In

competitive raiding guilds, guild officers evaluate how the applicant responds to questions on a questionnaire or during a verbal interview, and analyze a combat parse (such as WorldofLogs.com which is similar to baseball or basketball stats) to see if the player meets the guild's performance standards. Guilds are ranked according to their progress through World of Warcraft's series of raiding encounters (e.g., at sites such as www.wowprogress.com).

A WoW raid centers on defeating a difficult raid "boss," that is, a monster dwelling in a "dungeon" in the medievally themed game. The boss has many powerful abilities which it uses to try to kill the players in the raid team.

Raiding is similar to sports in that there is a team of a fixed size, and distinct, complementary roles filled out by players. The team must work together using their abilities to become the best team they can be.

Communication is essential to form a cohesive, coordinated group [see also 4]. Raids are led by a raid leader, who sets the strategy and directs player actions. Visual perception is needed to react to events unfolding during the raid encounter. Communication occurs in text in raid chat, but more importantly through the aural channel, using a software product called Ventrilo, a service that allows players to talk to each other over the Internet. Raid leaders explain boss fights before the encounter begins and continue to give instructions while the encounter is in progress.



Figure 1. Al'Akir, a visually imposing boss in WoW

Bosses are not meant to be easily defeated in one or two tries, and some bosses are designed to be difficult enough that only a select few raid groups manage to defeat them before they are "nerfed," or made easier, in subsequent patches. Thus players will be collaborating together over an extended period for each individual boss as well as the collection of bosses in a dungeon. Playing skill is defined by the capacity to use a character's specific abilities efficiently and to react to raid events and boss abilities quickly and accurately.

3. METHODS

Data were collected through an online survey using www.surveymonkey.com. The survey contained eight questions (see Table 1). We received 34 responses, of which 22 were used in the analysis. The other 13 were removed from the dataset if they reported a psychological disability (outside our conceptual framework), were obviously fake, or provided tangential responses. The survey was linked on websites with heavy traffic from WoW players: www.mmo-champion.com and Blizzard's official World of Warcraft forums.

It must be noted that respondents are players that have demonstrated at least a moderate amount of interest, energy, and time towards World of Warcraft by choosing to achieve maximum level and raid.

The last question asked players to rate how much their disability affected their ability to raid, on a scale from 1 to 10, one being the least effect, 5 a moderate effect, and 10 the most effect. Some questions asked for free text responses.

Questions
1. What is the name of the character you raid with?
2. What class and server do you raid on?
3. What disability do you have, and what does it do exactly?
4. How did you get your disability?
5. How does your disability affect your ability to play?
6. What actions do you do in order to handle the disability while raiding?
7. Have you told your guild about your disability? If so, what did they think of it? If not, why not?
8. On a scale of 1 to 10, how much does your disability affect your ability to raid? 1- Slightly 5- Medium 10- Very Heavily

Table 1. Survey Questions

Based on the data, survey respondents were grouped into three categories of disability: sight, hearing, and nerve/limb disabilities (see Table 2). Respondents' guild progression was found using www.wowprogress.com. All respondent data mentioning character names and servers were changed to pseudonyms in this paper for

confidentiality. (We did not collect respondents' real names.) We use player quotes from the free text survey responses, preserving original orthography, grammar, and punctuation for authenticity.

Data analysis was accomplished by averaging all of the scores of the respondents of a category of disability. The average for each of the three categories was then used to calculate the average impact of a category of disability on a raider (see Table 2).

Our interpretations of the data are informed by our knowledge of World of Warcraft. Both of us have played in raiding guilds for several years. The first author wrote a popular guide to playing a mage [9], published on a major website devoted to World of Warcraft, and has played in highly ranked guilds. The second author has conducted extensive participant-observation fieldwork in World of Warcraft [7].

4. WOW PLAY AND DISABILITIES

Category of Disability	# of Respondents	Average Impact on Raiding
Sight Disabilities	9	5.22
Legal Blindness	2	5
Low Vision	2	4.75
Achromatopsia	2	6.25
Retinitis Pigmentosa	1	8
Primary Reading Epilepsy	1	3
Usher's Syndrome	1	4
Nerve/Limb Disabilities	9	4.0
Multiple Sclerosis	2	2
Spinal Cord Injury	2	5
Arthrogryposis	1	6
Nerve Damage	1	3
Osteogenesis Imperfecta	1	5
Fibromyalgia	2	4
Hearing Disabilities	4	1
Deafness	4	1

Table 2. Number of respondents and impact on raiding

4.1 Players with a Sight Disability

Nine players reported a range of sight disabilities including legal blindness, achromatopsia, retinitis pigmentosa, primary reading epilepsy, and low vision. Players with sight disabilities scored the highest impact to their playing ability out of the three categories, with a mean of 5.22. Sight disabilities such as low vision that directly diminished the quality of sight had the most impact. Of less impact were color blindness and primary reading epilepsy (which can cause seizures from reading words). It is noteworthy that players with fairly serious visual impairments reported that they can play a game that is highly visual, in which game mechanics are manifest in information in the visual field [7]. For example, Figure 2 shows an encounter in which players must quickly run behind ice blocks that appear on the ground at various times during the encounter. Not only must they run behind the ice block, they must position themselves at a precise angle, directly opposite falling frost bombs which occur in different places at different times, and thus must be carefully watched each time they rain down.

To compensate for sight disabilities, players reported that they relied on audio cues and commands heard over Ventrilo, as well as altering the graphical user interface to make it easier to gain relevant information. Players with color blindness used the color blindness option in the game. Players with sight disabilities that impaired the visual field employed addons that play audio cues, and listened carefully for those cues as well as game sounds to know what was going on. They paid close attention to conversations and instructions heard on Ventrilo.

One respondent explained how he used a custom program to assist him in raiding:

I've built a custom voice recognition API during those moments where I can give out commands and the software will carry them out.

He played by speaking command phrases. The program then followed the spoken commands in-game. He commented:

I've been known to raid with my eyes closed for entire boss fights where I know our strategy and the boss mechanics.



Figure 2. This screenshot shows the importance of positioning and being able to use visual information to know when and where to move. Raiders need to stand behind the ice block to avoid being killed.

Thus use of the aural channel was ramped up significantly for players with sight disabilities, a necessary adjustment given how much game information is presented visually.

4.2 Players with a Nerve/Limb Disability

Nine respondents had nerve/limb disabilities including multiple sclerosis, spinal cord injuries, arthrogryposis, nerve damage, osteogenesis imperfecta, fibromyalgia, and spina bifida. They reported an average of 4 for the impact their disabilities had on raiding ability.

A player with nerve/limb disabilities may have difficulty controlling the avatar. The ability to move the avatar may be slower, less accurate, and more unpredictable than for normal players. Players with nerve/limb disabilities reported slower reflexes, weaker hand-eye coordination, pain, and fatigue. One said:

I can never feel textures with my fingers but rather generic pain. This can lead to uncoordinated hand movements or no movements at all.

Another player noted the interference the disability caused him:

Sometimes i am to tired or in to much pain to raid. I also sometimes have to leave halfway trough because the pain suddenly starts.

Multiple sclerosis had the least impact on average, while spinal cord and nerve damage had the greatest impact.

A common way of handling a nerve/limb disability was medication:

If the pain is too great that day usually some ibuprofen is enough to cover any wrist pains :)

Another player had been prescribed Gabapentin, a powerful painkiller that he used to mitigate pain while playing.

One player devised an alternate hardware setup:

i use my left hand for the keyboard, and my left foot with a foot mouse.

Nerve/limb disabilities were quite variable, calling for varied accommodations.

4.3 Players with a Hearing Disability

The most surprising respondent group was players with hearing disabilities. All four respondents gave a score of 1 for impact on play. Furthermore, all four were from raiding guilds with higher raiding progression ranks than the respondents in the other two categories, suggesting that players with hearing impairments can progress more easily than players with other disabilities, or at least that hearing disabilities, which would seem a significant deficit given the importance of aural communication during

raiding, do not necessarily hold skilled players back. Although WoW has many sound cues, players can get along without them more readily than they can get along without visual information. A player with a sight disability will have difficulty seeing what's going on and how to move correctly in a timely manner since positioning the character in response to visual changes is a critical aspect of World of Warcraft raid mechanics.

Figure 3. This picture shows the use of a mod that presents information visually. The two bars in the middle warn of boss actions.

Aural cues are usually paired with visual cues in-game, so aural cues are somewhat redundant. Aural cues are just that—cues—whereas the visual field constitutes a 3-D space in which game mechanics are deeply embedded. The capacity to track visual events and move in the 3D space cannot easily be offloaded to an alternate sensory channel. WoW's design as a predominantly visual game thus leaves players with hearing disabilities in relatively good shape. The use of mods, as in Figure 3, adds further visual information (also used extensively by normal players) such that aural information becomes less important.

This finding is reinforced by the fact that while aural cues are often a helpful source of information, many normal players, including raiders, disable game sound and listen to music instead [7].

For these reasons, players with hearing disabilities can, for the most part, operate as effectively as any normal raider. However, there is one thing they cannot do that can have a major impact on their ability to raid. During raids, the raid leader explains and communicates about boss fights. Players with hearing disabilities cannot hear and follow sudden changes in the boss strategy, or instructions given out by the raid leader directly to the raider herself, as an encounter progresses. In the most skilled, competitive, highly-ranked raiding groups, the ability to listen and follow instructions on the fly is essential. As the first author, who has a hearing disability, joined and raided with various guilds, a pattern emerged. The more skilled, experienced, and ambitious a guild was, the more important it was to be able to use Ventrilo for raiding. Some guilds refused membership to raiders who could not follow Ventrilo instructions.

While players with hearing disabilities fare well in World of Warcraft (apart from extremely competitive raiding guilds), it takes some extra work to raid effectively. To compensate for the lack of ability to hear the raid leader explain a boss encounter, players with a hearing disability reported that they spent a great deal of time researching the encounters to make sure they knew the details of the fights, and the particular strategy the raid group would be using. These players then discussed uncertain aspects of the strategy with the raid leader to be sure of exactly how the guild would approach an encounter. These discussions could take place in text chat or, in some cases, at a quiet time in Ventrilo before the encounter, when miscommunications could be cleared up without the pressure of a raid in progress, or the possibility of someone interrupting and making aural communication more difficult for a hearing impaired raider.

All four players with a hearing disability reported that player-created software modification and macros were very important. One said:



*I use Deadly Boss Mod *DBM*, some macros to do raid yell for the tactics, I need a heal/mana, switch, or etc depends on my raid role as a tank, a dps, or a healer. Blizzard have been working to make it a deaf-friendly environment to raid by allowing great add-ons, macros, and etc for us to use.*

Another player noted,

I also use a couple addons that help me stay aware of whats going on around me so that when I need to do something I can do it and do it fast.

These responses underline how important mods are for raiders with a hearing disability to provide additional visual information, as well as practices such as automating text chat, e.g., with the use of the “raid yell” macro mentioned by the first player which automates a type of text chat.

5. DEALING WITH THE GUILD

Raiders with disabilities face social as well as performative challenges. There were two ways to deal with a player’s guild with respect to a disability: tell them or don’t tell them. Each choice entailed advantages and disadvantages. Players were split in their preferences. Preferences varied somewhat by category of disability.

5.1 Players with a Sight Disability

Players with sight disabilities were divided in whether and how they discussed their disabilities with their guilds. Some did not reveal their disability while others did. One player explained that he did not talk about his disability:

[M]ost of the people in Houndspring [his guild] are friends and alts of mains in Latespring. They're all great guys (and gals!) but I understand they want to get in and out on their Houndspring raids—in short, I'm a little afraid I'd be seen as a liability if I openly admitted that I played blind on purpose due to medical reasons.

It is important to note that Latespring is a world-class guild, finishing Wrath of the Lich King, the previous expansion, at an impressive 51st in the world, out of more than 59,000 raiding guilds. The player’s concern stemmed in part from how his disability would be perceived specifically because of the high playing skill of the players in the guild.

Another player remarked:

Telling fellow raiders especially was not on my to do list, I didn't want to be the guy who messed up in a raid and blame it on my illness.

A player with complete achromatopsia, a sight condition that restricts vision to black, white, and shades of gray, told his guild of his disability. He said:

We all know when its appropriate to make fun, they know when its NOT ok to make fun of my condtion, because it is hard being at a disadvantage in this game, but its not impossible to be successful.

While the player reported that his guild was supportive of him, he noted that achromatopsia is still a disadvantage in raiding.

5.2 Players with a Nerve/Limb Disability

Players with nerve/limb disabilities were also divided in revealing their disability to their guilds, although more chose to reveal their disability than chose not to. Those that did received a positive response.

They know, and they support me. They make sure I take my shots on time when it's raid night :)

Those that did not reveal their disability did so on the basis of not wanting their guild members to perceive them as being different.

One said:

I hate telling people about it because they don't understand it and look at me like I am just weak and incapable. I know it's something that is very hard to understand but there are so many close minded persons out there I just don't even bother anymore, unless they see me walking around on my cane.

In this sense, the virtual space of the game is a way for players to avoid creating a first impression defined by their disability. As nerve/limb disabilities are more obvious than hearing or sight disabilities, the virtual space is particularly helpful in avoiding unwanted reactions for this category of disability.

5.3 Players with a Hearing Disability

All four respondents with hearing disabilities said that their disability was known to their guild, and that they had few problems with others knowing about it. One respondent actually saw an advantage:

I just make sure I know all the new bosses tactics, and because I can't hear, my visual is better so I have very good visual view on the raid and know what is happening.

Another said:

Yes, I explain to them that I'm deaf, cannot use vent/mic, and know every raid boss tactics. My guild have 4 deaf raiders since we proved we are the worthy raiders that doesn't need raid leaders' attentions.

The tone of the hearing disabled players is much more confident about their playing ability than raiders with sight or nerve/limb disabilities.

However, there are players that view including a raider with a hearing disability as a liability. An officer in a raiding guild posted a message to a popular video game blog site, www.joystiq.com, recounting an experience in his guild. In the message, he detailed how a deaf player was unfairly blamed for the raid group's recent failures, attributed to the player because he was deaf. The player became so upset that he left the guild [5]. Unlike players with sight disabilities or nerve/limb disabilities, players with a hearing disability cannot talk or defend themselves, explaining their mistakes, in a very important channel of communication, Ventrilo. If a player cannot explain his actions verbally, then Ventrilo becomes a medium that can be used to point the blame towards the player. The hearing impaired player cannot even hear the accusations, much less respond to them.

The notion that Ventrilo is required to achieve a high level of communication to facilitate raiding progress and attain a high place in the world rankings may not necessarily be a hard and fast rule. The European guild Borked achieved a rank of 127th in the world despite raiding completely with text communication. In over four years of raiding, they never used Ventrilo as a method of

communication for strategy [2]. Borked does this because they believe, “This requires every player to be fully aware of what’s going on around them.” This accomplishment, however, may be attributed in part to excellent guild leadership and a heavy raid schedule of 25 hours a week.

6. DISCUSSION

Players with disabilities were adept at finding varied ways to work around their disability to become accomplished World of Warcraft raiders. The survey results demonstrate that players with a wide range of disabilities can and do play World of Warcraft at high levels of difficulty, and that they are motivated to expend time and effort to gain proficiency.

Players with sight disabilities focused on sound cues and commands, while hearing-impaired players utilized visual information. Players with nerve/limb disabilities found alternate methods of controlling their avatars, including hardware modifications. Players with hearing disabilities reported less impact from their disability compared to players with sight or nerve/limb disabilities. This follows logically from the highly visual nature of the game in which essential game mechanics are programmed into visual information.

Although the critical visual aspects of the game impinge most on players with sight disabilities, at the most advanced levels of play in highly ranked guilds, hearing disabilities may disqualify raiders because the aural channel is an efficient and valued means of transmitting information in the rapidly changing conditions of a raid encounter. The competitive atmosphere of raiding may create tensions for disabled players as in the case posted on joystiq.com.

The experience of the guild Borked shows that it is not absolutely essential to use Ventrilo for advanced WoW raiding, but it is extremely unusual for guilds to raid without voice communication, establishing a de facto standard which may pose problems for raiders with hearing disabilities.

Raiders with disabilities must make decisions about how to handle the social aspects of engaging in a competitive activity in which their disability may impair performance. As in any team endeavor, raiders want to be successful, and it is expected that each player will perform to a high standard. Some of our survey respondents revealed their disability to their guilds—usually with a very positive response. The prosocial responses of guildmates indicate a generally accepting, open attitude even in the context of a highly competitive activity. We believe this speaks well of WoW guilds and World of Warcraft in general, especially in light of constant public concern about the so-called dangers and/or triviality of video gaming [see 7].

On the other hand, some raiders chose not to reveal their disability as they did not want to be blamed for failure (a real danger as the joystiq case shows), or they felt they could perform adequately without guildmates knowing of their disability.

In addition to dealing with the social implications of their disabilities, raiding for disabled players entailed additional effort and planning for the performative aspects. Disabled raiders were meticulous about researching boss encounters. They made sure they knew not only the general behaviors and abilities of the bosses, but the specific strategy the guild planned to use (since there is always more than one strategy for a boss fight). The level of attention to the communication channel open to the raider, whether visual or aural, was very high, to counterbalance the deficit created by the disability (for sight or hearing disabilities).

Players with nerve/limb disabilities timed their medications carefully, monitored pain, and engineered solutions such as using a foot mouse.

While such counterbalancing and resourcefulness are habitual for disabled people in their everyday lives, as raiders it is noteworthy that these players decided to incur the social and cognitive costs necessary to be successful at raiding. Raiding is of course a freely chosen, optional activity. The choice to raid indicates the highly engaging nature of raiding, even when played under less than perfect conditions.

Raiding has been compared to team sports [6, 7, 10] but few team sports afford the possibility of disabled players playing alongside normal players on an equal footing. Indeed conventional team sports favor a small range of body types that eliminate many/most people, allowing access to a sport, at competitive levels, only to people whose bodies exhibit precise characteristics, many of them genetic. Even casual play of sports such as football or basketball is impossible for a lot of average people due not only to the nature of the maneuvers (such as tackling), but because of the design of regulation equipment (e.g., the height of a basketball hoop) and the size and layout of playing fields and ball courts. Competitive video gaming, on the other hand, while requiring intense attention and focus, does not eliminate players based on height, weight, age, gender, or even serious disabilities, as our survey shows.

While “special” sporting contests for disabled people may be organized, and are legitimate and valuable, the evolution of highly inclusive virtually embodied competitive team activities is enabled through the artificial body of the avatar and sophisticated computer graphics and game mechanics that permit a digitally produced experience close to that of conventional team sports. The ability for people to technologically shape activity—in our case, to modify hardware and software to alleviate deficiencies induced by a disability, as respondents in our survey reported—suggests how powerful technological mediation of an activity can be, how profoundly technology can change human experience. Like team sports, raiding too affords pleasurable camaraderie and social bonding, as well as the challenges and rewards of gaining proficiency in precise movements, tight team coordination, split second timing, and “situational awareness,” as players refer to the cognitive ability to attend to rapid changes in multiple game states [see 7]. The capacity to construct such experience represents a remarkable new affordance of digital media.

7. CONCLUSION

We reported a wide range of disabilities found among World of Warcraft raiders. While not an exhaustive accounting, even within our small sample the diversity of conditions with which players engage in difficult game contests in World of Warcraft was documented. The research has drawn attention to an understudied population of MMO players. As we spend more and more time online in vibrant communities devoted to compelling leisure

activities, leveraging the new capacities of digital technologies, it is imperative to be aware of the impacts of various disabilities on diverse participants. Players with disabilities want to enjoy the fruits of Internet culture along with those whose normal abilities conform to baseline assumptions about what constitutes a “player.”

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