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Achieving Immersive Gameplay: Interpreters and Video Game Accessibility

By
Rebekah Cheeley

An Honors Thesis Submitted in Partial Fulfillment of the
Requirements for Graduation from the
Western Oregon University Honors Program

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“Whatever you do, work at it with all your heart,”
Colossians 3:23a

Abstract

ASL/English interpreters (ASLEI) are exploring their influence and how they impact the communities they work with. Sensitive to oppression and marginalization of the needs of the d/Deaf community, interpreters and interpreting students are looking at how they can best support greater accessibility for people with who identify as d/Deaf or hard of hearing. Video games are one such area where accessibility is lacking. Problems include reliance on sound cues for crucial survival information with subpar visual compensation, subtitles that do not meet national standards, and inaccessibility to the immersive gameplay offered to hearing players. In this paper, I will analyze data from surveys and published research on video games, accessibility, and the role of interpreters in this growing issue.

Chapter One: Introduction

Foreword

With the encouragement and guidance of professors and advisors, I began exploring accessibility in an important area of my own life during Fall term of 2016. At that time, I began my Honors Thesis development course and the search for an appropriate topic was at the front of my mind. At the same time, I began the ASLEI program at Western Oregon University (WOU) and enrolled in INT 360W: *Current Issues in Interpreting*. As part of the required work for that class, I would write a paper on a topic of my choice, researching and demonstrating the connection between my topic and the field of interpreting.

This issue, and the issue of my Thesis topic nagging at me, I decided to put aside schoolwork one afternoon and just enjoy some free time. As I had done so many times before, I turned on my TV and PlayStation4 (PS4) and opened a game I had logged dozens of hours in. Video games had already come up as a potential topic when my teacher for INT 360W had asked us what we were interested in but I had no idea how I might connect it to a research paper, let alone an Honors Thesis. The idea seemed absurd.

I was playing a zombie survival game and I had the sound off and very quickly realized that the game was almost impossible. I had no idea what was coming up behind my character and attacking because I could not hear it approaching and the game did not have captions or subtitles. Grumpy and just wanting to enjoy a few minutes without thinking about anything important, I turned up the volume. *Someone should do something about video games,* I told myself, *what if I was d/Deaf?*

That question became the first of many more as I began researching video game accessibility for the d/Deaf and hard of hearing. Wanting to focus this issue more directly into the field I am pursuing, I angled my research, beginning to explore the role of the

interpreter. I could not get this nagging thought out of my head that I was working to go into a field that supports access for Deaf and hearing people to interact more smoothly but was simultaneously ignoring an accessibility issue staring me in the face. I wondered whether interpreters should play a role in advocating for greater accessibility. Were they already? Who is involved in this issue? Is this just me noticing the problem or are there already movements in the works? What does the d/Deaf community think? What do interpreters think?

The questions were endless and before the term was up I had written a research paper for INT 360W and had my Thesis proposal submitted and accepted, officially orienting me on this topic. This process has been inspiring as I have discovered a love of research, deepened my love of writing (and video games, of course), and had my eyes opened to amazing people doing amazing things. My hope is to produce a work that will have an impact on the d/Deaf community, interpreters, gamers-- hearing and d/Deaf--, and even video game developers. Ultimately, I think this research shines light on video game inaccessibility and explores what immersive gameplay looks like for d/Deaf and hard of hearing gamers.

Definitions and Key Terms

While Wikipedia is not a scholarly source, as a site created and managed by people, it is a useful source for the 'everyday' use of the terms.

Cutscene

- A portion in the game in which a player may not interact either by action or by dialogue, usually cinematic (Cutscene, 2016). Often used “to show conversation between characters, bring exposition to the player, set the mood, reward the player, introduce new gameplay elements, show the effects of a player’s actions, create emotional connections, improve pacing or foreshadow future events” (Cutscene, 2016).

FPS (First-Person Shooter)

- A genre of video games where the player sees the action taking place through the eyes of the character they are controlling and the action in the game focuses on firearms, projectile weaponry, and other such “weapon-based combat” (First-person, 2016).

HUD (Head-Up Display)

- “[T]he method by which information is visually relayed to the player as part of a game’s user interface” (HUD, 2016). May display health, stamina, magicka, mana, or other status bars, as well as indicators of equipped weapon, shields, etc.

Mod

- A modification created by game users where the coding of the game itself is altered in some way to allow items or events to appear in-game that would not normally appear.

RPG (Role-Playing Game)

- A game where the player makes choices that have an actual effect on the in-game world or gameplay (as opposed to story games where there are no options or all options lead to the same outcome) (Role-playing, 2016). Typically includes an immersive, rich story and are often open world (the player can explore the map and take quests their own way).

Soundscape

- “A soundscape is a sound or combination of sounds that forms or arises from an immersive environment” (Soundscape, 2016).

Scope of Research

In seeking to complete a research project that was limited enough in nature so as to be feasible within my allotted time, decisions were made as to what the focus and scope of research would be. Due to the vast differences in gameplay, immersion, and player interaction that takes place between solo-play games and multiplayer games, the decision was made to focus on solo-play. For purposes of this work, solo-play games are mostly campaign-focused, although they may involve some element of local-multiplayer (where more than one but usually less than four players participate in a game together while playing in the same room). Games that involve online multiplayer play on vast servers with players from various networks were generally excluded, although survey data may include some related information and a few references will be made to these games. Additionally, the focus was limited even further to console games, with a narrow extension into computer gaming. Survey responses did also include information and data about phone and handheld gaming and this data was used where possible, although the literature review and other research focused primarily on console and computer gaming.

These decisions were made largely in part to my own experience. Where I do identify as a gamer, my gaming experience is fairly well restricted to solo-play, campaign style games, and mostly to console games. I am familiar with a variety of FPS (first-person shooter) games and MMORPGs (massively multiplayer online role playing games) but did not feel that my own experience in these areas was sufficient to draw from as a foundation for my research. For those reasons, as well as the limitations necessitated by the nature of an undergraduate thesis, the scope of this project was limited thusly.

Chapter Two: Literature Review

Due to the lack of formal literature and research conducted regarding video game accessibility specifically for d/Deaf and Hard of Hearing gamers, much of the literature discussed here is from online forums, gaming communities, and other resources outside the typical scope of an academic literature review. Starting from the beginning in this field necessitated research into colloquialisms, definitions, and other discussions of terminology and concepts down to their core points. Because many of the individuals quoted in this section were not engaging in academic discourse, their language includes stylistic tendencies typical of online communication, including the use of slang and shorthand.

Immersion

When seeking to achieve “immersive” gameplay for d/Deaf and hard of hearing gamers, it is first crucial to figure out what immersive gameplay looks like for the target consumers on the video game market. Gamers and developers all have ideas of their own as to what makes a game immersive and public reception to various attempts are as diverse as the player base itself. An article on *TheGuardian* explored the “science” of game immersion and what features are necessary to achieve this experience. Because immersion is a primary gauge of accessibility in video games, discussions surrounding what makes a video game immersive necessarily also provide insight into what makes a video game accessible. The working definitions offered by gamers and website users in their comments online help frame the discussion of video game accessibility.

Defining Immersion

Keith Stuart’s 2010 *TheGuardian* article, “What do we mean when we call a game ‘immersive?’” (Stuart, 2010) received a total of 61 comments, all between the date it was posted, August 11, 2010, and August 14, 2010. Most posters were largely in agreement with

the author's assertion that "[gamers] pick up on most of these clues almost unconsciously. The best games help us to build immersive emotional reactions through subtle human clues" (Stuart, 2010). Several readers added their own thoughts, often bouncing ideas off of each other and providing examples from their own experience playing games. Answers discussed graphics and believability, flow, and overall gameplay experience:

I think this [immersion in *Demon's Souls*] is because the world that has been created is so well done. Each level has a distinctive feel and they feel like 'real' places that you are investigating. (davefalse, in Stuart, 2010)

Immersion in games, to keep it as short and sweet as I'd prefer, is 'things making sense'. (Shawshank22, in Stuart, 2010)

[P]art of the reason good games have been immersive for years is their ability to let us get into flow easily or quickly. [...] Immersiveness is a huge subject and takes in pretty much every aspect of the game design. (ImperfectRex, in Stuart, 2010)

I agree that a lot of what makes a game immersive is subconscious and is a combination of many factors- environment, story, characters, ambience etc. it's [sic] a combination of everything, including the smaller details you don't notice.

(RobLindsay, in Stuart, 2010)

One user offered a comparison and questions that help establish video game immersion as immersion in any other media type when they wrote: "I was recently thinking the exact same thing about in [sic] immersion – in *books*. What is it that makes you lose yourself in the story you read, and then make you remember you are reading?" (pH101, in Stuart, 2010).

Other writers suggest different criteria, such as Adrian Chmielarz (2014), who wrote "The secret of immersive game worlds" and offers the following: "The convincing,

immersive game world needs to be indifferent to the player and the player needs to feel like an intruder” (Chmielarz, 2014) and quotes a more poetic explanation:

The crucial thing to design in a videogame is the moment when nothing happens. Is our player still immersed and enchanted when they release control? When the only verb available is the most important one of all: to be. (In Chmielarz, 2014)

On GameSpot.com, another perspective is offered, one that reflects the spirit of this thesis well. The author suggests that immersion in video games is:

where a player becomes deeply involved with the game – often to the point of subconsciously detaching themselves from the passing of time and events outside of the game’s world. There are a number of different dimensions to immersion – some may become caught up in the game’s story and narrative elements (like [in] Bioshock). [W]hereas others can find themselves more hooked on the strategy and skill necessary (like [in] Portal). (CiaraMcD, 2012)

Many players also cite sound as a crucial element of their immersive experience. For example, players of *Battlefield 1* (EA DICE, 2016) describe the “soundscape” as one of the most amazing of any game to date. One of the game’s sound designers commented on the work: “The most important thing is that you as a player should be able to close your eyes and feel you are really there—whether it be trenches, forest, desert or the French countryside at night” (Saastamoinen Minto, Pajor, & Almström, 2016). Other games conduct similarly focused immersion practices, focusing on the creaking sound of old floorboards in a haunted house or the engine or radio of a new vehicle. The reasons are numerous.

Why Soundscapes?

Although many of the commenters on Keith Stuart’s (2010) article complained about bad voice-acting as a source of immersion breaking, the majority focused on bad graphics,

glitches, or other issues with a game's visuals. StopsAtGreen (2010) pointed out that "the immersion ends when you ride your horse head first into a rock and it just stops dead" (In Stuart, 2010). Others had similar issues with the mechanical elements of video games as they appear visually on screen. HumOfEvil (2010) was frustrated with video game worlds with incredible detail but that feature graphic bugs where "objects got stuck inside other objects and flailed around madly" (In Stuart). This user also commented on the recycling of visual props, pointing out that "[i]t really breaks the immersion when you see the same prop or NPC for the 2nd time let alone the 50th" (HumOfEvil, In Stuart, 2010).

HumOfEvil (In Stuart, 2010) wasn't the only user with these problems, and ChaosTeaCup (In Stuart, 2010) pointed out that a "huge immersion breaker for [ChaosTeaCup] is disappearing corpses." They, and others, also touched on immersion as a whole. In discussing one particular gaming experience, ChaosTeaCup (In Stuart, 2010), explained that, "despite playing in one of the most realistically depicted environments I'd ever seen, the immersion factor was very low because I just couldn't take [the main] character seriously at all." Another user emphasized HumOfEvil's (In Stuart, 2010) complaint about recycled visuals, saying they feel disconnected when there is "too much dungeon crawling in fairly standard environments" (Stumpysheep, In Stuart, 2010). While these issues often go back to the game's programming, the visual presentation of glitches and bugs is sufficient to break immersion for players.

It seems that realism and neatness of graphics and visual details contribute largely to immersion both as the makers of it or the breakers of it. While players do relate sound effects as an important part of their gaming experience, only a few discussed problems with sound effects as being immersion-breaking. For game developers, who have to choose how to design a game based on tight deadlines and tighter budgets, it is no wonder they would

choose to focus on the sound, where a clipped recording of amazing sounds will always result in an amazing sound. The work, then, becomes in the stereo setup and the timing and the player is guaranteed an outstanding soundscape, if not one as detailed as *Battlefield 1*'s (EA DICE, 2016). When visual glitches and mistakes are so common, focusing on sound effects seems like a strategic plan to ensure success in an at least partially immersive gaming experience.

This does, however, leave a lot to be desired for gamers who play without sound or for whom sound is secondary to the visual experience. These comments suggest that a poor soundscape can be forgiven when it happens, while a poor graphic design can ultimately break a game. For this reason, focusing on soundscapes and auditory cues without providing appropriate visual compensation and addition seems like a dangerous play for developers. Audio cues are commonplace in video games and provide players important information that is not compensated for with visual information. In a dialog on Twitter, @BeardedSmith (2017) asked whether audio cues “such as a humming that indicates a hidden passages[sic]” posed a problem for d/Deaf gamers, to which @DeafGamersTV (2017) responded: “Yes most definitely. If you heard it, you’d know something happened to progress. On other hand [sic], it happens but we don’t know, we’re stuck.”

Accessibility

With new research being published regularly about the effects of video game therapy for veterans and people suffering PTSD or other trauma-related disorders, as well as other psychological conditions (Kerzner, 2015; Complex, 2015; Fagundo et al., 2013; Moore, 2010; Mangiron, 2016, and others), it seems unfair that so many d/Deaf and Hard of Hearing would-be players are excluded from the industry, its entertainment, and its benefits. While several of these reports were specific to military personnel upon their return home, some of

it focused on other issues. One study found a nearly 97.5% decrease in instances of bingeing and purging in subjects who underwent experimental video game therapy for diagnosed eating disorders (Fagundo et al., 2013, p. 496). Considering this and other studies that demonstrate clear potential benefits to playing video games, it seems unacceptable to disallow d/Deaf and Hard of Hearing players the same opportunities. In *Game Not Over: Accessibility Issues in Video Games*, the authors summarize the more day-to-day disparities between the experiences of d/Deaf and hearing gamers:

Video games, regardless of platform, are a natural branch of accessibility in a similar vein as other entertainment and even educational systems. Disabled gamers are consumers, and access to gaming is a quality of life issue. Gamers play games for entertainment, not to experience a sense of frustration. Unfortunately, once a player gets shot for the tenth time because they can't hear the footsteps of someone coming up behind them, they are not likely to be entertained. It's more likely that they are angry or confused. (Bierre et al., n.d.)

Unfortunately, many gamers find themselves unable to enjoy the same experience as peers due to a heavy reliance on sound cues for survival and immersion, lack of subtitles or closed captions, and lack of interpreted or translated material available for ASL users. Additionally, people are beginning to recognize the benefit for all consumers, not just those who identify as d/Deaf or Hard of Hearing. In *Fun for all: Translation and accessibility practices in video games*, Grammenos (2014) points out that accessibility is not just about granting access to people with disabilities or different needs, but also to people playing in environments that may impact the player, such as noisy environments or those in which a gamer cannot play with the sound up, or when they are temporarily disabled due to an accident of some sort (Grammenos, 2014). The benefits to accessibility are not just for the player, however, and

Grammenos (2014) continues to say that, “there is a missed multibillion dollar market opportunity related to game accessibility,” and video game developers would do well to recognize this growing niche.

In America alone, 155 million people report playing video games “3 or more hours per weeks[sic]” (Lofgren, 2016), and Kouznetsova (2014) reports that 20% of the US population, about 48 million people, have hearing. Although these numbers are from different years, quick math would indicate an estimated 23 million people “with hearing loss” (Kouznetsova, 2014) are playing video games “3 or more hours per week” (Lofgren, 2016) (*the number of reported players from Lofgren’s work*= p (155,000,000); *the estimated population of the United States from a Google search*= U (318,900,000); *number of people with reported hearing loss from Kouznetsova’s work*= h (48,000,000); $p=48.6\%$ of U ; 48.6% of $h=23,000,000$). Due to the inaccessibility of so many mainstream video games and the differences in years from which data was taken, it can be expected that this number is a high estimate. Regardless, even 10 million gamers (15.5% of the total population of gamers) is not a portion of the market that game producers can safely disregard. Additionally, some measures are easy to take and benefit a much larger portion of the population.

Sound, Visual, and Sensory Cues

From horror adventures to RPGs, most video games rely at least in part on sound cues. In a YouTube video posted by user Erick Molinaa (2015), who self-identifies as Deaf on his gaming channel, viewers can watch as a young man navigates the beginning of a horror game, watching his reactions from a picture-in-picture box in the corner of the screen. With the lights off to become more fully immersed in the ambience (a common practice for playing many games, but especially horror games), Molinaa’s signing is difficult to make out. As he explores the haunted maze, sound up for the viewers, he misses several

crucial sound cues that alert players to the presence of other beings, doors slamming, walls opening, and a television or radio whose sounds leads to the goal. Although there are subtitles, there are no captions, and only the fact that something is vocalizing is displayed in the text. The distinction between captions and subtitles is explored below. Although there were many visual jump-scares present, the game relied heavily on sound for ambience, tension, and even gameplay cues. Things a hearing gamer may pick up on right away were impossible for a d/Deaf gamer to know about and Molinaa wandered around the haunted house for several minutes before making headway.

Some games, such as *The Last of Us* (Naughty Dog, 2013) and *Assassin's Creed Syndicate* (Ubisoft Quebec, 2015), allow the player to go into a temporary stealth mode, from which they can 'see' the sound waves emitted by non-player characters (NPCs) and other environmental features. These features are not only beneficial for d/Deaf gamers, but also for hearing ones as well. Increased accessibility through visual cues adds to the experience for all players.

Unfortunately, other games have not done as much in this regard. CD Projekt Red's (2015) *The Witcher 3: Wild Hunt* was 2015's Game of the Year and featured hours of gameplay, a detailed and rich storyline, and open world, and revolutionary RPG capabilities. However, several elements were extremely inaccessible.

Subtitles were small, with high character count and often exceeding three lines in length, and crucial survival cues were only sound based. While protagonist and player-character Geralt is able to use super-human hearing to identify locations of creatures in the environment and even allow the player to identify monsters by the sounds they make, d/Deaf consumers are left only with a blip on the HUD to indicate where the sound is coming from. No visual cues demonstrate the wolf-howls or wraith-screams that hearing

players are privy to, and there are no captions to alert players that someone or something was coming up behind them if they could not hear it. This is not the only game whose visual cues have fallen short.

7 Days to Die (2013), the creative zombie-survival game, combines features of several pop culture hits right now, and many gamers call it a combination of AMC's *The Walking Dead* (2010-present) and the age-old classic PC game, *Minecraft* (2011). While players navigate open worlds and attempt to survive for as long as possible-- collecting resources, scavenging, and building by day; fending off hordes of zombies by night-- they are alerted to the presence of zombies in the area, their location, and their type, all by sound. Because *7 Days to Die* (2013) features no spoken language, there is no option for subtitles or closed captioning and d/Deaf gamers or gamers playing without sound would find it impossible to know when a "screamer zombie" had just siren-ed in a horde or any number of other important survival cues. Other warnings, such as a player's character overheating, starving, or dying of dehydration, are also sound-cue based, but do have corresponding visual cues in the bottom corner of the HUD.

In one study testing the effects of visual cues in collaboration with sound cues in video games, "only one deaf user stated in the pre-test questionnaire that sound effects should be subtitled in games, [but] after playing the game all deaf users agreed that sound effects should be depicted graphically, as it was important for gameplay" (Mangiron, 2016). Interestingly, other studies have found strong evidence that visual cues are also helpful for those who do utilize auditory information, as well. In an experiment testing how much visual information assisted musicians and non-musicians in their ability to discern different auditory streams, researchers found that "presentation of a visual stimulus can increase the perceived loudness of white noise, and discriminations of pitch and loudness improve when

presentation of a concurrent visual stimulus matches features of the sound” (Marozeau, Innes-Brown, Grayden, Burkitt, & Blamey, 2010). The researchers also noted that visual cues such as mouth movements that corresponded with speech patterns improved comprehension dramatically (Marozeau et al., 2010).

Finally, a study ofvection, “the illusion of self-motion in the absence of real physical movement” (Keshavarz, Hettinger, Vena, & Campos, 2013, Abstract) discovered that whilevection was strongest when both auditory and visual cues were available,vection was the weakest and took the longest to set-in when only auditory elements were provided (Keshavarz, Hettinger, Vena, & Campos, 2013). Additionally, researchers discovered that visual signals alone producedvection with nearly the same onset time and strength as when visual and auditory cues were both available (Keshavarz, Hettinger, Vena, & Campos, 2013).

Grammenos (2014) explains that it is not necessary for every player to play with accessibility enhancements, but if they want to, there is no reason to deny them. He explains his vision—and the vision of others in support of what is being called “Universal Accessibility”—and suggests that video games should be universally playable:

[I]nstead of creating a monolithic game for everyone, a ‘palette’ is employed comprising all game elements. Then, depending on the current player, the most suitable elements are selected, with their attributes also appropriately adapted, in order to render a fully personalized version of the game. (Grammenos, 2014).

This idea is expressed by others, too, and in fact is commonly seen in education and pedagogy as “Universal Design,” as well as in other fields. “The principle of universal design ensures people with disabilities can [have access] while improving the experience for people without disabilities” (David Peter in Callis, 2016).

Subtitles and Captions

While the ADA requires closed captioning in a variety of settings, the FCC is responsible for quality control and enforcement. Effective March of 2015, the FCC “established four non-technical quality standards for captions: accuracy, synchronicity, completeness, and placement” (United, 2015). A memo released through the National Association of Broadcasters outlines what each of these means and how these affect broadcasting companies and their productions. Author and Deaf woman Svetlana Kouznetsova (2014) discusses the difference between subtitles and captions: “[subtitles] are not fully accessible because [they] do not include sound descriptions and speaker identifications” (p. 25), whereas captions do. Unfortunately for video game players who are d/Deaf or hard of hearing, video games do not adhere to the same standards as television broadcasts even for subtitles, let alone closed captions.

Typically, video game subtitles include a higher character count per selection and three or more lines as opposed to the audiovisual translation industry standard of 1-2 (Mangiron, 2016). Additionally, “console platform holders require that intralingual subtitles are verbatim” (Mangiron, 2016) and this is harmful not only to d/Deaf players but also second-language learners, people with low-literacy, and people who, for various other reasons, are unable to follow such a high volume of English subtitles (Mangiron, 2016).

Kouznetsova (2014) compares closed captioning to wheelchair ramps that benefit not only those in wheelchairs but also those with rolling luggage, baby strollers, and more (p. 23). Because closed captioning benefits so many people and not just the d/Deaf community, there is a strong marketable niche available for game developers. A “silent mode” would be a popular feature, both for people playing in environments where playing with sound is not an option and for people for whom the use of sound does not provide adequate access. As

Grammenos (2014) puts it, “a deaf person, someone in a noisy place, or someone playing with muted sound all have the same needs.”. Even hearing players report having problems with “some [subtitles] which [they] cannot read due to color clash, or they are too small, or a number of other problems” (Griffiths, 2009). The guidelines that apply to regular television captioning can typically apply to video game captioning, as well as giving gamers the option to interact with the scenes so they can press a button when they have finished reading and are ready to move on to the next screen.

This practice is fairly standard in a variety of games, including games in the *Super Mario* series (Nintendo EAD & Nintendo EPD, 1985-present), and non-cinematic scenes in *The Witcher 3* (CD Projekt Red, 2015) and others. While many games only allow this option outside of cinematic elements (cutscenes), others maintain this mechanic throughout the game, particularly classic Nintendo games, and others. This setup also allows all players more flexibility, as they can walk away from their game to respond to something in real life without fear of missing anything, take time to read through a dialogue more than once or read at their own pace, and more. Considering the previous discussion about immersion and flow in video games, Grammenos’ (2014) suggestion to allow customizable accessibility options becomes even more relevant.

Some games have begun taking steps forward to make their subtitles more beneficial, including the Xbox One pre-release version of *We Happy Few* (Compulsion Games, 2016), set to release officially in April of 2018. In this game, subtitles with some basic captioning are offered and feature the option to have white text over the graphics, white text with a black shaded background box, and a small and large size of each. Additionally, when multiple characters are on screen and engaged in the dialogue, text is lightly colored to demonstrate a difference in speaker.

History of captions. For the 20 percent of the population (Kouznetsova, 2014) who are d/Deaf or hard of hearing, fighting for subtitles and closed captioning has been a long battle. Although game development company Valve “found that the impact [of including subtitles] was minimal” (Bierre et al., n.d.) on the project time and costs, many companies still do not release subtitles with their games. In some cases, games have been released and the outcry from the d/Deaf community has been enough that the game developers later released subtitles or captions separately (Bierre et al., n.d.). Other times, they have simply released the tools and the game scripts to allow modders to add those accessibility features later on (Bierre et al., n.d.). However, while “Deaf gamers are delighted with the level of support the developers provided [. . .] The response by other gamers [. . .] was less than sympathetic” (Bierre et al., n.d.).

Assistive Technology and Technological Accommodations

While the availability of accessibility features in mainstream video games is limited, the community has historically responded with force and a shocking degree of innovation and skill. Accommodations have been produced for d/Deaf gamers, as well as gamers with other needs, including those who are low-vision, have specific motor-control needs, or others. Often, this technology is released by companies who specialize in related work, such as SUBPAC (SUBPAC, n.d.), who focuses on the way physical sensation enhance a person’s connection to music. These fields of study—full-sensory immersion, music research, and physical sensation research—contribute massively to the availability of accessibility-driven technology.

External technology. Some companies have been very successful, marketing their product for a wider market than just the d/Deaf community, and even sometimes beyond just gamers. SUBPAC, a “wearable technology that pulses sound through your body”

(SUBPAC, n.d.) offers a seatback and wearable option to allow users to experience sound physically. The wearable version fits like a thick vest and produces vibrations that allow users to feel the relative location of a sound's source and even the distinctions between sounds, offering the ability to “[f]eel the boom of a kick drum, the warmth of an 808, and the richness of soundscapes” (SUBPAC). They advertise the product as especially suitable for DJs and music listeners, virtual reality (VR) users, and video gamers, with an extra section discussing especially the benefits for those who are d/Deaf or Hard of Hearing.

The SUBPAC website markets the same features to both hearing and d/Deaf gamers, suggesting that the added element of physical cues allows players an advantage in gaming and eSports. They also suggest that the device allows players to enjoy the full immersion of a game without risking their hearing by turning up the sound extra loud (SUBPAC). Both the wearable and seatback versions of the device are compatible with “any gaming console, PC, or mobile gaming setup. If it has sound, it works with SUBPAC” (SUBPAC). Having partnered with Nyle DiMarco and Robbie “That Deaf DJ” Wilde, SUBPAC seems to have made great strides in developing a technology suitable for universal design while including the d/Deaf community and others who are directly invested (SUBPAC). According to an article on the Huffington Post, Gary Behm, Director of the RIT/NTID Center on Access Technology commented on devices like these, and others: “[F]or this type of equipment to be cost-effective, it must also benefit the hearing community. Businesses need to make a profit” (In Callis, 2016).

With universal design and universal accessibility in mind, technology that may seem to focus on too small a niche to succeed may actually appeal to a wider range of people. Several web posts across a number of platforms feature hearing gamers asking for advice on how to play games without sound when their speakers go out, looking for suggestions for

mods, technology, and even specific games that are more accessible. One forum on *The Escapist* (2012) includes a user asking for advice—“my PC is apparently dying, as it doesn’t register sound anymore, so I was wondering, whats [sic] a good PC game that you can play without sound” (charge52, 2012). Most of the responses only suggested strategy games, simulation games, or others that “aren’t that dependent on sound” (IRookieI In charge52, 2012). Although none of the comments specifically offered ideas about assistive technology, the fact that there is a need for accessibility features even beyond the d/Deaf and Hard of Hearing community is worth noting.

Other technological options include a “concept called Parallel Game Universe, or PGU” (Westin, et al., 2015, p. 373.). In “Balancing game universes for playing without sight or hearing” (Westin, et al., 2015), the authors discuss a model of universal design that allows gamers to play collaboratively in multiplayer while each seeing a uniquely designed version of the game, complete with accommodations to best match each of their needs. Each player plays on their own screen with accommodations designed for them and their interactions are then projected into the other players worlds (like any other collaborative multiplayer game) in a way that matches their own game world. According to the authors:

The concept of a PGU has four laws, which can be summarised as: 1) “A PGU should always adapt itself” to the player’s needs and the context; 2) “Each distinct PGU is ruled by its own laws”, and all game elements “must conform to these laws”; 3) game objects in PGUs can be either “private, shared, or monitored”; and 4) “The state of any interactive element can dynamically change at any time”. (Westin, et al., 2015, p. 373.)

The concern brought up in this text is whether blind players and deaf players can play together fairly if “[g]uidelines for deaf can utilise vision and guidelines for blind can use

hearing” (Westin, et al., 2015, p. 373). The authors conducted a study of this technology and discuss it more in depth in their work, which the author recommends for further information. However, the technology was available for these authors and researchers to program a game that met the individual needs of an entire group of testers, and this technology may make a difference in the future of accessible gaming. While this particular technology was not an external device, like the SUBPAC is, it is discussed here because it was not a modification to an existing game but an entirely separate setup. The next section will discuss modifications, both professional and community-created. For a working definition of mods, see the definitions table at the beginning of this text.

Mods. The gaming community itself has stepped up in response to the lack of accessibility features on many video games. In January of 2012, one player created a mod for the game *Minecraft* (2011). User Jack_Napier (2012), on *MinecraftForum.net*, posted their coding and a video demonstration of a mod that utilizes the textbox feature already present in the game to present text information to correspond with various sounds. In essence, this user created a captioning mod. The user offers that it works in both the multi-player and single-player versions of the game, and the video demonstration shows a player moving through an underground cave system and facing various monsters, with the details coming up in the textbox with information like “A nearby SKELETON rattles,” “An ARROW has landed,” “A nearby ZOMBIE moans,” (Jack_Napier, 2012), and more.

This mod’s captioning seems to accomplish what many games have not—it provides the information that is available to hearing players by sound without adding any sort of advantage; it includes the specific type of sound present, rather than just a blip for location (again, matching the information provided by sound. Hearing players also are unaware the

location of the sound's source in most cases.); and it utilizes features already present in the game or features that players are well-accustomed to to provide access without distraction.

Although the user has been inactive for several years now, they had originally posted some goals for themselves or future modders: "Future work(for accessibility in general): [1] Differentiate between distant noises and really close ones. Should be easy enough for me. [2] I won't be able to do this, but HUD-based 'being hit from' directions like major multiplayer shooters" (Jack_Napier, 2012).

Some game mods have been professionally developed, such as the Directional Sound Display (DSD), based on other sound-based compass systems for video games. This technology was specifically tested on FPS games and introduced in order to provide a way for gamers to receive visual information about the direction of a sound's source without being required to look away from the primary focus of their screen during gameplay. An image in the original article displays a player standing in an isolated area of the map with filled white circles in the top of the screen. Each circle represents a sound worthy of attention (sounds like the player's own footsteps were not coded into the program) with the circle's size representing the source's relative distance and the location across the top of the screen indicating the source's relative direction (Holloway, et al., 2011, p. 3). The authors reported that "all participants liked the concept of our program, and could imagine useful applications" (Holloway, et al., 2011, p. 3). They also write that players reported using the technology to help locate enemies in the map.

The researchers in this case specifically suggested that future work include programming the mod to display specific information about the sounds (Holloway, et al., 2011, p. 4). In this run, only the fact that sound was occurring was displayed, and players were not provided information as to whether it was gunfire, footsteps from other players,

grenades, or something else. They indicate that the DSD was largely successful because of one of its more unique features—that it directly overlaid the game being played, rather than acting as an additional feature (like a compass or a side-screen) (Holloway, et al., 2011, p. 4). Considering that this work was produced 6 years before the time of this writing, it seems likely that technology has significantly advanced and that these changes could be implemented into current studies, should they occur.

Language Accessibility

In the summer of 2017, animator Rick Lico shared a clip of his work on the upcoming game, *Moss* (Polyarc, exp. 2018). The game will feature an animated mouse named Quill, who works with the player to complete puzzles and tasks throughout the story. Originally, Polyarc’s animation team intended to allow only squeaks and basic miming for Quill to communicate. However, Lico decided to try something different and discusses in an interview that “I said ‘Hey, wouldn’t it be cool if we did some sign language in there,’ and [the playtester] just kind of nodded” (qtd in Fahey, 2017). Within a few days, Lico posted a clip on Twitter of Quill performing animated ASL: “NICE MEET YOU MY NAME Q-U-I-L-L” (Foofinu, 2017). The response has been overwhelming.

With over ten thousand retweets and thirty-one thousand likes on Twitter alone (as of November 2017), Quill became a fast celebrity. Hundreds of responses have shown up and most players are responding positively. Many responses indicate the desire for the game to be available across a greater variety of platforms (currently, the game is being released only for VR systems on PlayStation 4), and several people said they are excited to learn more about signed languages through this program. Others, however, are concerned about lack of access to comments in ASL, particularly without subtitles.

One user, @Limit760, took the opportunity to correct Quill's grammar, and another, @colorchromatics, asked, "why[sic] not just have them read text lol. I guess not every [signed language] reader can read the native language too. subtitles[sic] would be more efficient" (colorchromatics, 2017). gideonburkland indicated that their interest in the game was reduced because of this, writing that having a language that only a few players have access to makes it less appealing, and pushing for subtitles (gideonburkland, 2017).

Rick Lico took the opportunity to comment on the fact that all d/Deaf players play video games without full access to the language therein, and that Quill's language would not be necessary to get through the game, but a great perk for players who do use ASL. Overall, the responses were positive, and the clip quickly became viral. In an article written just two days after the video was posted, Mike Fahey wrote: "Rick Lico only had around 400 followers on Twitter when he posted the clip. [...] Now Lico has more than 2,300 followers" (2017). As of September 15, 2017, he has over 3,200. The public response has served to bring ASL into the limelight a bit, and will do so further upon the game's release, expected in Winter of 2017.

Interpreters

Social Justice, Advocacy, and Allyship

In many ways, interpreters have a vested interest in the overall accessibility of the everyday things, particularly for the d/Deaf and Hard of Hearing population. In 2015, Audrey Ramirez-Loudenback wrote that "values are at the core of the decision making processes, whether one is consciously aware of how and when these values are acquired and then expressed in action or not" (p. 13). She produced her Master's Thesis with this topic in mind, exploring the values that motivate interpreters to pursue interpreting. Ramirez-

Loudenback conducted original research based on the 10 motivational value types found in Schwartz's Motivational Value Theory (2015).

Out of this list of ten, self-direction, benevolence, and universalism ranked very closely together at the top of the list (Ramirez-Loudenback, 2015). She polled and used data from 298 interpreters and explored their demographics and backgrounds in her work. Benevolence was defined as “[p]reservation and enhancement of the welfare of people with whom one is in frequent personal contact” (Ramirez-Loudenback, 2015, p. 36—adapted from Schwartz), and universalism as “[u]nderstanding, appreciation, tolerance and protection of the welfare of all people and of nature” (Ramirez-Loudenback, 2015, p. 36—adapted from Schwartz). Both of these values were under the umbrella category of “Self-Enhancement” (Ramirez-Loudenback, 2015, p. 21), and she comments specifically on universalism, suggesting that “values of equality, social justice, and broad-mindedness were very highly rated by this sample” (Ramirez-Loudenback, 2015, p. 67).

The fact that so many interpreters rank social-justice and related values so highly demonstrates the nature of many of those drawn to the field. It is not clear whether interpreters might consider their call to social-justice and activism to extend beyond the scope of their work, or even precisely what the scope of their work is. Survey 2: Signers and Accessibility (below) explores this idea and leads to some helpful conclusions in this regard. Whatever the case, it is of the utmost importance that interpreters' work in supporting accessibility is actually to the benefit of the d/Deaf and Hard of Hearing communities, as well as the general public. Jessica Minges' 2016 Master's thesis explores this idea further.

In her work, Minges (2016) explores “intersectionality,” explaining that “categorization of individuals does not truly reflect the individuals that make up those categories [. . .]. Intersectionality impacts all individuals because one label or categorization is

not a simple delineation of a person's sole identity" (p. 10). She discusses intersectionality as the idea that people are not simply one identity or another, but rather the intersection of each of their identities, wholly each simultaneously. This idea is seen in other literature as well, and has become a popular idea, although it is not always labeled "intersectionality" as Minges (2016) has done. In an English translation of Robert Lee's (2014) *StreetLeverage* presentation, he explains that "[w]e each have many identities within us and various identities come to the forefront at different times." Minges (2016) goes on to discuss social justice and the role of interpreters.

She suggests that interpreters must learn to practice "allyship behaviors" (Minges, 2016, p. 12), and develop a relationship with the community that is supportive and promotes their own self-advocacy. They must "become aware of the very privileges that individualizes, institutions, and society [afford] them" (Minges, 2016, p. 27-28). Her discussion of allyship is adapted from a variety of sources and she outlines agent skill sets in her work that would be helpful for further reading on the subject. She suggests that allyship should be sought for the sake of social justice, and writes that:

[t]he motivations of the social justice ally are not only to liberate and support equity for a marginalized Target group or groups, but also to liberate themselves and reconnect with their own full humanity (Edwards, 2006; Freire, 1972/2000). The ally for social justice actively seeks out and opens themselves to critique from Targets in order to better work with Targets but also "as a means to illuminate their own oppressive socialization and privilege" (Edwards, 2006, p. 52). (Minges, 2016, p. 32—citations in original).

A key point made in this section is that it is "unlikely that the ally for social justice will self-identify as an ally unless members of the oppressed group identify them as such" (Minges,

2016, p. 33). The point driven by this thesis is the importance of working for the promotion of an underprivileged or oppressed group by following their lead, rather than by taking charge or making decisions without the guidance of the group itself. Minges (2016) suggests that allies and advocates should prioritize “collaboration with the marginalized group” (p. 33).

With this and more in mind, a motion was suggested to the Registry of Interpreters for the Deaf (RID) and was recently “passed by membership in 2015 to require 1.0 CEUs in Power and Privilege training per cycle” (Germani, 2016). In order to maintain RID certification, members must earn a total of 8.0 Continuing Education Units (CEUs) per certification cycle. Of these 8.0, 2.0 must be in Professional Studies (as opposed to General Studies), and this change requires that 1.0 of those 6.0 Professional Studies CEUs are in the study of Power, Privilege, and Oppression (Earning RID CEUs, n.d.). Discussion is still taking place, but one affiliate chapter, the Washington State Registry of Interpreters for the Deaf (WSRID) page publicly posted on March 22nd of 2018 that “RID has just signed the contract to update the database which means HQ can begin creating the structure for the PPO (Power, Privilege, and Oppression) CEUs in the database. It will take few months and hope by this summer” (Washington State Registry of Interpreters for the Deaf (WSRID), 2018). Because social justice, advocacy, and allyship are so interrelated but mean very different things for interpreters, it has become crucial that they learn how best to support the d/Deaf and hard of hearing community and the communities they work with in ways that align with each of these topics individually. Research like Ramirez-Loudenback’s (2015), Minges’ (2016), and more, as well as the recent changes taking place in the continuing education of RID interpreters all serve to emphasize this point.

Linguistic and Extra-Linguistic Knowledge

Christopher Grooms (2015), another WOU graduate, wrote his Master's thesis on interpreters in STEM fields, and expresses that “[t]he data shows that Deaf professional in the STEM fields prefer interpreters to have some degree of content knowledge in the disciplines in which they interpret” (p. 63). While the STEM fields are typically considered more specialized and jargon-intensive than other areas, and the stakes at risk are perhaps higher for interpreters working with Deaf professionals studying to become doctors or engineers, the root of the concern is the same. Interpreters interpreting content with field-specific jargon should be at least basically familiar with that content; whatever the ultimate stakes, accessibility is at risk in either case.

This idea is relevant in the field of video games as well, particularly considering the variety of settings that an interpreter could work in that is related (consider gaming events such as eSports or –con events; videos such as trailers, news releases, reviews, commentaries; or video games themselves). Recognizing the importance of video game culture (see *What is Video Game Culture? Cultural Studies and Game Studies*, by Adrienne Shaw, for more information) and its parallels to other subcultures or cultural groups, the importance of related linguistic and extra-linguistic knowledge becomes clear. In an interaction between a hearing consumer and a Deaf consumer, an interpreter who translates SCARE GAME to “scary games” may lose face for the Deaf consumer, who meant to discuss the horror genre. Other terms may be less clear to those in the “out-group” category—consider the terms and definitions at the beginning of this work. This idea will be discussed later in relation to the logistics and considerations necessary in the Translation Project.

Chapter Three: Methodology

For this topic, the lack of directly related literature necessitated the performance of original research. To that end, the author conducted two surveys intended to explore different perspectives on a variety of topics in this subject. Additionally, a translation project was undertaken with a classmate in Western Oregon University's undergraduate interpreting program. This research was conducted with appropriate permissions, and guidance from professors Erin Trine and Dr. Gavin Keulks, and the willingness and consent of every participant.

Limitations of Study: Surveys 1 and 2

Since both surveys conducted for this thesis were created and used similarly, their limitations will be considered here together. Limitations include those naturally occurring in survey research, such as the fact that surveys necessarily capture a moment in a respondent's life and their opinions then, rather than ongoing trends or changing ideas. They are also limited in outreach by requiring respondents to have access to the internet and knowledge of the survey's existence. Finally, they are based solely on respondents' self-reported answers and cannot be vetted for accuracy or honesty; respondents can lie.

Although the representation of these surveys, as discussed later, was generally adequate, it was skewed some by the methods of recruiting participants, and by the pools of possible respondents available to the author. In each survey, questions were posed to an intended audience of gamers, d/Deaf and hard of hearing individuals, interpreters, interpreting students, signing professionals, and Deaf community members, although the survey was open for anyone to participate in. This limitation is thus twofold in that many people responded who were not part of these intended demographics, and in that there is the possibility that some people chose not to answer the survey due to perceptions of ill fit.

The self-reported ages of respondents was limited both by the fact that only people over 18 years old were allowed to respond and that the surveys might have reached different age groups than the demographic makeup of the video game community, particularly with the goal of reaching other communities as well. The fact that Survey 2, in particular, was posed as relating specifically to the field of interpreting might account for the wealth of respondents over the age of 30 (26 under 30, compared to 41 over 30).

The first of these surveys collected a total of 124 responses and the second 67, which serves to represent only a very small percent of the population. Responses were relatively qualitative in nature, despite a survey being a generally quantitative research method. However, while the numbers are certainly not high enough to prove statistically significant on a national scale, they are generally representative and extremely useful for drawing some preliminary conclusions for the purposes of this thesis.

With regards to the educational backgrounds of respondents to these surveys, there are important limitations to keep in mind. The author's own connections largely influenced who participated. As the author herself is part way through her sixth year of college (at the time of this writing), it makes sense that she would primarily have similarly educated connections available to draw from. Additionally, interpreters recently certified through the Registry of Interpreters for the Deaf (RID) were required to have at least a Bachelor's degree in some subject in order to sit for the certification tests, or to demonstrate that they had achieved equivalent educational experiences in other ways.

Survey 1: Video Game Accessibility

In this survey, 17 questions (see Appendix A) were posed to an intended audience of d/Deaf and hearing video game players, including demographic information, information about gameplay habits, and preferences regarding sound and subtitling/captioning. Of these

questions, 12 were multiple choice, 1 provided a rating scale, and 4 were open-ended essay questions. This survey was conducted using SurveyPlanet and each question was designed originally by the author and then approved by Professor Erin Trine and WOU's Institutional Review Board (permission obtained 13 December, 2016). The first response was received on the 20th of January, 2017. The SurveyPlanet account used to collect data was only available to the author and the advisors permitted access through the IRB application.

The only requirement for participants was that they be 18 years or older, which admittedly did narrow the scope of video game players, although Lofgren (2016) cites the average age of gamers as 35 years old and that approximately 60% of gamers are over the age of 18 (number extrapolated from data by Lofgren (2016)). SurveyPlant only recorded answers provided by the participants themselves, and did not keep email or IP addresses, or any other identifiable information. Links to the survey were distributed across Facebook groups specific to video games, interpreting, ASL, and on personal Facebook pages by those willing to share the link, as well as in a campus-wide email to Western Oregon University's faculty, staff, and student body. This method is similar to snowball sampling (Snowball sampling, n.d.), wherein the researcher's initial participants refer their own acquaintances, thus increasing the size and diversity of the research pool.

There were no more than minimal risks to participants for this survey, although the possibility of emotional reaction to questions of accessibility and the realization of video game inaccessibility was made clear, and implied consent was obtained by the agreement of subjects to participate in the survey. Respondents could, at any time, leave the survey, and only the question regarding age of the subject was mandatory.

Benefits to participants included having the opportunity to critically examine their own practices and habits, as well as become aware of an area of inaccessibility of which

many had not previously been aware. In addition, several respondents emailed the author personally afterwards, indicating their interest in her research and data, and have expressed excitement about the upcoming publication of this research. Although the number of participants was fairly small for this type of research, the representation was greater than expected.

For purposes of analyzing the data collected by this survey in terms of respondents who might also identify as “gamers” or who are experienced with video games, the distinction was made between respondents who reported playing games “Sometimes” or more often, and those who reported playing less often. While Lofgren (2016) cites a number that indicates 48% of Americans play video games regularly (by their definition), over 54% of the respondents to this survey play “Sometimes” or more often. Lofgren’s (2016) definition of regularly was “3 or more hours per weeks [sic],” but this survey did not specify a number of hours per week.

After examining the short-answer responses discussing why some respondents play video games without sound, open-coding was used and a total of 7 distinct reasons were identified. Of the 63 answers to “If you play without sound, why?”, the following themes were determined: Unnecessary, Habit, Preference, Bother, Other Audio, Private, Hearing, Distracting, Annoying, and Distracting/Annoying. These last three categories were considered separately and together because many of the responses could be coded either as “Distracting” or “Annoying,” and many could be coded as both, although some were more distinct. Together, these might best be coded as “bothersome,” a reason which represents 24% of all responses.

Code	Description
Unnecessary	That the games they play do not require sound to play well.

Habit	That they got into the habit of playing without sound and simply continued doing so.
Preference	Unspecified or general preference.
Bother	That they preferred not to disturb others in earshot. This also included situations like sleeping babies or antsy cats.
Other Audio	That they preferred to listen to a podcast, music, or other audio.
Private	That they wished not to draw attention to themselves for playing video games.
Hearing	Specifically that they were unable to hear the game due to d/Deafness or a noisy environment.
“Bothersome” (including Distracting, Annoying, and Distracting/Annoying)	That they tend to find the sound annoying, distracting, or both. Often referred to the extra challenges presented by a game’s sound that make focusing difficult.

Table 1: Survey 1: Codes and Descriptions for Why Gamers Play without Sound

These results were examined further to explore whether there was a correlation to the gaming platform the participant preferred to play on or how often they played games. Since the author’s own experience is primarily limited to console (Xbox and PlayStation) gaming, with some PC/Mac experience, these numbers were of the greatest intrigue. Additionally, these are the platforms that seem most naturally conducive to assistive technology or interpreting services. Participants in this survey were also asked to rank their satisfaction of subtitles, and these responses were coded as above and also compared.

Code	Description
Style	That subtitles were not user-friendly to turn on or off, that they did not provide adequate identification of who was speaking, or that they were difficult to read due to size, color, font, background, etc.
Quality	That they were incomplete or that their timing was “off” or wrong.
Lack	That subtitles were unavailable or incomplete (such as being unavailable except in cutscenes, or unavailable during fight scenes).

Environment	That they did not include adequate information about the environment, such as footsteps, music swells, ambient noise, etc.
CC	These respondents specifically referred to “captions” or “closed captions” by word. These could also be coded in with “Environment” in most cases, but were only coded dually when both were referred to.
Overwhelming	That the design of the subtitles made it difficult, stressful, or impossible to follow along and play at the same time, or that the extra visual information was distressing.
Auditory	That they did not include adequate information about tone of voice, accent, speech patterns, or other auditory information outside the scope of just environmental noises.
Distracting	That they drew attention away from the rest of the game and made gameplay more difficult. Different from overwhelming in that stimulation or distress were not discussed in these responses.

Table 2: Codes and Descriptions for Why Respondents Were Dissatisfied with Subtitles to Any Degree

Code	Description
Reading/Speed	That reading the subtitles slowed them down, or that subtitles were not typically played at a speed that allowed them to be useful.
Unnecessary	That the games the respondent preferred either did not require subtitles OR sound information, or that they did not require subtitles (this distinction was not made clear).
Sound	That the respondent preferred to rely on sound, or that they found subtitles unnecessary since they relied on sound.
Presence	That subtitles were not available for the games the respondent preferred.
Distracting	That the subtitles were simply a distraction to gameplay.
Graphics	That subtitles either messed with the on-screen graphics or got in the way, taking up space on the screen.
Reading	That the respondent did not want to read them.
Preference	(Unspecified Preference).

Table 3: Codes and Explanations for Why Some Gamers Prefer to Play Without Subtitles

Unlike the previous set of codes, those regarding why gamers who preferred to play with subtitles did prefer to play with subtitles were decided with a slightly different goal. Before, the author was aiming to figure out what sort of patterns cropped up in the results and limit the codes to a manageable set. With these, however, the researcher was trying to find a broader range and discover the specifics of each individual answer. For that reason, several of these codes only had one or two responses, while others had as many as 24. This is meant to act as insight into the variety of reasons participants did or did not prefer to play with subtitles. The descriptions of these codes are explored in Table 4.

Table 4: Codes and Descriptions for Why Participants Preferred Not to Play with Subtitles

Code	Description
Clarity	That subtitles provided support for when audio information (such as dialogue) was unclear.
Dialogue	That subtitles allowed the participant to catch more of the dialogue.
Voice Quality	That subtitles assisted participants in understanding when a speaker has a heavy accent, dialect, unusual manner of speaking, or poor voice acting.
Reading/Speed	That reading subtitles was faster than waiting for the audio to play.
Reading	That reading subtitles is generally enjoyable.
Real-World Noise	That subtitles helped support understanding when real-world noises presented distractions or made audio information inaccessible.
Information	General: that subtitles provided greater access to a game's content.
Together	That understanding was improved when information was received both visually (subtitles) and auditorily (audio information).
Process	These responses included specific reference to Audio Processing Disorders, or other processing challenges that were alleviated by the support of subtitles.
Habit	That the participant often watched foreign films, documentaries, anime, or had grown up using subtitles on video games and that that habit had continued for them.

Default	That subtitles were used either only when they were on by default or because they were on by default (this distinction was not clarified).
Cues	Specifically that subtitles [captions] provided important information about audio cues, such as footsteps, music swells, etc.
Immersion	Specifically that subtitles allowed the participant to engage deeper with the game's story, plot, or environment.
Multitasking	That subtitles allowed participants to engage in conversation with others, listen to other audio, watch TV, or something else while also playing games.
Preference	(Unspecified preference).
Identification	That subtitles provided important information as to who was speaking and when, particularly when the game's sound mixing made that difficult to ascertain through the audio.

Table 5: Codes and Descriptions for Why Gamers Preferred to Play with Subtitles

Survey 2: Signers and Accessibility

In this survey, 13 questions (See Appendix A) were posed and of these questions, 7 were multiple choice, 3 requested short answers, and 3 were open-ended essay questions. This survey was conducted using SurveyPlanet and each question was designed originally by the author and then approved by Professor Erin Trine and WOU's Institutional Review Board (permission obtained 4 May, 2017) and the first response was received on 11 May, 2017. The SurveyPlanet account used to collect data was only available to the author and the advisors permitted access through the IRB application.

Many of the same demographic considerations were explored in this survey as in the last, with the addition of a few questions (see Appendix A for a full list of survey questions and responses for both surveys), and the redaction of others. To ensure that all respondents were over the age of 18, as required by IRB approval as agreed upon, all participants were asked to indicate their age.

The nature of this survey was unique compared to Survey 1, as every question after demographics was either entirely open-ended, or guided open-ended (i.e. “Yes or No? Please explain.”). As such, the data had to be coded for themes and cross-referenced to other bits of information. This was particularly relevant when considering the goal of this project as a whole and so the data was analyzed with the following questions in mind:

1. Is there a need for video game accessibility to increase?
2. Who or what is doing anything about it?
3. Who do stakeholders identify as responsible parties?
4. What do stakeholders want to see?

In this way, the research was paired down and specific themes were examined.

Translation Project

During the Spring, Summer, and Fall of 2017, as well as the Winter of 2018, the author conducted a translation project with Jay Slater Scancellia, a classmate in WOU’s ITP. Table 1 features translator profiles that were accurate at the time of the translation project and reflect each individual’s experience with ASL, regional experience, experience in academia, and experience with video games, as well as factors like age and gender identity. Each translator’s profile is based on self-reported identity and experience information.

Tag	Rebekah Cheeley	Jay Slater Scancellia
<i>Age</i>	21	24
<i>Gender identity</i>	Woman	Man
<i>Years using ASL</i>	5	5.5
<i>Age at first start of ASL use</i>	16.5	19
<i>Region of first ASL use</i>	Washington (Bremerton)	Washington (Seattle)
<i>Years in Oregon</i>	~3.5	~2.5
<i>Academic minor</i>	Philosophy	ASL Studies
<i>Familiarity with video games, 0-3 scale</i>	PC: 1; Console: 3	PC: 3; Console: 2
<i>Years playing video games</i>	15+	15+

Table 6: Translator Profiles

This project was conducted with the guidance of Professor Erin Trine, as well as with the consultation of Deaf community members and working interpreters, in addition to members of the gaming community of which both translators consider themselves members. The focus of this project was to conduct an experiment to determine the logistical elements of including interpreters in some area of video game materials. In this case, a text was chosen from YouTube—an ~11:00 minute video revealing the *Nintendo Switch* that released in March, 2017. The speakers in the video appear to include one man and one woman, which contributed to the author's selection of Slater Scancellia to participate in this project, in order to best represent and match the original speakers.

Data was recorded regarding the translation process itself, what sorts of resources were consulted, how much time was spent, and other logistical information that came up, including how and where to record and how to best include the translation on the original text. For these decisions, consultants played a vital role, although various options were attempted in order to see the pros and cons of each.

Permission was obtained from WOU's IRB through an addendum (approved 4 May, 2017), and work began mid-June 2017. Slater Scancellia's participation served as implied consent, and he worked closely with Professor Trine and the author to ensure that all parties were aware of any associated risks, of which none were foreseeable, and that all parties were aware of what materials may be published and what materials may be thus associated with their names.

The translation process itself was based on the system used in interpreting classes in WOU's ITP, as designed in part by Professor Erin Trine, *Meaning-Based Translation* (Larson, M. L., 1984), and on *The Meaning of Texts* (Witter-Merithew, A., Taylor, M., & Jonson, L., 2002). These sources were adapted to include text analysis of linguistic features and

discourse structures, a detailed consideration of consumers and the context of the translation, a TAP (Think Aloud Protocol) wherein the translators watched the source text and recorded their immediate reactions.

The goals of the project were as follows:

1. To identify areas of consideration uniquely necessary to interpretation/translation for video game related media
2. To identify specific and unique ways in which hearing interpreters/translators might benefit from collaboration with Deaf and native signers
3. To explore the degree of expertise in video gaming necessary for effective interpretation/translation for video game related media

Over the course of the several months spent on this project the authors varied their approach between interpretation and performed translation. Due to the limitations of time and resources, only one translation project was performed. To that end, the translators made a point of collecting whatever data they could regarding the process in order to examine the logistics and necessary considerations for both types of work, by noting particular *demands* (see Dean and Pollard's (2001) writings for more information) that arose as a result of each. These are discussed in Chapter Four with other findings.

During the entire process, drafts were periodically sent to community members, gamers, and interpreters for review. This was particularly helpful for ensuring that the goals of the translators in the project were being adequately demonstrated. The translators focused on structure, ASL grammar, and cultural behaviors, including use of space, word order, use of classifiers and depiction, and more. This was done for several reasons.

First, the translators wanted to consider the linguistics of the project when the language use was furthest from their L1 using, assuming that this would take more time and

more careful analysis than a translation that more heavily demonstrated English features, including word order, lexical items, and more. Secondly, the translators felt it was important to consider who their target audience would be, based both on the source text and the nature of interpretations. The translators wanted to focus their work on an audience who would not benefit strongly from English subtitles due to more prominent ASL fluency, or to monolingualism. The reviewers selected throughout the process were also chosen for their perceived or actual ability to consider these things in particular.

The last step was to put the video together, which required separate logistic considerations. Commonly, performed translations are presented live (as with theatre interpreting), or in a picture-in-picture box (such as for the news or another video source). Picture-in-picture sometimes includes the source in the background with the interpreter(s) in a smaller box or a box to the side, both pictures side-by-side, or with the interpreter in the background and the source in a smaller box. The last of these options is the most visually friendly since it allows those receiving information visually to see it the largest, while those receiving it auditorily are not typically impaired by a smaller picture. However, careful considerations had to be included here, since both the performed translation and the source were wide-frame, and both provided crucial visual information (the interpretation providing visual language access and the original source video providing visual access to the device being examined). Having both pictures side-by-side is less common than the others in terms of media typically found on television or online and the translators wanted to be sure to consider the other alternatives in more depth.

Chapter Four: Findings

Survey 1: Video Game Accessibility Results

Representation

According to Lofgren (2016), men composed about 49.96% of the gaming population in 2015, and women 47.82%. While 60% of the population of this survey self-identified as female and 38% as male (see Figure 1), not every respondent reported playing video games particularly often (see Figure 2). However, counting only those respondents who self-reported playing video games “Sometimes” or more (Sometimes, Often, or Regularly), the statistical breakdown is skewed the other way, indicating that it is closer to representative (see Figure 3), with 37% of respondents who play “Sometimes” or more often self-reporting their gender identity as female, and 60% of them male. Two respondents selected “Neither” and that has been included here, while no one selected “Other,” and it has not been included here. Over 54% of respondents to this survey reported playing video games “Sometimes” or more often and this qualification serves as an adequate middle ground for the purposes of this study. This survey includes at least fair representation.

Figure 1: Gender Identity of Respondents (Self-Reported)

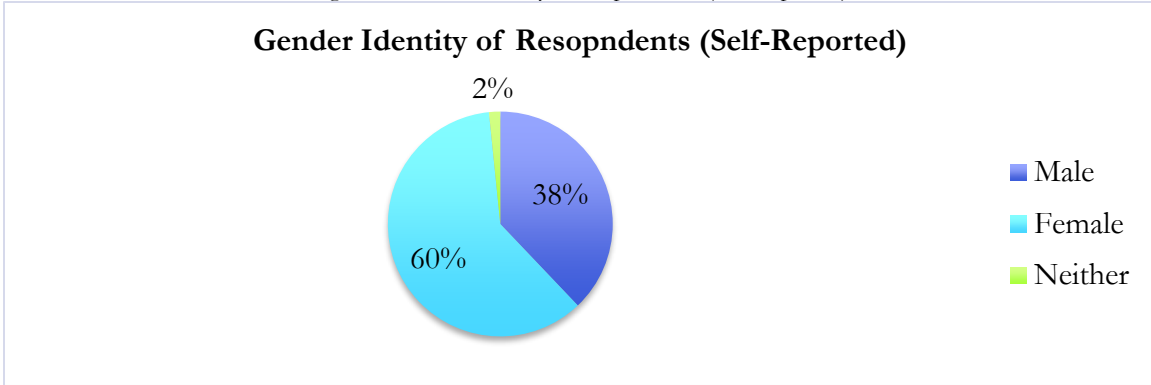


Figure 2: Respondents by Gender Identification and Gaming Habits

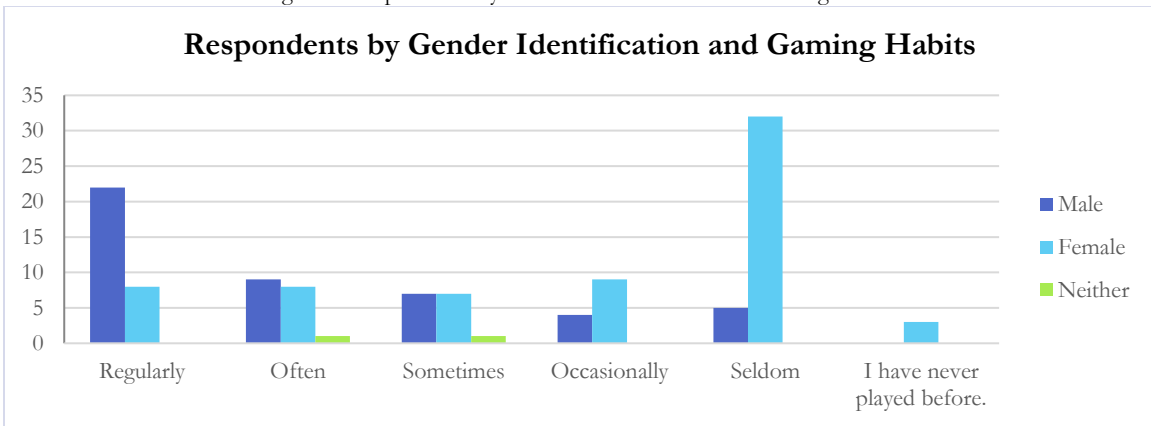
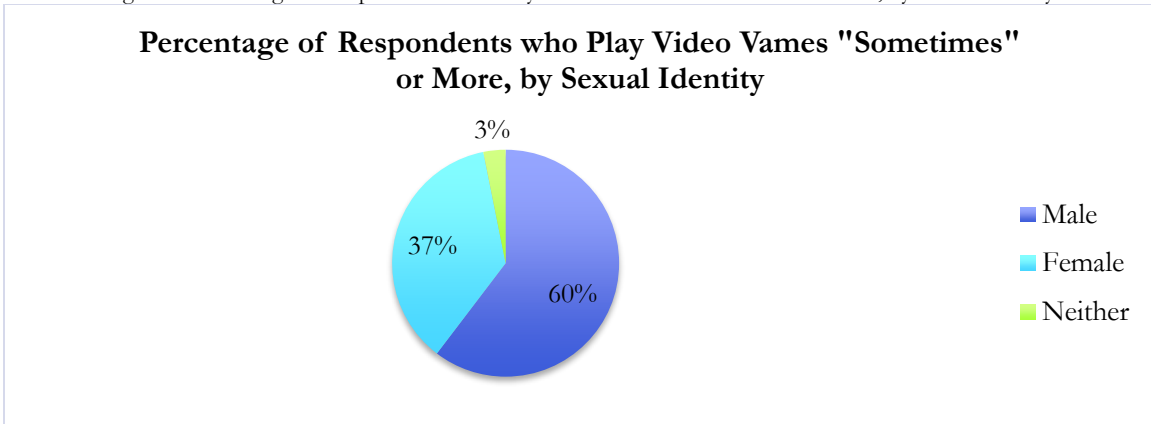


Figure 3: Percentage of Respondents who Play Video Vames "Sometimes" or More, by Sexual Identity



Lofgren (2016) also suggests that the average age of gamers in 2015 was 35 years old, and the mathematical average for this survey fell between the 26-30 range and the 30-40 range. The mean was 26-30 years old, younger than Lofgren’s numbers possibly due to the

fact that the primary source of respondents were college students. The average and mean were the same whether respondents who play less often than “Sometimes” were discounted. Figures 4 and 5 below show the age spans of respondents by number of respondents in each span, and the same information when only respondents who play games “Sometimes” or more often are included, respectively.

The majority of respondents were in the 18-25 range, at around 43 respondents, while about 20 were in the 26-30 range, 28 in the 30-40 range, and 35 in the 40+ range (see Figure 4). These numbers looked very similar when only respondents who play “Sometimes” or more often were considered, with around 28 respondents in the 18-25 years old range, 15 in the 26-30, 19 in the 30-40, and 9 over 40 (see Figure 5).

Figure 4: Age Spans of Respondents

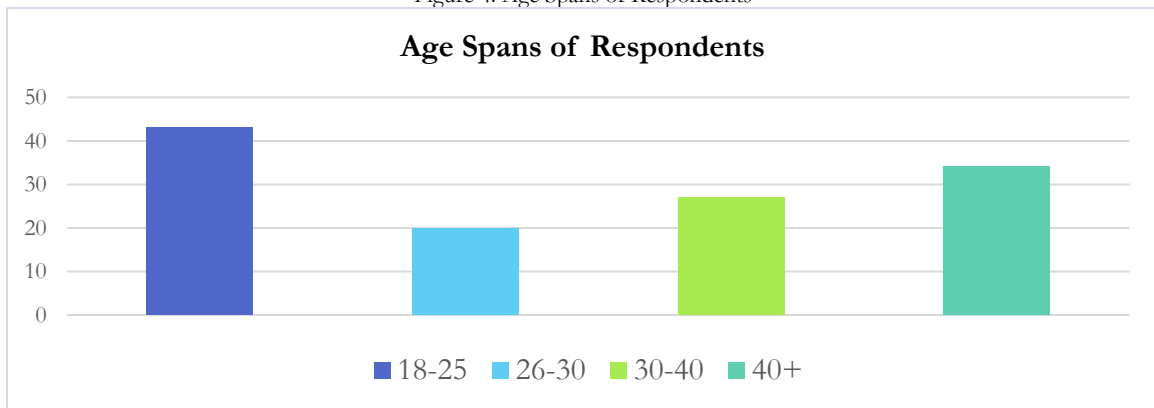
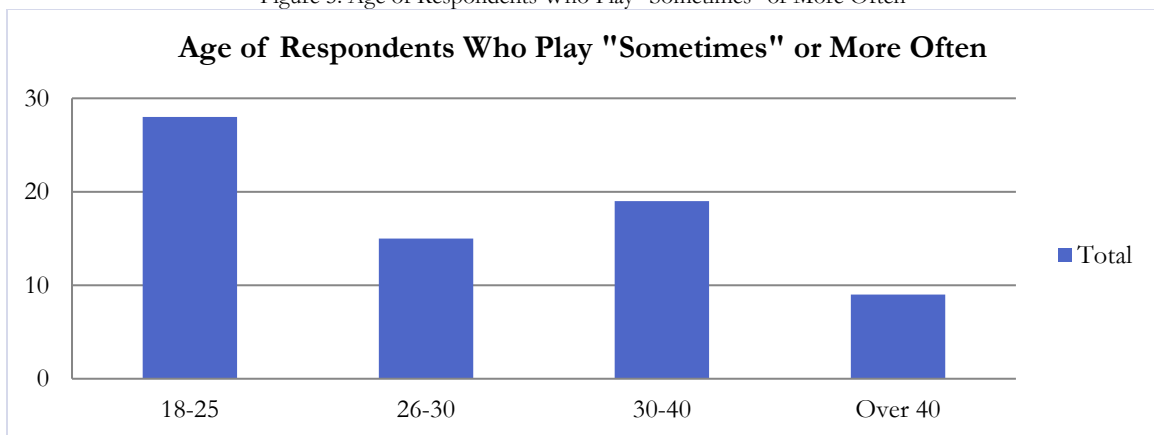


Figure 5: Age of Respondents Who Play "Sometimes" or More Often



Finally, based on the math from earlier, wherein the author estimated that there are around 23 million gamers who are d/Deaf or Hard of Hearing (based on the statistics in Lofgren’s (2016) and Kouznetsova’s (2014) texts), fair representation of d/Deaf and Hard of Hearing populations relative to hearing populations would need to be 14% or higher. In considering only the members of each population that actively game, that number swells to 15%. Thus, fair representation would require at least that percentage of respondents to meet those criteria: d/Deaf or Hard of Hearing, and d/Deaf or Hard of Hearing gamers who game “Sometimes” or more often.

From the entire pool of respondents, 76% self-identified as hearing, 11% as hard of hearing, 7% as d/Deaf, and 6% did not disclose their audiological status (see Figure 6). However, out of the pool of respondents who also reported playing video games “Sometimes” or more often, only 68% self-identified as hearing, 13% as hard of hearing, 10% as d/Deaf, and 9% did not disclose their audiological status (see Figure 7). Comparing these numbers to the necessary numbers for representation extrapolated above shows that this survey achieved representation (See Table 2).

Table 7: Survey 1: Necessary and Actual Representation

	Necessary	Actual (See Figures 6 & 7)
Representation of d/Deaf and Hard of Hearing population.	45 million people (Kouznetsova, 2014), out of 318.9 million people in the United States. = 14%	22 d/Deaf and HOH respondents (8 d/Deaf, 14 HOH), out of 116 total responses. = 19%
Representation of d/Deaf and Hard of Hearing gaming community (based on those who report playing “Sometimes” or more often).	23 million d/Deaf and HOH gamers (author estimate), out of 155 million gamers (Lofgren, 2016). = 15%	16 d/Deaf and HOH gamers (7 d/Deaf, 9 HOH), out of 64 total gamers who disclosed their statuses. =27%

There were an additional 8 total respondents (6% of all respondents) who did not disclose their audiological status (See Figure 6), totaling 124 respondents to this question. Even if

each of those undisclosed respondents identified as Hearing, 18% of respondents (out of 124 total respondents to this question) identified as d/Deaf or Hard of Hearing, still exceeding the required 14% for representation. This is also true when considering only those respondents who reported playing “Sometimes” or more often, where 9% of respondents did not disclose their audiological status (See figure 7). However, among respondents who reported playing video games “Sometimes” or more often, including those who did not disclose their audiological status, 23% of respondents identified as d/Deaf or Hard of Hearing (See Figure 7), exceeding the necessary amount for adequate representation.

Figure 6: Audiological Status of Respondents

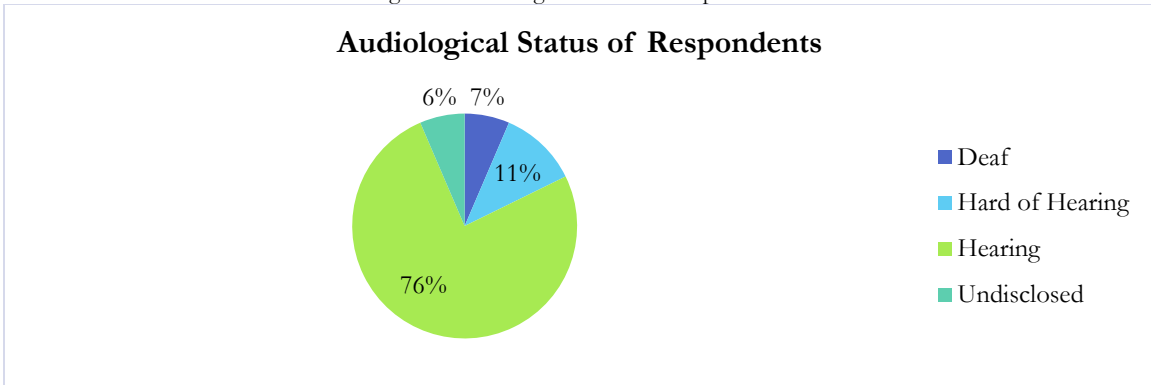
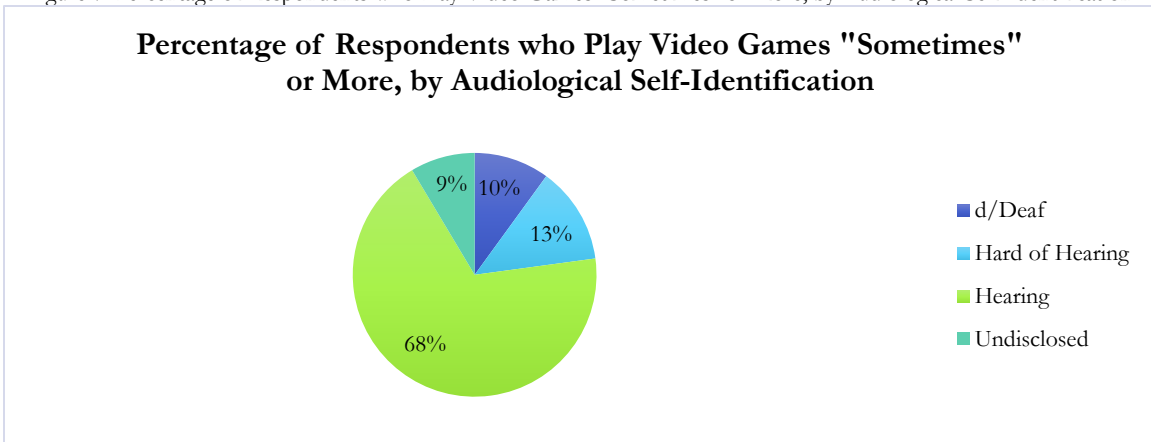


Figure 7: Percentage of Respondents who Play Video Games "Sometimes" or More, by Audiological Self-Identification



The data collected by this survey actually underrepresents those populations which are indicated as majority groups in other sources. For the purposes of studying specifically video game inaccessibility for d/Deaf and Hard of Hearing gamers, this skew is appropriate.

Summary

Of 125 responses, one was deleted immediately because the participant indicated that they were under the age of 18. Of the 124 that remained, 100% responded to the first 10 multiple choice questions (excepting a 94% response rate in regards to the disclosure of audiological statuses), and 98% reported how often they play with subtitles. The remaining two multiple choice questions had much lower percentages, but one was targeted specifically at d/Deaf and Hard of Hearing individuals (and received a 46% response rate, indicating that a number of hearing people responded anyway) and 75% rating their satisfaction with subtitles. Several respondents who did not answer this last multiple choice question later indicated that they had little or no experience with subtitles due to their inexperience with video games (40% of those who responded to “How often do you play with subtitles?” indicated they “Never” do). Participation in the open-ended questions ranged from 31% to 65%, with an average of 51% participation.

Of those who responded to the question, 60% reported playing games without sound or in an environment where they could not hear the game sufficiently “Sometimes” or “Regularly,” and 40% “Rarely” or “Never” (See Figure 8). Discounting those participants who play video games less often than “Sometimes,” those numbers change significantly, and reveal that 71% of gamers play without sound or in an environment where they cannot hear the game sufficiently “Sometimes” or “Regularly,” and 29% “Rarely” or “Never” (See Figure 9). However, only 6 participants said they play without sound because they cannot hear it

and the majority of these 6 responses indicated that noisy environments overshadowing game sound was to blame for that.

Figure 8: How Often Respondents Reported Playing Without Sound or in an Environment Where they Could Not Hear the Game Sufficiently

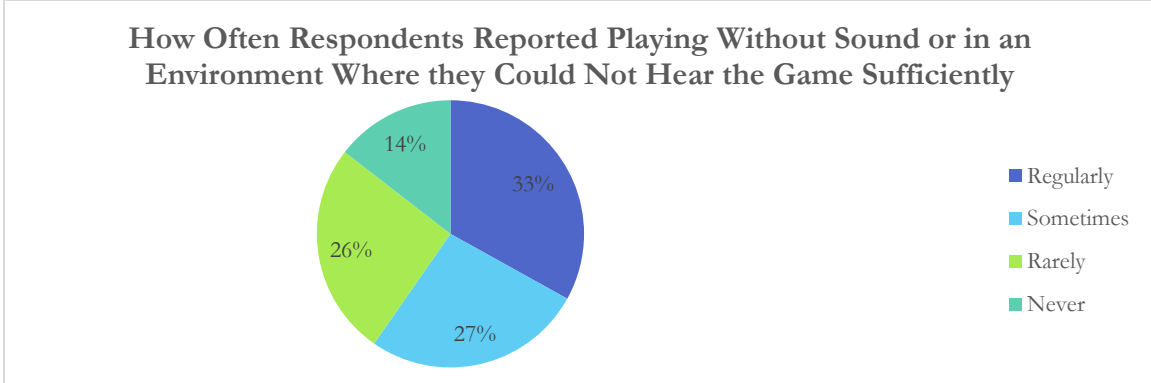
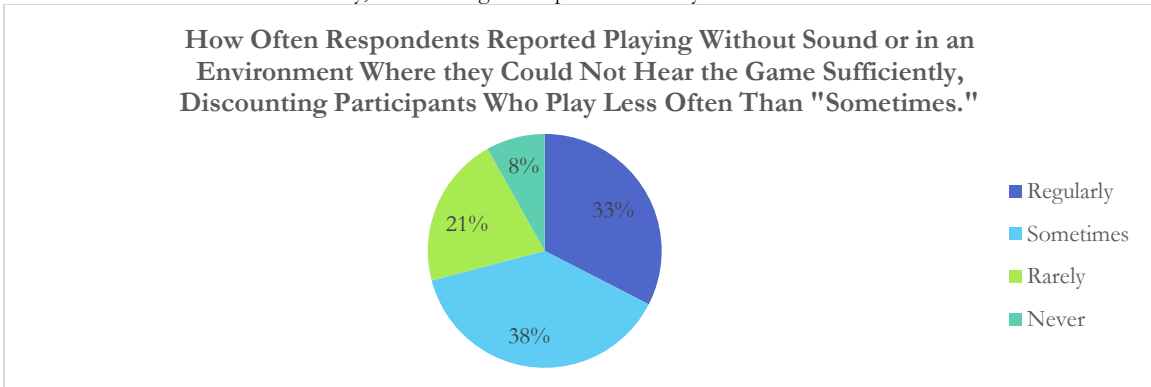


Figure 9: How Often Respondents Reported Playing Without Sound or in an Environment Where they Could Not Hear the Game Sufficiently, Discounting Participants Who Play Less Often Than "Sometimes."

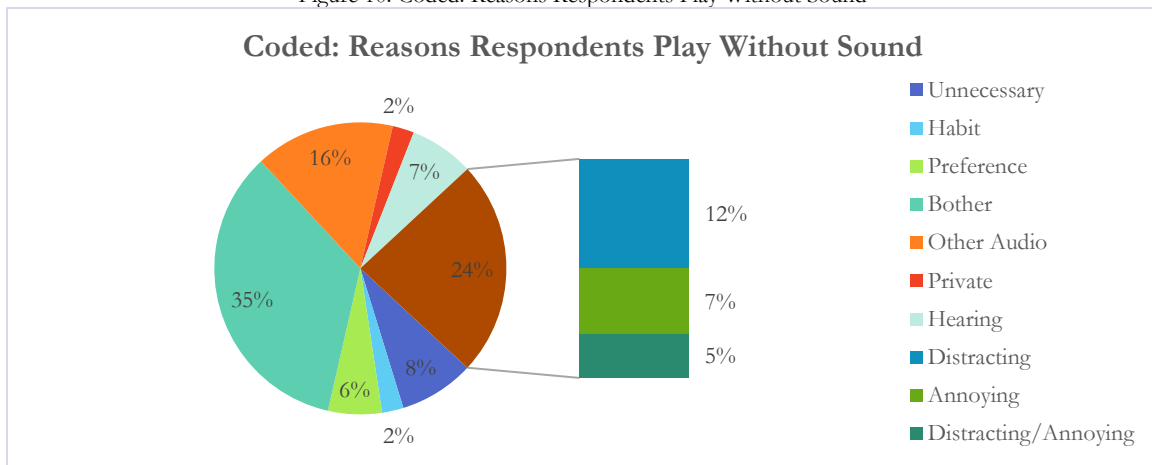


The reasons that gamers preferred to play without sound or often do play without sound are provided below in Table 3, providing criteria for each code applied to responses. Of these codes, the most prevalent was “Bother,” with 34% (See Figure 10), indicating that most players who play without sound do so to avoid bothering others in the room or around. This included cats, babies, neighbors, significant others, and especially those who are sleeping nearby. Considering “Bothersome,” as one code, including “Distracting,” “Annoying,” and “Distracting/Annoying,” this was the second most prevalent response, with 24% of total responses (See Figure 10). However, if these codes are not considered

together, the second most prevalent reason for players to play without sound was “Other Audio” with 16% of responses indicating that they turn down or turn off game volume in order to listen to music, podcasts, or other audio, including another person speaking in the room (See Figure 10).

Other reasons, from greatest to fewest number of respondents, were that a game’s sound was “Unnecessary” (8%); “Hearing,” that the play could not hear the sound anyway (7%); and simply that it was the respondent’s “Preference” (6%). “Private,” that the player preferred to keep the fact that they were gaming to themselves, and “Habit,” that the play was used to playing without sound or watching TV without sound and that they just continued doing so, each applied to 2% of responses (See Figure 10).

Figure 10: Coded: Reasons Respondents Play Without Sound



The majority of players who preferred any generation of Xbox console were most concerned with disturbing others in the vicinity, and the majority of players who preferred any generation of PlayStation console felt the same to a greater degree (percentage-wise) (See Figure 11). Although 2 Xbox players deemed sound unnecessary, 1 preferred to remain private, and 3 deemed sound bothersome, no PlayStation players indicated any of these reasons. However, 2 PlayStation players responded that they played without sound because they were unable to access it, either due to deafness or to a noisy environment. Xbox players

were also more likely to listen to “Other Audio” than PlayStation players. (See Figure 11 for a visual representation of this information).

Furthermore, PC/Mac players were most likely to prefer to play without sound due to finding it bothersome, although only two fewer respondents referred to their preference not to disturb others. Unlike both Xbox and PlayStation gamers, no PC/Mac gamers indicated that playing without sound was habitual, or that they wished to remain private. They also expressed unspecified preference, which neither group of console gamers did. (See Figure 11).

Figure 11: Coded: Reasons Gamers Play Without Sound by Preferred Gaming Platform

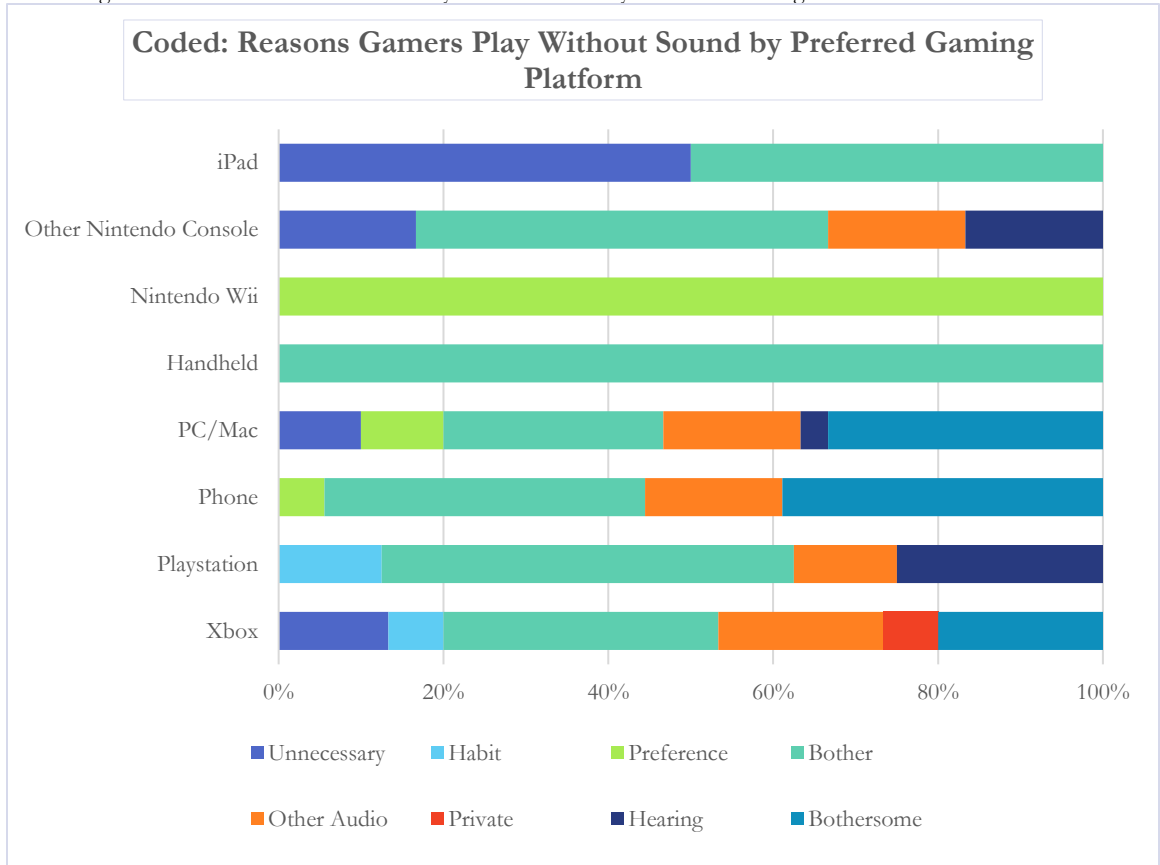
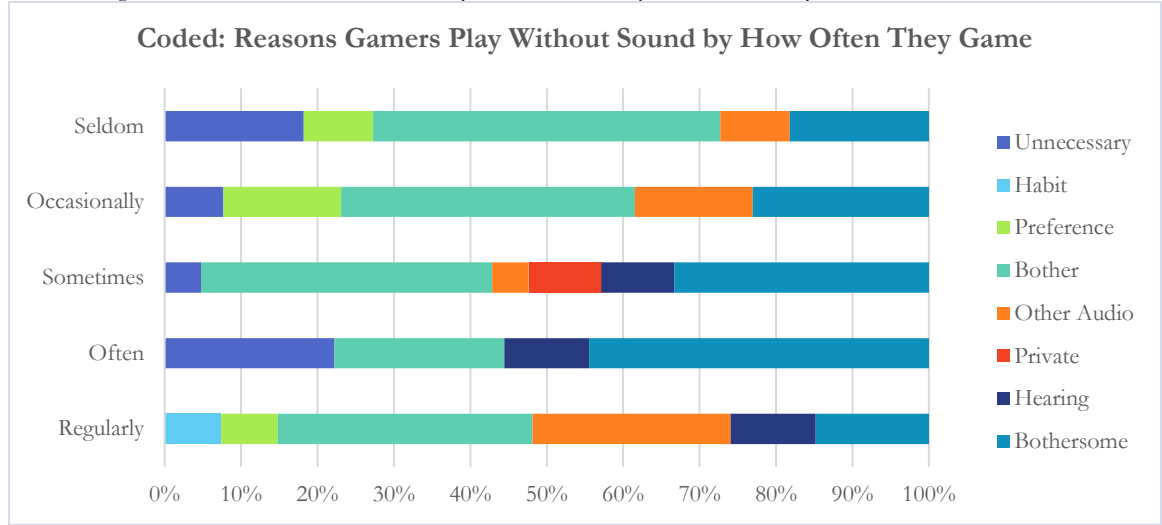


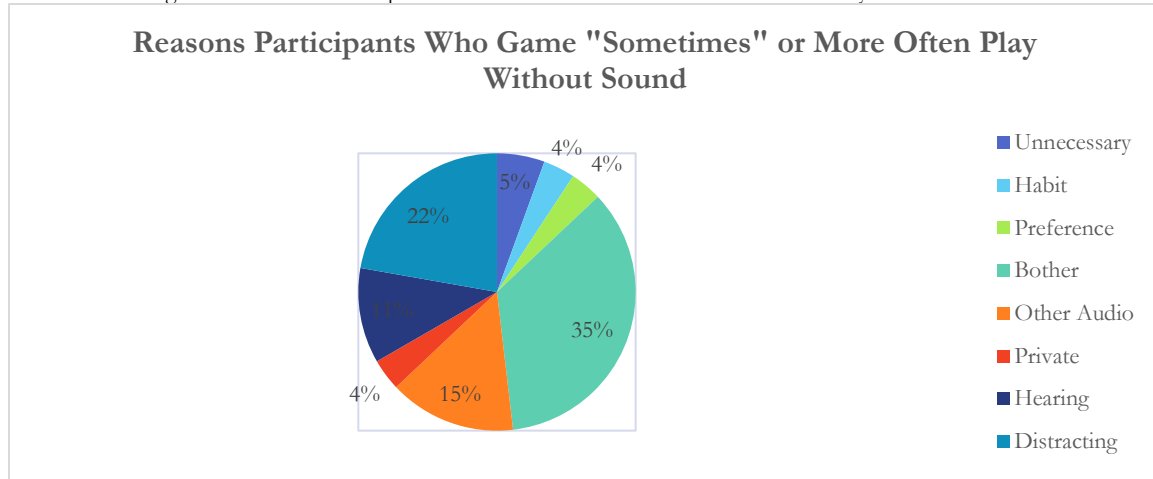
Figure 12: Coded: Reasons Gamers Play Without Sound by How Often They Game



Regardless of how often participants reported playing video games, the majority of responses indicated that players played without sound to avoid bothering others. However, those who reported playing “Often” also deemed sound unnecessary and distracting in equal measure (2 responses for each Bother, Unnecessary, and Distracting). Participants who reported playing games only “Seldom” equally deemed sound Unnecessary and Bothersome (second to the code “Bother,” indicating they were more bothered by noise themselves than they were concerned about it bothering others), while those who reported playing “Occasionally” said that finding sound Bothersome led them to play without it. Those who reported playing “Regularly” secondly preferred to listen to “Other Audio” while they play. Counting only those responses by participants who reported playing “Sometimes” or more often, players play without sound for the following reasons (in order of most to least frequent): Bother, Bothersome, Other Audio, Hearing, Unnecessary, and (equally) Habit, Preference, Private. Despite this, only 47% of 121 respondents report playing with subtitles “Usually” or “Always,” and 40% of players report “Never” using subtitles in video games. A few of these respondents indicated that they simply do not play video games or that they had

no experience with games where this was an option. This information is reflected in Figures 12 and 13.

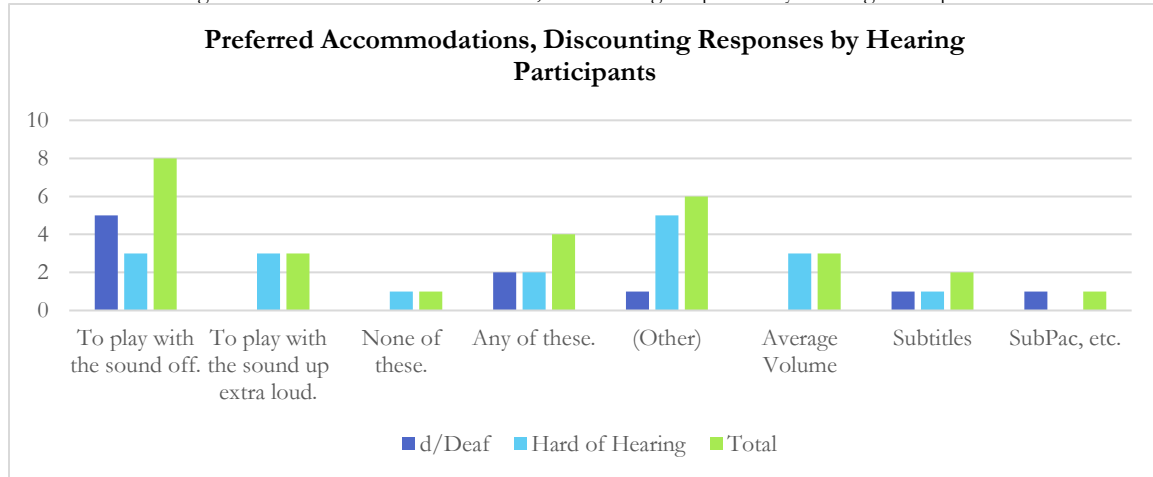
Figure 13: Reasons Participants Who Game "Sometimes" or More Often Play Without Sound:



Although subtitles were not specifically listed as an option, 2 d/Deaf or Hard of Hearing respondents indicated that that was their preferred accommodation. Of the available options (To play with the sound off; To play with the sound up extra loud; To play with the speakers located so I can feel them; None of these; Any of these; Other), “To play with the sound off” was the most popular. No one preferred to play with the speakers located so they could feel them, although one player indicated a preference for playing with a SubPac (the vibrating pack system discussed above). The most popular accommodations for respondents who identified as d/Deaf were, in order, “To play with the sound off” (n=5), “Any of these” (n=2), and “Other,” “Subtitles,” and “SubPac, etc.” tied with 1 response each (See Figure 14). Respondents who identified as Hard of Hearing mostly preferred “Other” (n=5) accommodations, followed by a tie between “To play with the sound off,” “To play with the sound up extra loud,” and “Average Volume” (n=3), and then by “None of these” and “Subtitles” at 1 response each (See Figure 14). Overall, the total most popular preference was “To play with the sound off” (n=8), followed by “Other” (n=6), “Any of these” (n=4),

“To play with the sound up extra loud” and “Average Volume” (n=3), “Subtitles” (n=2), and “None of these” and “SubPac, etc.” (n=1).

Figure 14: Preferred Accommodations, Discounting Responses by Hearing Participants



Seven gamers specifically referenced a lack of subtitles as a reason for their dissatisfaction with the sound in video games. Five of these gamers also indicated that they were able to rely on sound and hearing and did not need subtitles, while at least one indicated that they preferred not to play with subtitles but discussed features of their preferred game that would be considered subtitles (speech bubbles, storybook style text, etc.). , In later questions, 5 gamers said they do not play with subtitles reported doing so because they were unavailable. In total, 29% of gamers reported “Always” playing with subtitles on, 18% play with them on “Usually,” and 13% “Seldom” play with subtitles on, a total of 60% of gamers who use subtitles with any regularity, and 37% who play with them on “Usually” or “Always” (See Figure 15). 40% of gamers reported that they “Never” play with subtitles on (See Figure 15).

In total, 7 respondents indicated they were “Very Satisfied,” 43 “Satisfied,” and 23 “Somewhat Satisfied,” resulting in a total score of 80% satisfaction (See Figure 16).

Additionally, 6 respondents said they were “Very Unsatisfied,” 6 were “Unsatisfied,” and 7 were “Somewhat Unsatisfied,” for a total of 20% dissatisfaction (See Figure 16).

Figure 15: How Often Gamers Reported Playing with Subtitles On

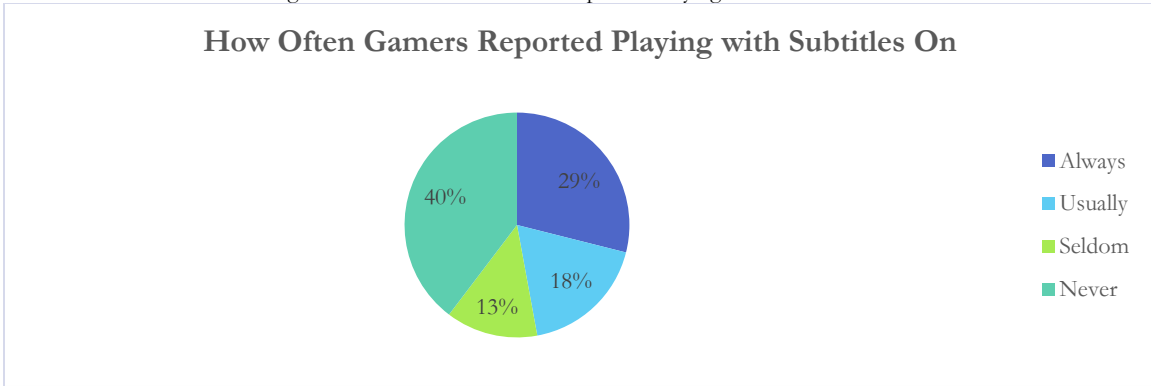
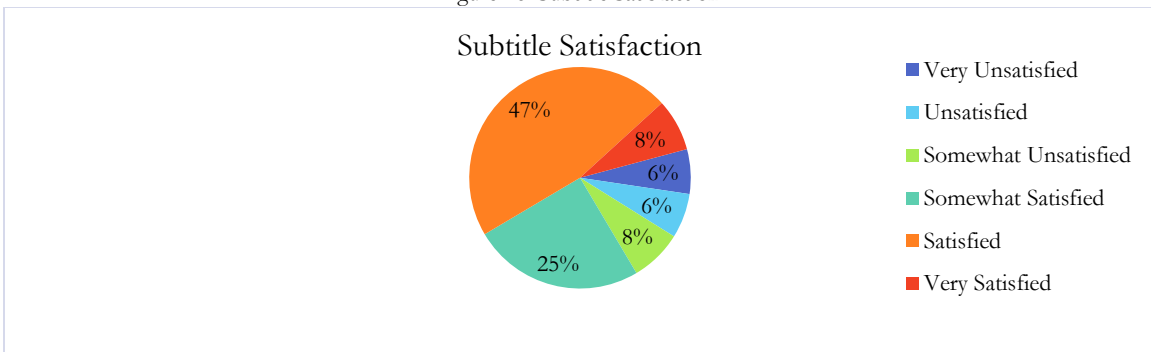
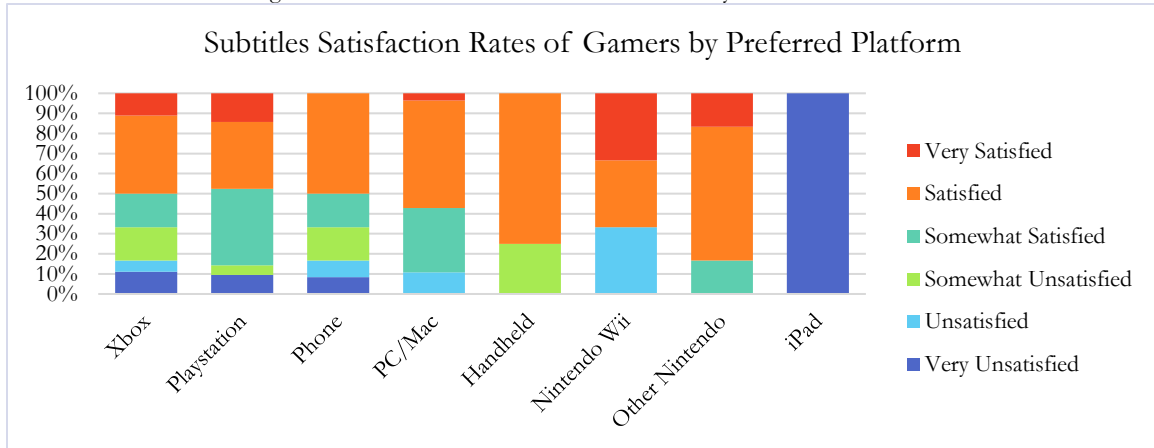


Figure 16: Subtitle Satisfaction



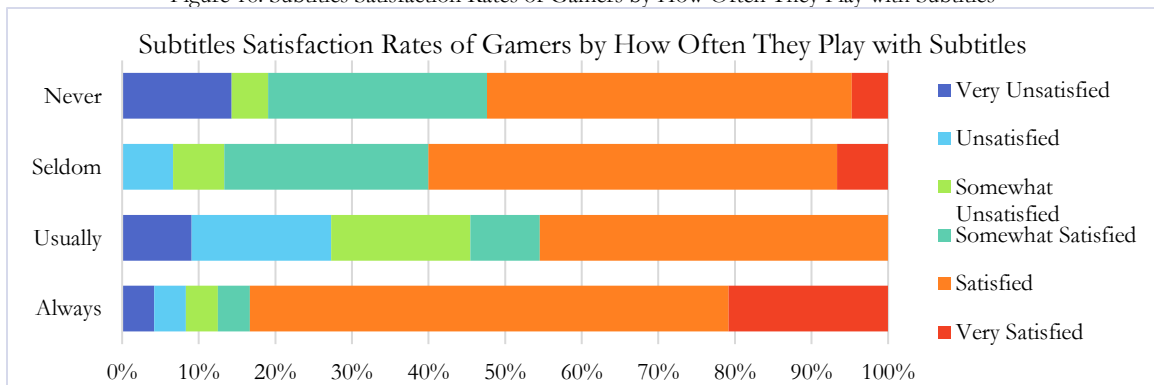
Across every preferred platform, gamers were generally more satisfied than dissatisfied. Between Xbox, PlayStation, and PC/Mac users, Xbox users were generally the most dissatisfied, with a total score of over 30% dissatisfaction, 10% of which was “Very Unsatisfied.” PlayStation users ranked second, with an approximately 12% dissatisfaction rate, including about 9.5% reporting they were “Very Unsatisfied.” The most satisfied group were the PC/Mac users, whose only negative reports were “Unsatisfied” (no “Very Unsatisfied” or “Somewhat Unsatisfied”) and whose total dissatisfaction was about 10%. However, PlayStation users had the most “Very Satisfied” players out of the three, with nearly 15% reporting being “Very Satisfied,” followed by 10.5% of Xbox users, and less than 5% of PC/Mac users. See Figure 17 to see this information represented visually.

Figure 17: Subtitles Satisfaction Rates of Gamers by Preferred Platform



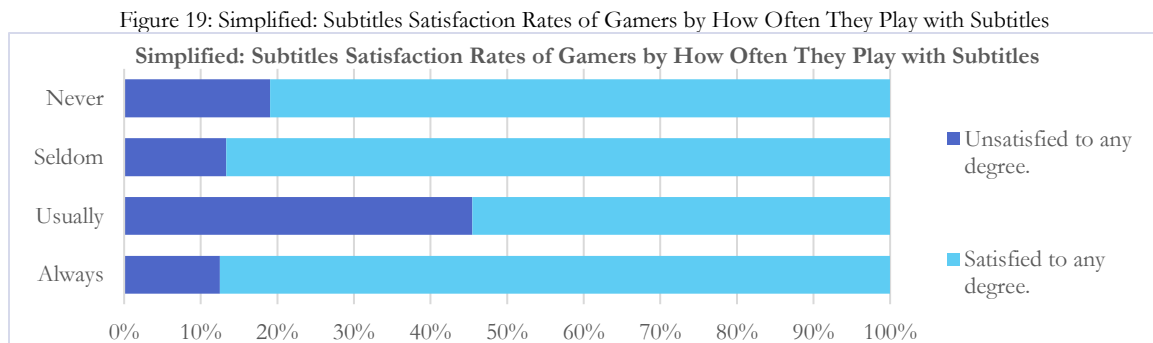
Gamers who reported “Never” playing with subtitles were the most greatly dissatisfied, with a ~15% “Very Unsatisfied” rating and an overall dissatisfaction rate of ~19%. This was the highest dissatisfaction rate second only to those who “Usually” play with subtitles, who had a ~45% total dissatisfaction score, although only about 10% were “Very Unsatisfied.” Gamers who reported “Always” playing with subtitles had the highest satisfaction rate, with over 60% reporting they were “Satisfied,” and over 20% reporting they were “Very Satisfied.” However, their overall satisfaction rating was approximately tied with those who only “Seldom” play with subtitles, at about 85% satisfaction. (See Figure 18).

Figure 18: Subtitles Satisfaction Rates of Gamers by How Often They Play with Subtitles



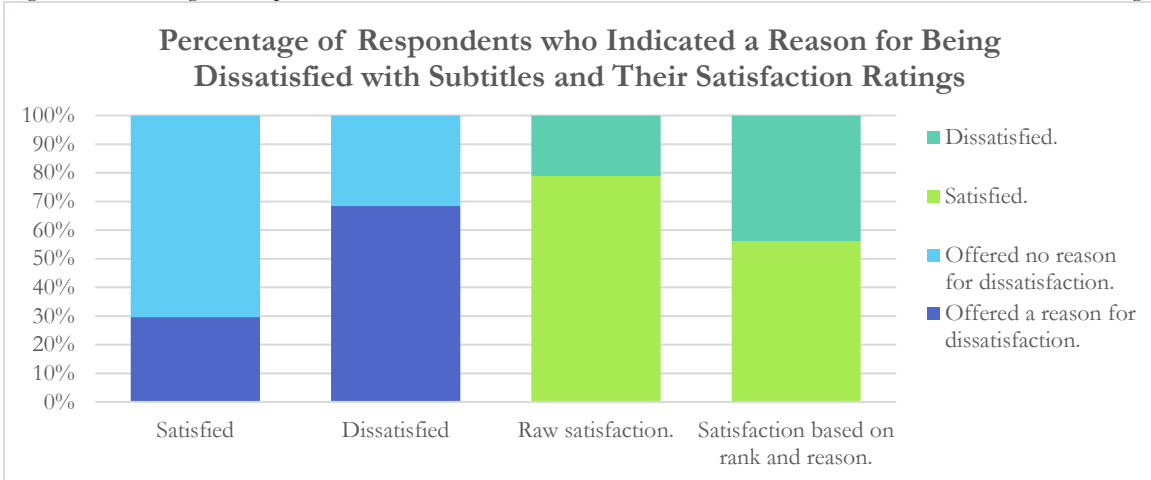
Simplified, ~19% of respondents who “Never” play with subtitles were unsatisfied with them to any degree, while ~14% of respondents who “Seldom” play with subtitles were unsatisfied with them to any degree, ~45% of respondents who play with subtitles “Usually”

were unsatisfied with them to any degree, and ~12% of respondents who “Always” play with subtitles were unsatisfied to any degree (See Figure 19).



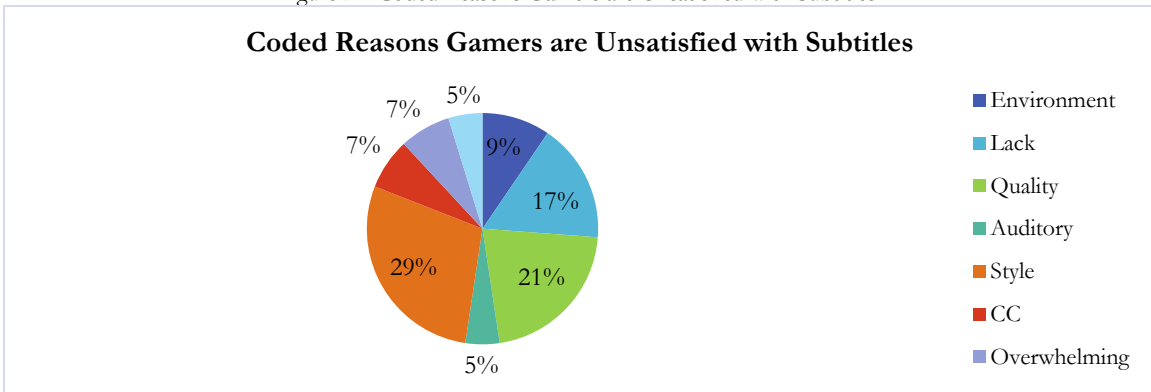
These numbers looked exceptionally different when satisfaction ratings and reasons behind low-satisfaction ratings were compared. When respondents were asked to both rate their satisfaction and to provide reasons for any dissatisfaction, a number of discrepancies were revealed. The question was worded as follows: “If you were unsatisfied with video game subtitles to any degree, please explain why.” Of the participants who reported being dissatisfied with video game subtitles, nearly 70% also provided a reason (See Figure 20). However, almost 30% of those who reported being satisfied with subtitles also provided a reason they were dissatisfied (See Figure 20). While the raw satisfaction scores of subtitles, based solely on the ranks self-reported by participants in this survey, was about 80%, satisfaction drops below 60% if only those scores are counted which reported being satisfied to any degree and also did not provide a reason for being dissatisfied (See Figure 20).

Figure 20: Percentage of Respondents who Gave a Reason for Dissatisfaction with Subtitles, and Their Satisfaction Ratings



Participants were also asked why they did or did not prefer to play with subtitles on. As above, these open-ended questions were coded. Reasons gamers were unsatisfied with subtitles were coded (See Table 4) into the following categories, in order of most to least frequent: Style, Quality, Lack, Environment, CC and Overwhelming (tied), and Auditory and Distracting (tied).

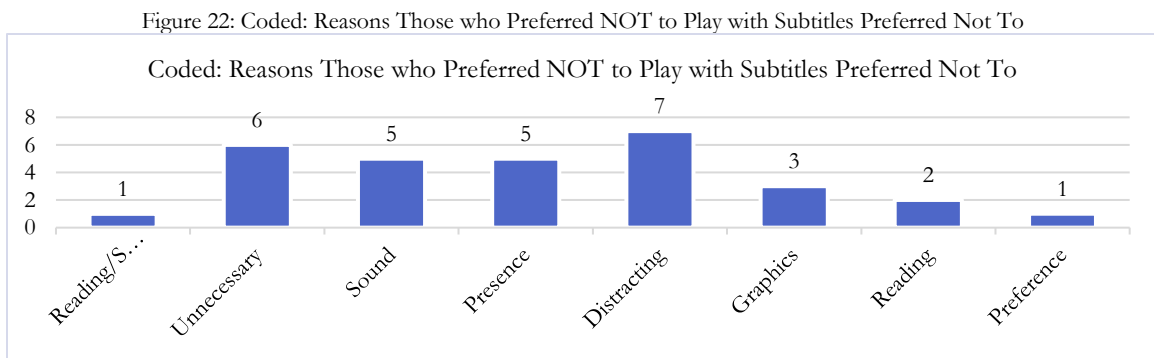
Figure 21: Coded Reasons Gamers are Unsatisfied with Subtitles:



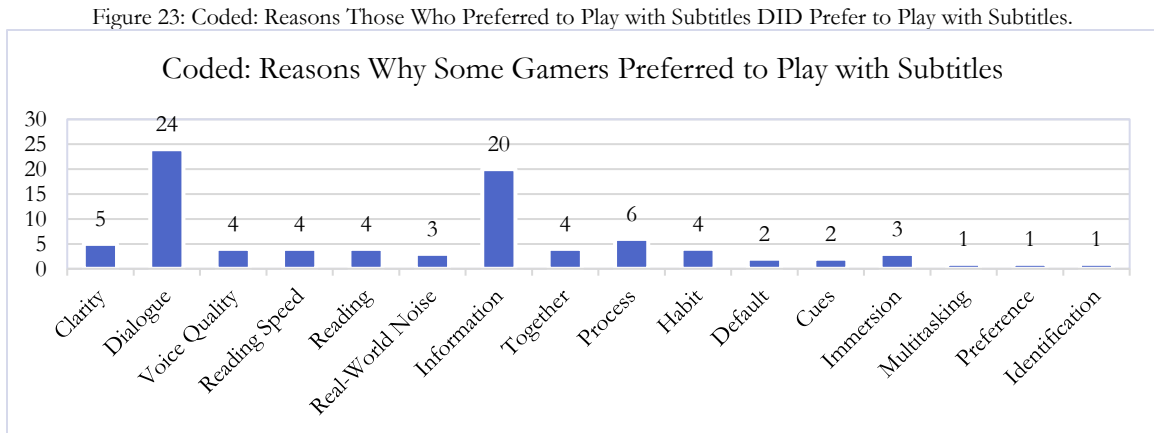
Dissatisfaction regarding Style of subtitles was by far the most prevalent theme, with more participants citing this reason than Auditory, Distracting, CC, Overwhelming, and Environment combined. Quality was the second most cited, and by itself still ranked higher than Auditory, Distracting, CC, and Overwhelming combined. In total, 29% of respondents cited Style problems as a reason for their dissatisfaction, followed by 21% who commented

on the Quality of subtitles, 17% who commented that games often lack them, 9% said they did not provide adequate information about the Environment, 7% each for CC and Overwhelming, and 5% each for Distracting and Auditory (See Figure 21).

In order, those who preferred not to play with subtitles dispreferred them for the following coded reasons: Distracting (n=7), Unnecessary (n=6), Sound and Presence (n=5 each), Graphics (n=3), Reading (n=2), Reading/Speed and Preference (n=1 each) (See Figure 22).



However, for those who did prefer to play with subtitles, the reasons were far more diverse. In order, these were coded as Dialogue (n=24); Information (n=20); Process (n=6); Clarity (n=5); Voice Quality, Reading/Speed, Reading, Together, Habit (n=4 each); Real-World Noise, Immersion (n=3 each); Default, Cues (n=2 each); and Multitasking, Quality, Preference, Identification (n=1 each) (See Figure 23).



The most prominent feature of these responses was the consistency of dissatisfaction with regards to the current status quo. While the reasons for this dissatisfaction varied, the vast majority of respondents were able to identify some level of dissatisfaction, and often identify the source of that dissatisfaction both in directed and open questions. Additionally, no single group demonstrated a monopoly on dissatisfaction, and most hearing respondents offered reasons they play without sound. Finally, whether or not gamers played without sound, they often preferred to play with subtitles.

Survey 2: Signers and Accessibility

Results

The target audience for this survey was much smaller than the first, but still resulted in 67 responses over a period of about five months. Not every respondent completed the survey but as it is impossible to know why they left, all answers are accepted as given—these responses only show up if participants select “Submit” and would not have been included if they had preferred to remove themselves from the study. While this is a minute sampling of the greater population, it does serve as a good starting place to examine the climate of interpreters and the Deaf community with regards to this issue. Again, the nature of surveys and self-reporting mean these results should be considered for their value as non-representative of any population or community, but rather as the individual experiences and opinions of the people who took the time to participate in this research.

Representation

As expected, the majority of respondents self-reported their location/residence as being in the same region as that of the author (“West” = 37). However, the Midwest, Northeast, and South, were all represented as well. Only Alaska, Hawaii, and “Outside the U.S.” were not represented. Additionally, three respondents answered “Other.” This

demonstrates the connection between the author's own location and the reach of her research.

In this case, no respondents indicated being under 18, 13 reported being 18-24, 13 reported being 25-30, 19 reported being 31-40, and 22 reported being over 40. Participants were additionally asked to identify their own age when they began signing, and 59 of them did so. It can be assumed that some participants provided an answer despite not knowing ASL, as the author did not think to include an option to indicate that they had no knowledge of the language or know skills in it. Of the 8 participants who did not answer this question, all of them also said they were not working as interpreters, they were hearing, and several specified that they were a teacher or professor and did not know sign. Additionally, one respondent answered impossibly that they had begun signing between the ages of 26 and 30, but were only 18 to 24 years old. This answer was not included below.

The same number of people from each group except 18-24 year olds learned ASL between the ages of 11 and 15. However, the majority of participants over the age of 40 reported having begun signing before the age of 10, or after the age of 30, with the fewest having learned it at traditional college age, and then high school age. In total, about 18 respondents began signing before they were 10 years old, about 9 between the ages of 11 and 15, 18 between 16-19 years old, 9 between 20 and 25, 4 between 26-30, and 6 over the age of 30 (see Figure 24).

Of those 18-24 years old, 4 of them began signing before the age of 10, 4 between 16 and 19 years old, and 1 between 20-25 years old. None of them were 11-15 years old when they began signing. Of those 25-30 years old, 1 began signing before they were 10 years old, 3 between the ages of 11 and 15, 4 between 16 and 19, 3 between 20 and 25, and 1 between 26 and 30. Of respondents 31-40 years old, 2 began signing before they were 10 years old, 3

were 11-15 years old, 7 were 16-19 years old, 4 were 20-25 years old, and 1 was older than 30. None of them were 26-30 when they began signing. Of those older than 40 years old, 6 began signing before they were 10 years old, 3 were 11-15, 3 were 16-19, 1 was 20-25, 2 were 26-30, and 5 were over 30 years old. See Figure 25 for a visual representation of this data.

Figure 24: Age Participant Began Signing

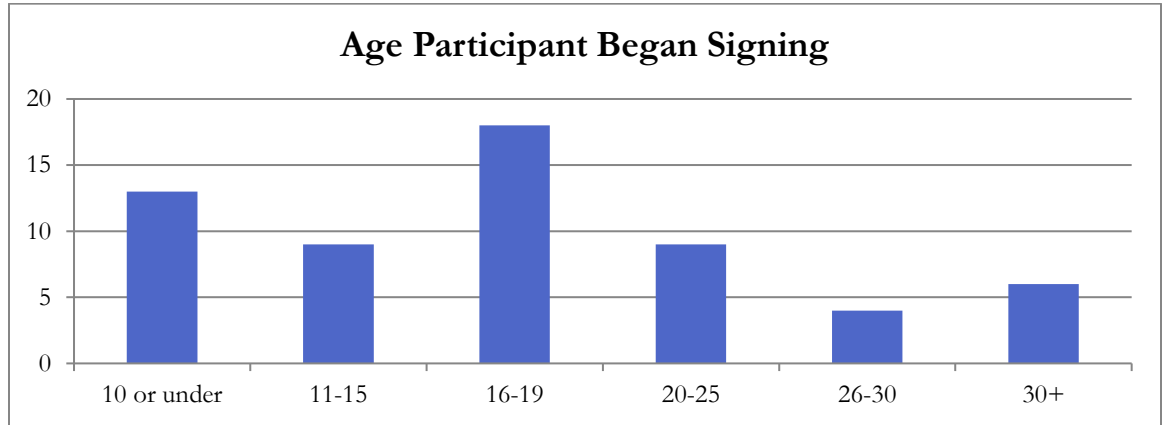
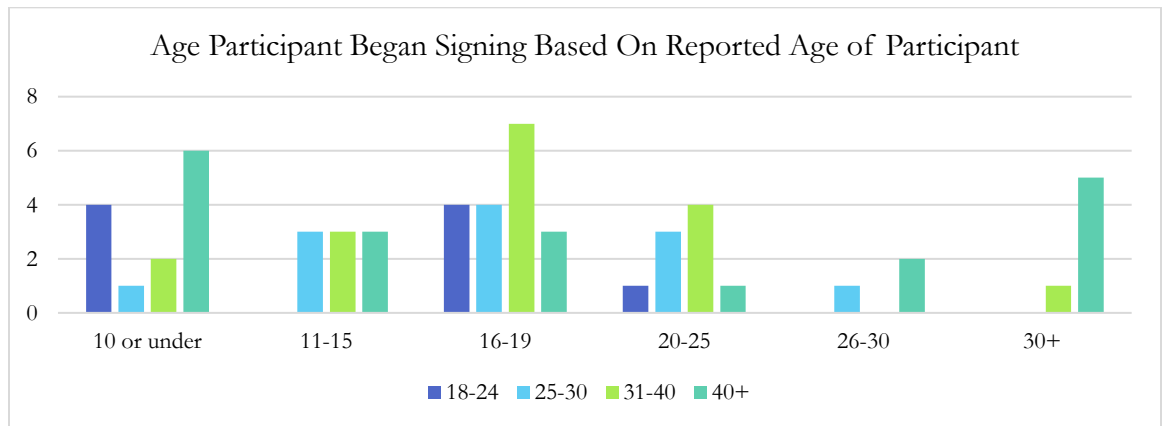


Figure 25: Age Participant Began Signing Based on Reported Age of Participant

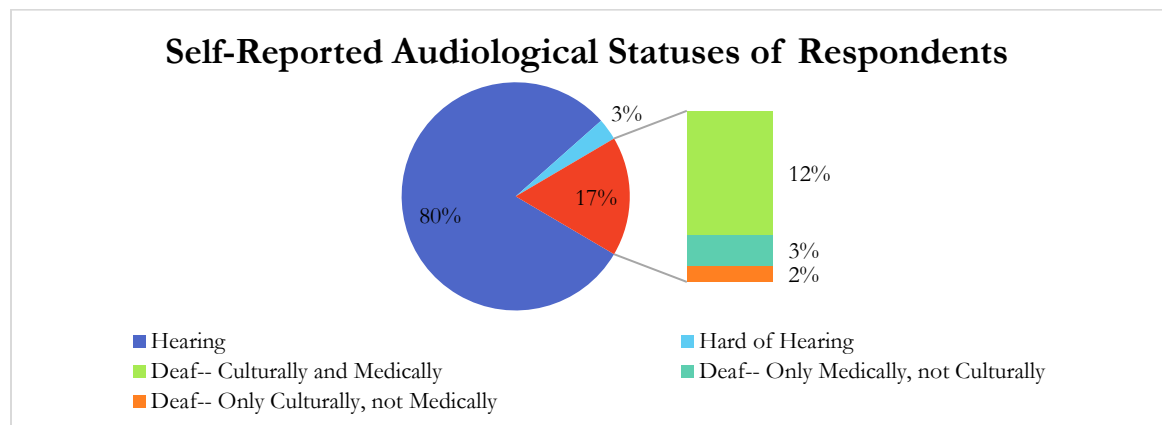


Participants selected their audiological status in this survey as well (65/67 participants answered this question), and this time the possible answers were modified based on the goals of the survey. In Survey 1, respondents could only answer “Deaf,” “Hard of Hearing,” “Hearing,” or not answer at all. In Survey 2, participants were able to specify further by indicating whether they were “Hearing,” “Hard of Hearing”, “Deaf (culturally and medically)”, “Deaf (not culturally, only medically)” or “Other”. There was only one “Other”

response, and that participant indicated that they are “Deaf culturally, not medically”. After a discussion with her thesis advisor, the author concluded that this is likely someone who is a CODA (child of Deaf adult) and thus identifies with the culture despite an audiological status that would report otherwise, or someone who medically would be labeled as hard of hearing, but self-identifies with Deaf culture.

Of the 65 participants who reported their audiological status, 80% self-identified as hearing, 3% as hard of hearing, and 17% as d/Deaf (see Figure 26). Of the 17% of d/Deaf respondents, 12% identified as both culturally and medically Deaf, 2% as Deaf culturally but not medically, and 3% as medically deaf but not culturally Deaf (see Figure 26). This is a significantly different demographic, audiological, than Survey 1.

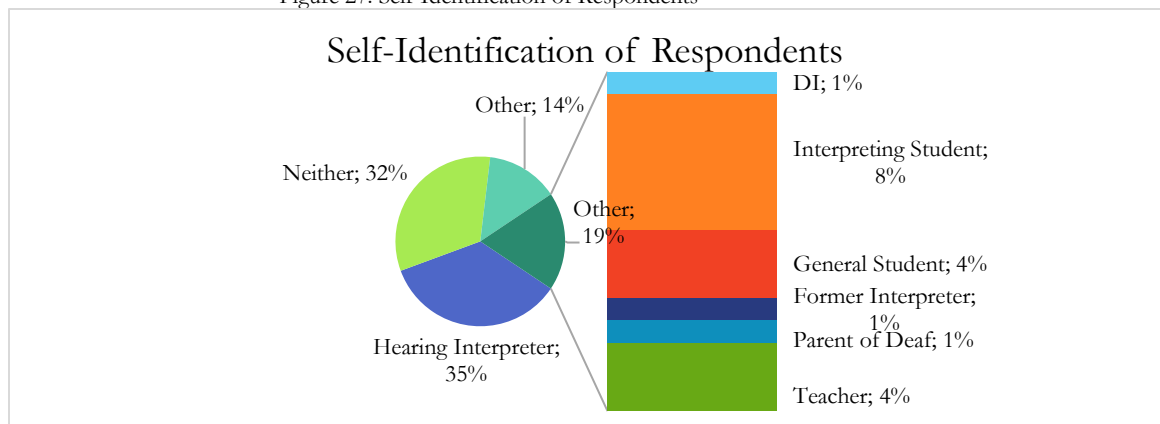
Figure 26: Self-Reported Audiological Statuses of Respondents



Finally, respondents were asked questions about their work and their video game habits. Of 66 responses regarding status as interpreter, 29 people indicated they work as a hearing interpreter, 0 said they work as a CDI (Certified Deaf Interpreter), 26 said neither, and 11 said “Other.” Several participants answered “Other” as well as answering one of the other categories. A clear distinction was not made regarding the difference between a certified or uncertified hearing interpreter, although no option was provided for Deaf interpreters without formal certification. Only one respondent indicated that they are a DI,

and it is unknown whether other respondents are Deaf interpreters. One respondent indicated that they are a hearing interpreter, but later answered that they are not working as an interpreter but are going to school to become a hearing interpreter. This answer was counted as “Interpreting Student”. Note that “Other: 14%” represents participants who identified as “Other”, and “Other: 19%” represents the total of responses outside one of the other categories from either “Neither” or “Other” responses. Of these 19%, 1% identified as a Deaf Interpreter, 8% as Interpreting Students, 4% as Students (not interpreting students), 1% as Former Interpreters, 1% as Parents of the Deaf, and 4% as Teachers (see Figure 27).

Figure 27: Self-Identification of Respondents



All respondents, regardless of career field, were asked about their primary work settings, and 66 participants answered. Many respondents who did not identify as an interpreter at all provided some answer. Often, that answer was to clarify that they were a student. However, many respondents indicated that they work in K-12 settings or in post-secondary settings as a staff or faculty member outside the role of interpreting, and others indicated work in medical or community settings as well. Respondents who answered “I am not an interpreter” were also asked to select “Other” and provide a more detailed answer about where they work. However, interpreters were also welcome to select “Other,”

particularly if they worked in a field that was not listed (such as VRS) and although 30 people responded “I am not an interpreter,” 38 said “Other.”

Altogether, 38 respondents answered “Other,” 30 answered “Not an Interpreter,” 4 answered “Religious,” 4 answered “Legal,” 11 answered “Medical,” 18 answered each “Community” and “Post-Secondary,” and 13 answered “K-12” (see Figure 28). Of the additional information provided by interpreters, 1 interpreter specified that they work in “LGBT” related settings, 5 in Video Relay Service (VRS) settings, and 1 in Music settings (see Figure 29). Non-interpreters also provided additional workplace information, and of these, 1 said they work in a “Tech” industry, 1 in Government, 2 were current or former staff or faculty at Western Oregon University, 1 worked in Mental Health Counseling, 1 as a Care Provider, 2 as Teachers/Professors, 1 in a Veterinary Hospital, 1 in a Museum, 7 as Students, 2 as Parents, and 12 did not specify (see Figure 30).

Figure 28: Work Settings of Respondents

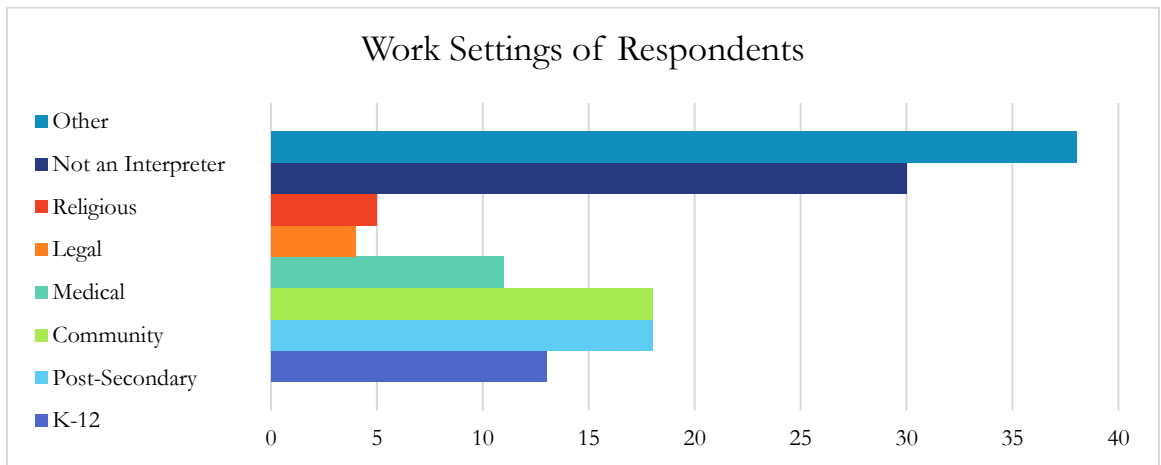


Figure 29: "Other" Explanations by Interpreters

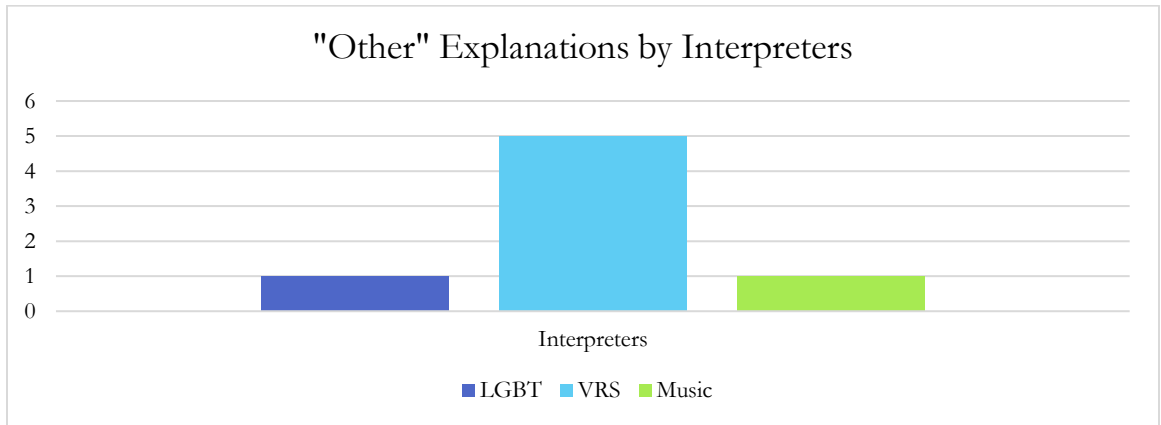
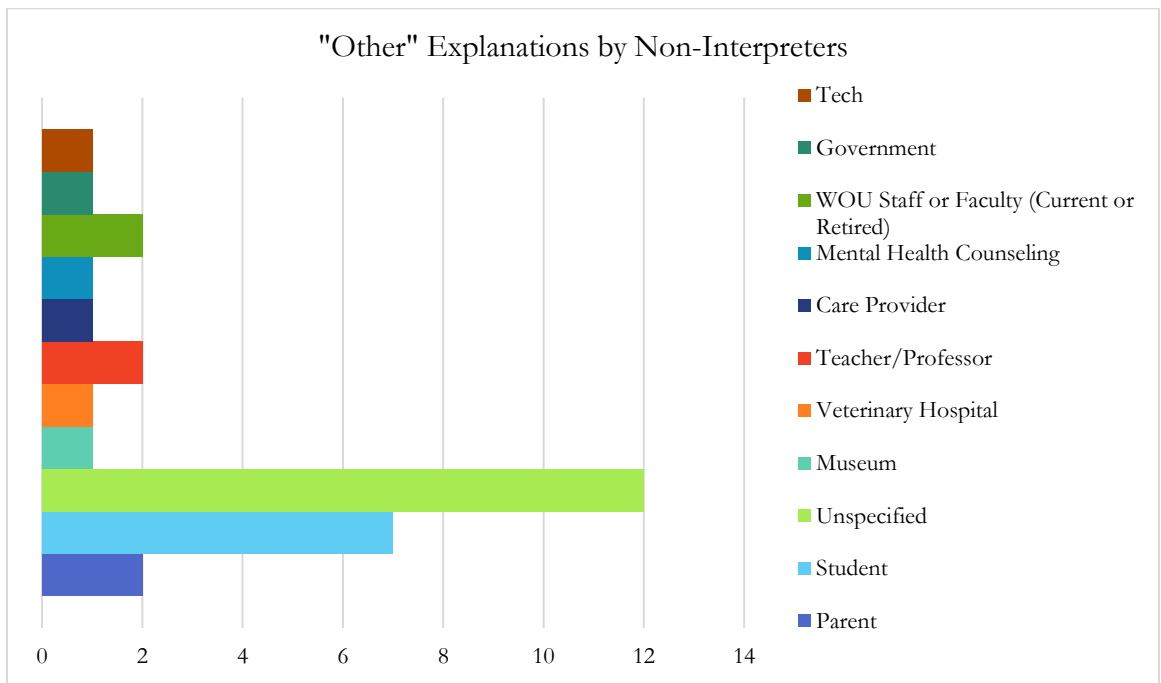


Figure 30: "Other" Explanations by Non-Interpreters



Out of the 67 total participants, 62 provided information about their educational and training backgrounds. These answers were open-ended and many respondents provided details about their majors, their numbers of years in school, etc. Not every participant answered all three questions, resulting in a strong coincidence of having as many people with 4 years of college as with 2. In several cases, respondents with 4+ years of college only answered that part of the question and did not provide information about having 2 years of

college. Of course, it can be assumed that every respondent with at least 4 years of college also has at least 2.

28 respondents said they had completed an Interpreter Training Program, 24 said they had not, and 5 said they would soon. 49 said they had 2+ years of college, 6 said no, and 1 said they would soon. 49 said they had 4+ years of college, 7 said they had not, and 2 said they would soon. To see this information visually, see Figure 31. Additional educational information included 1 respondent who reported having a PhD, 3 who provided other information about their major, 1 mentioned additional interpreter training such as Continuing Education Units (CEUs) through RID, experience with mentorship, or something else, 1 indicated having spent additional years in college but did not provide more information, 4 commented on their experience with ASL, and 12 indicated that they had already or would soon have a Master’s degree.

Figure 31: Educational and Training Backgrounds of Respondents

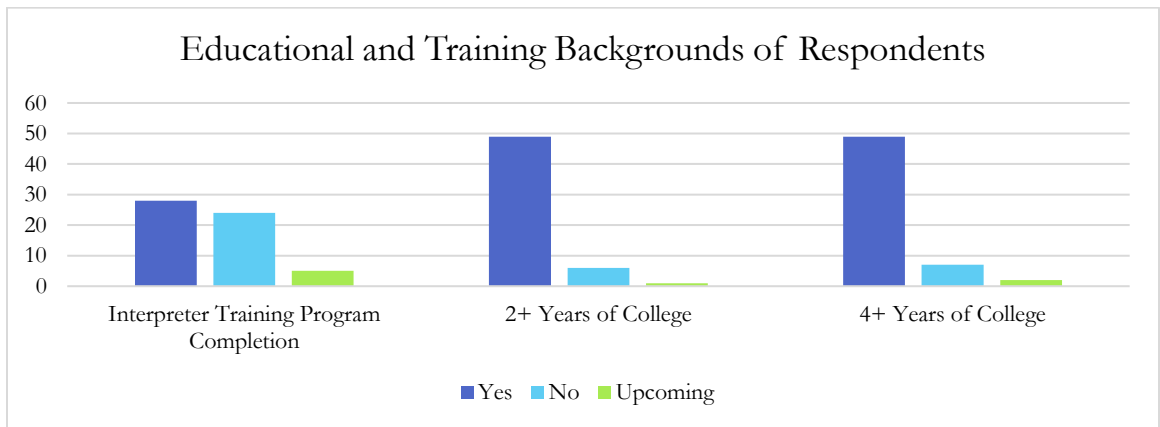
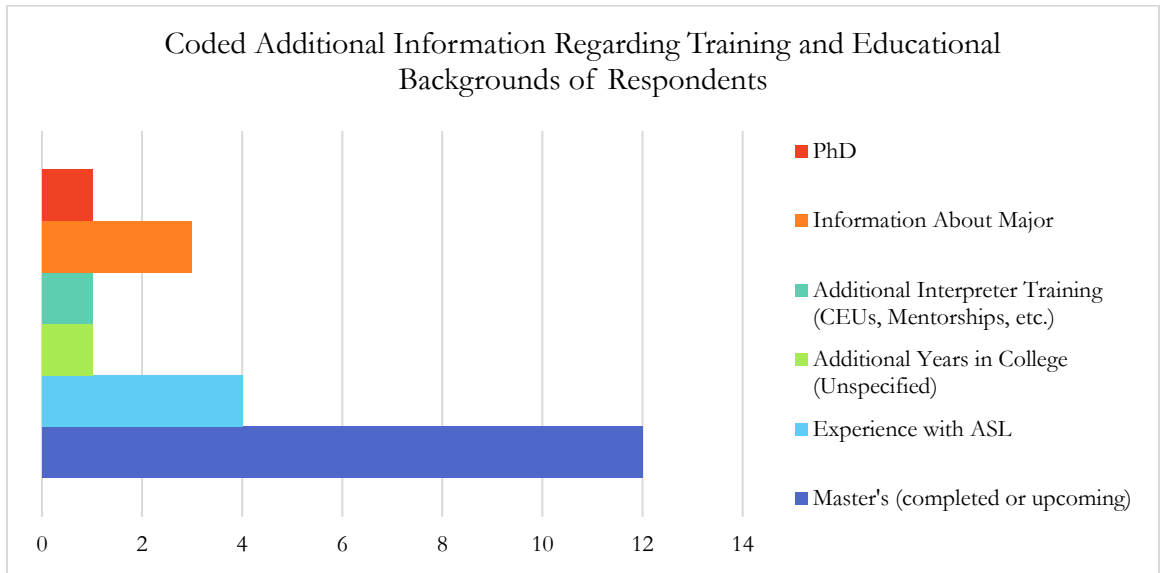
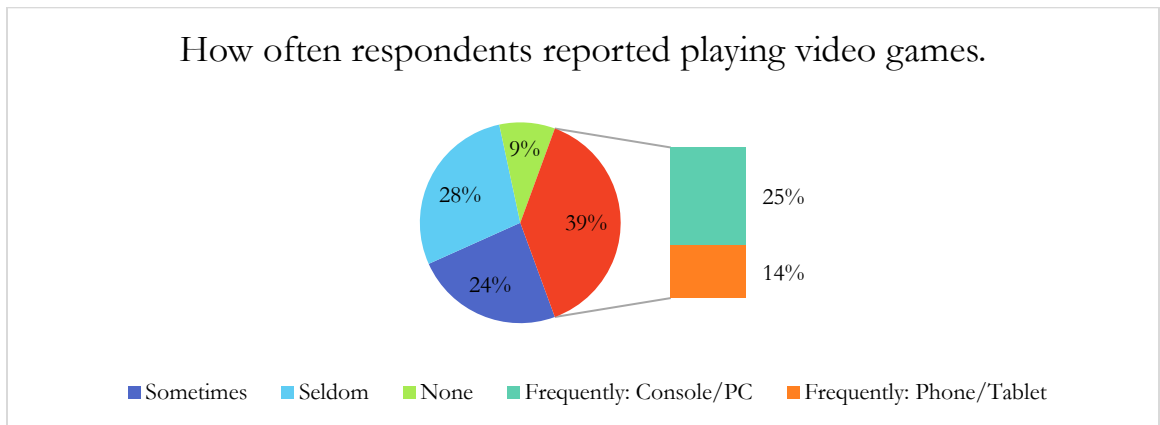


Figure 32: Coded Additional Information Regarding Training and Educational Backgrounds of Respondents



The final demographic question participants were asked to answer was regarding their experience with video games. In this survey, possible answers were catered to differentiate between Console/PC gaming, and phone/tablet gaming if they play frequently. 24% of respondents reported playing Sometimes, 28% Seldom, 9% None, 25% Frequently on Console or PC, and 14% Frequently on Phone or Tablet, resulting in a total of 39% who report playing Frequently (see Figure 33).

Figure 33: How often respondents reported playing video games.



Of 18-24 year olds, 3 reported playing Frequently (Console/PC), 2 reported playing Frequently (Phone/Tablet), 3 reported playing sometimes, 4 reported playing Seldom, and

none reported Never playing. Of those 25-30 years old, 6 reported playing Frequently (Console/PC)—the highest number for that group, none reported playing Frequently (Phone/Tablet), 1 reported playing Sometimes, 5 reported playing Seldom, and 1 reported Never playing. Of those 31-40 years old, 4 play Frequently (Console/PC), 3 Frequently (Phone/Tablet), 7 Sometimes—the highest number for that group, 3 Seldom, and 2 Never. Of those aged 40 or older, 3 reported playing Frequently (Console/PC), 2 Frequently (Phone/Tablet), 5 Sometimes, 7 Seldom—the highest number for that group, and 3 Never—the highest number for that group. See Figure 34 for a graph of this information.

Audiological status was also considered. 54% of d/Deaf respondents report playing Frequently (Console/PC), 31% Frequently (Phone/Tablet), none Sometimes, 8% seldom, and 8% had never played. Of hearing participants, 17% reported playing Frequently (Console/PC), 10% Frequently (Phone/Tablet), 31% Sometimes, 33% Seldom, and 10% had never played. 100% of hard of hearing respondents played Frequently (Console/PC) (remember that only 2 respondents out of the entire survey identified as hard of hearing). See Figure 35 to see this information graphically.

Figure 34: How Often Respondents Play Video Games by Age

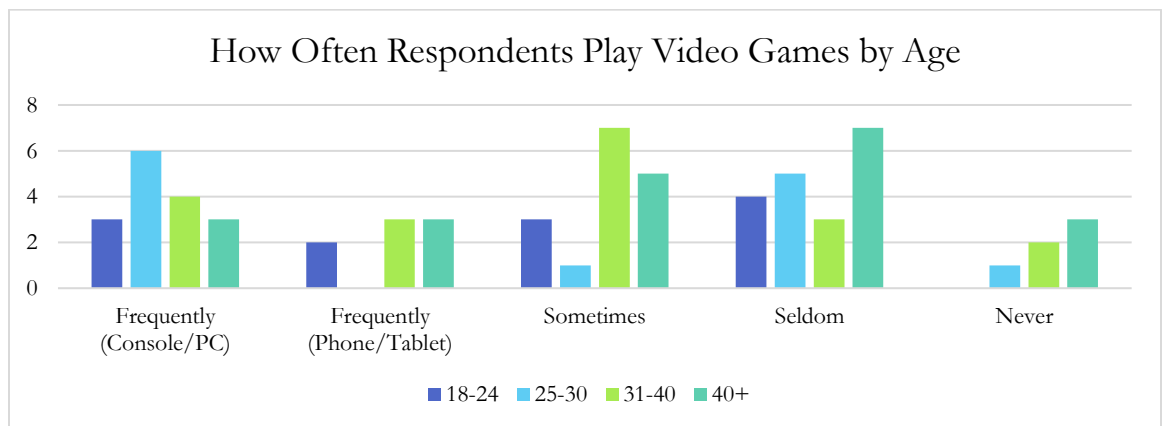
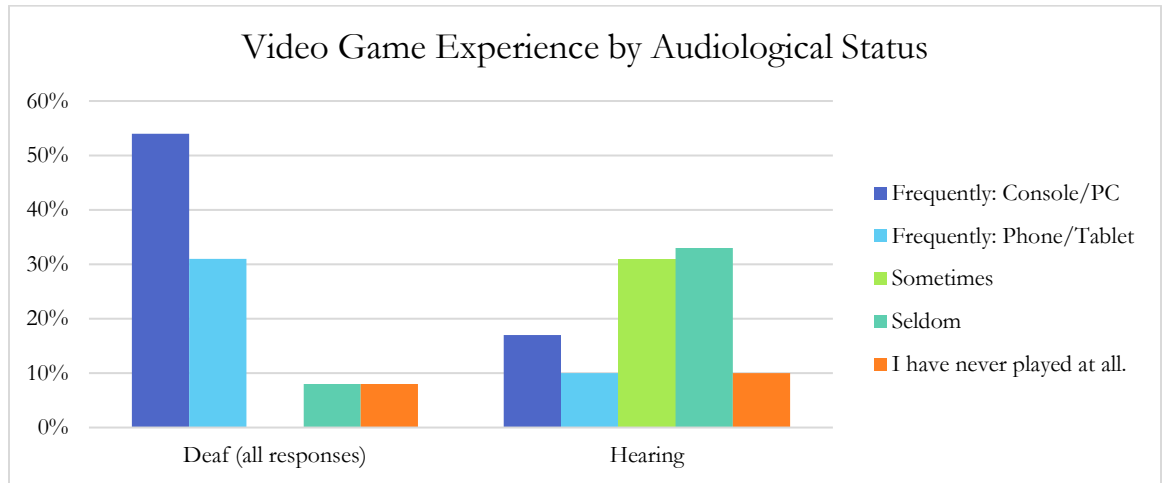


Figure 35: Video Game Experience by Audiological Status



Summary

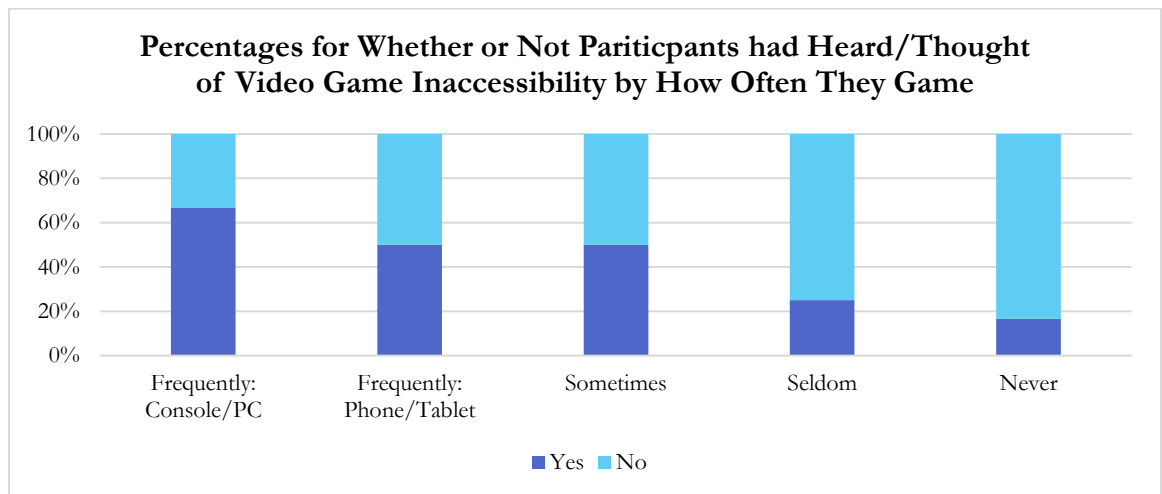
An individual's experience with video games played a predominant role in whether or not they believe them to be inaccessible, and few people have an idea of how to reconcile the issues they identified. Most participants, when asked to identify changes they would like to see moving forward in the video game industry, could only identify broad ideas like "greater accommodations," or "awareness of a wider scope of disabilities."

Respondents who identified playing frequently on either console or PC were the most likely to have previously heard or thought of video game inaccessibility, with a margin of 15% between themselves and the following group. This was also the only group where the majority of respondents in that group had heard or thought of video game inaccessibility. Those who played frequently on either phone or tablet, and those who only played sometimes were tied at second, each indicating a perfect 50% split between whether or not respondents had heard or thought of video game inaccessibility. Of those who played "Seldom," only 25% had considered video game inaccessibility in the past, a particularly notable difference since this group also contained 2 more participants than did the "Sometimes" group, and 12 more than those who played frequently on either phone or

tablet. A final drop appeared for the group who identified as never having played at all, although around 15% of this group had also considered video game inaccessibility before.

Altogether, 65% of gamers who play Frequently (Console/PC) had heard/thought of video game inaccessibility, 35% had not. 50% of gamers who play Frequently (Phone/Tablet) had heard/thought of video game inaccessibility and 50% had not. Gamers who play Sometimes were also split at 50% each for those who had heard/thought of video game inaccessibility and those who had not. 25% of those who Seldom game had heard/thought of video game inaccessibility, 75% had not. Of those who had never played before, 15% had heard/thought of video game inaccessibility, 85% had not (see Figure 36).

Figure 36: Percentages for Whether or Not Participants had Heard/Thought of Video Game Inaccessibility by How Often They Game

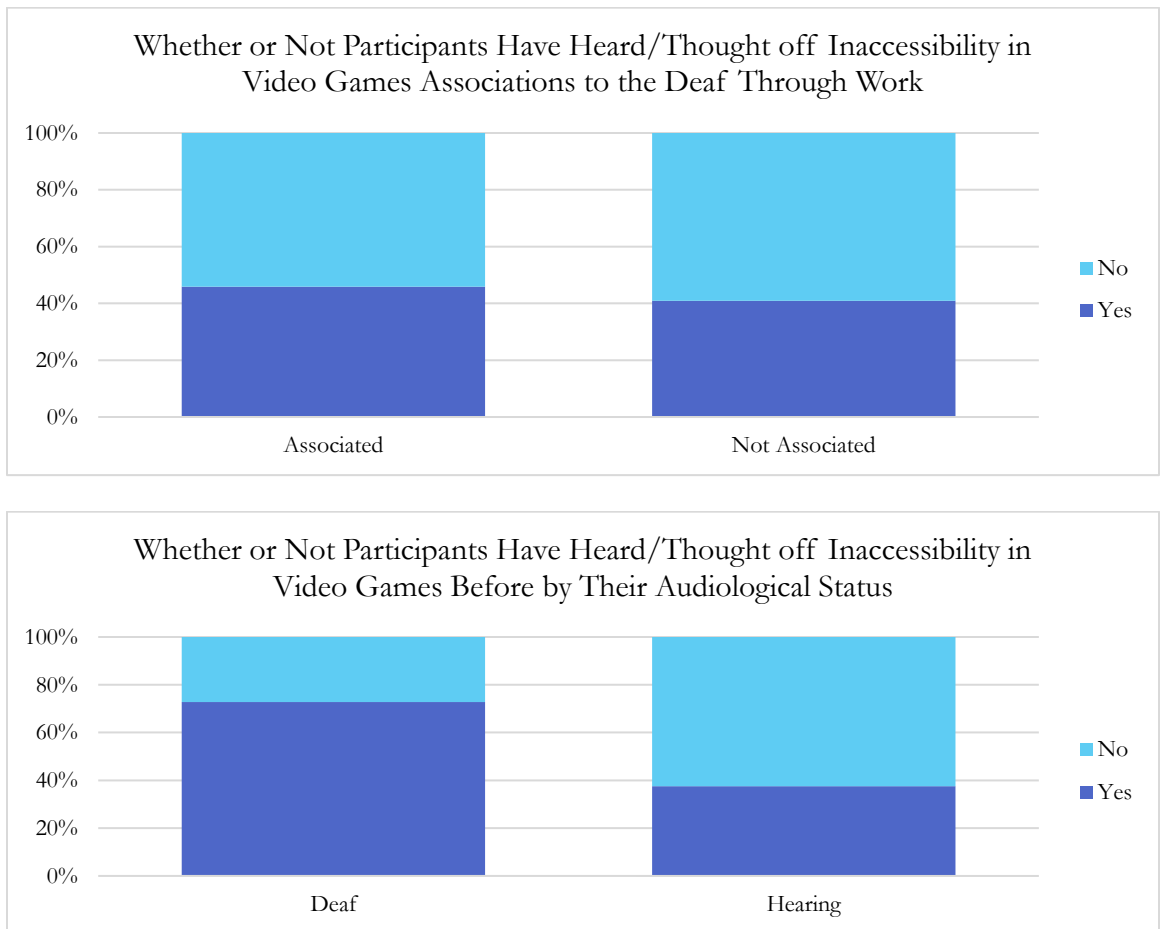


Whether participants identified an association to the d/Deaf through their work as an interpreter, an interpreting student, or as a parent or teacher of the d/Deaf did not seem to have a significant effect on whether or not they had previously considered video game accessibility, as about 46% of those who are associated with the d/Deaf through work had heard/thought of inaccessibility in video games, and about 54% had not, while those who were not associated with the work had heard/thought of video game inaccessibility about

41% of the time, compared to about 59% who had not. To see this comparison visually, see Figure 37.

People who identified as either d/Deaf or Hard of Hearing had considered inaccessibility in video games over 70% of the time, with 30% not having considered this issue, whereas respondents who identified as hearing had considered it less than 40% of the time, with over 60% not having thought of it. It seems that the most likely individuals to notice inaccessibility in video games are those who have experienced it themselves, either because they play games, or because they identify as d/Deaf or Hard of Hearing themselves.

Figure 37: Whether or Not Participants Have Heard/Thought off Inaccessibility in Video Games Associations to the Deaf Through Work



Approximately 55% of those who game “Sometimes” or more often reported having heard or thought of inaccessibility in video games before (about 45% had not), compared to just shy of 25% of those who game “Seldom” or less often and had heard or thought of inaccessibility in video games before (about 75% had not) (see Figure 38). However, when considering only those participants who identify as d/Deaf or Hard of Hearing, the numbers are much closer. In this group, nearly 70% of participants who report gaming “Sometimes” or more often also have heard or thought of video game inaccessibility before (about 30% had not), compared to approximately 50% of those who play “Seldom” or less often who had heard or thought of this issue (and 50% who had not). Excluding those who report playing frequently but only on Phone/Tablet, this number swells to 100% of d/Deaf and Hard of Hearing participants who have heard/thought of video game inaccessibility. See Figure 39 for a visual representation of this information. Gaming experience and audiological status were both found to influence awareness of this issue.

Figure 38: Whether Participants Have Heard/Thought of Video Game Inaccessibility by How Often They Game

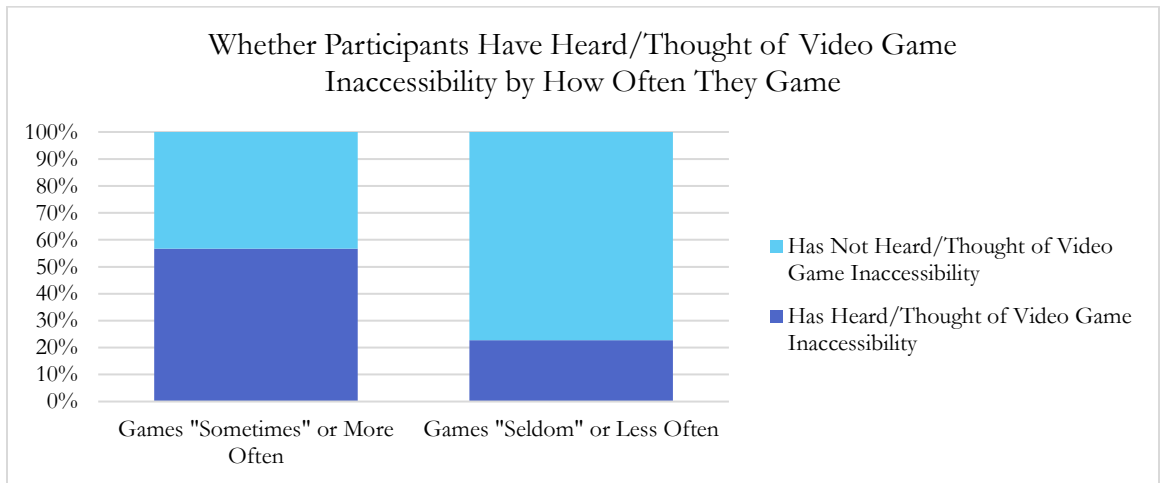
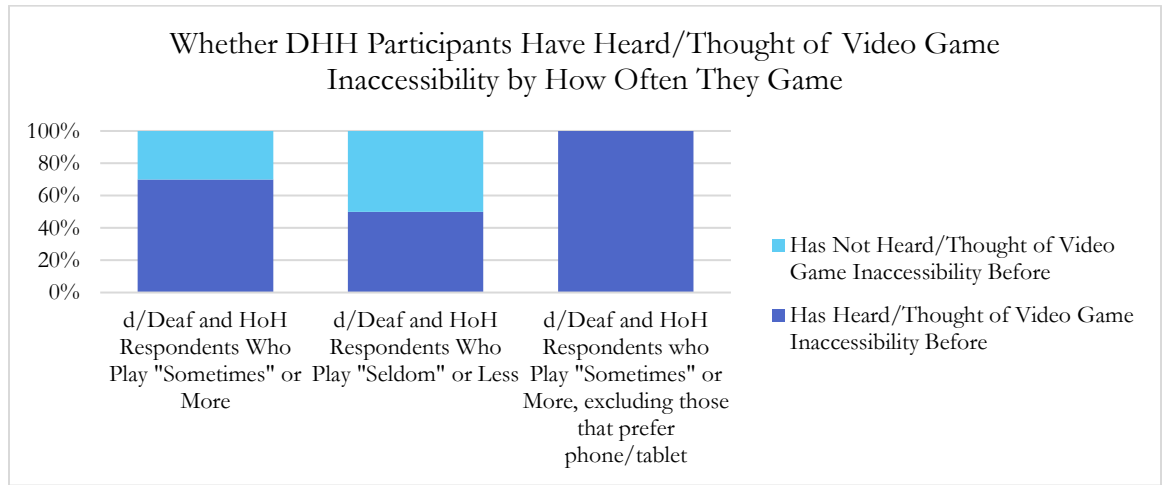
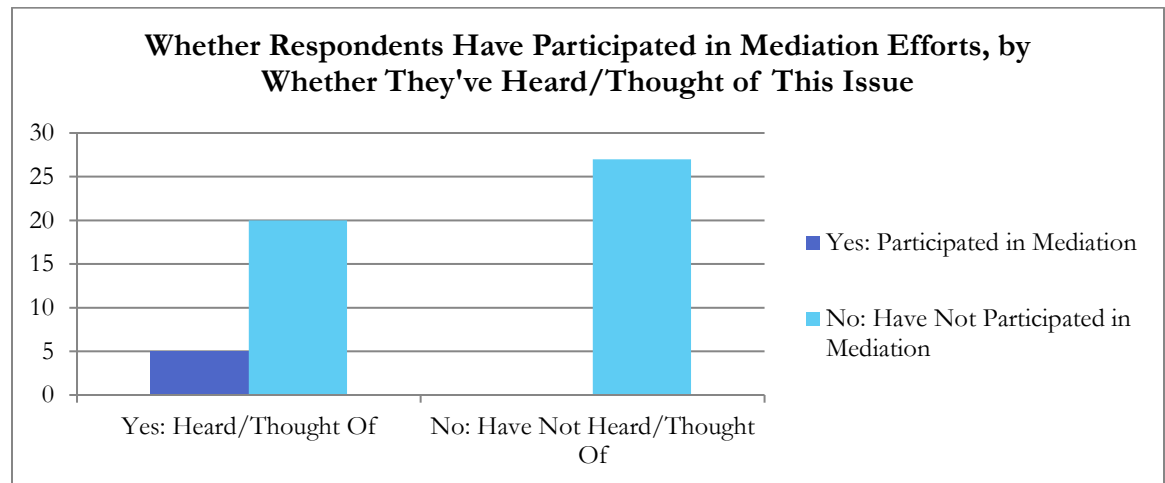


Figure 39: Whether DHH Participants Have Heard/Thought of Video Game Inaccessibility by How Often They Game



Participants were further asked to discuss their experiences participating in mediation efforts or efforts to relieve video game inaccessibility. Of 54 responses, 43 said that they had not participated in any efforts to mediate video game inaccessibility. 7 respondents said they had and 4 selected “Other.” One respondent is counted as both a “Yes” and a “No” because they selected both. Of the “Other” responses, three suggested the respondent had not participated in mediation efforts and one suggested they had. The data here does not include data from those responses that affirmed participation in mediation but then expanded with an example that was not active participation, such as having met someone who was involved but otherwise not being involved, etc. Altogether, 5 of those who had heard/thought of video game inaccessibility had also participated in efforts to mediate the problem, 20 had not, and 1 did not answer. Of those who had not heard or thought of video game inaccessibility before, all respondents (n= 27) indicated never having participated in mediation efforts. See this information graphically in Figure 40.

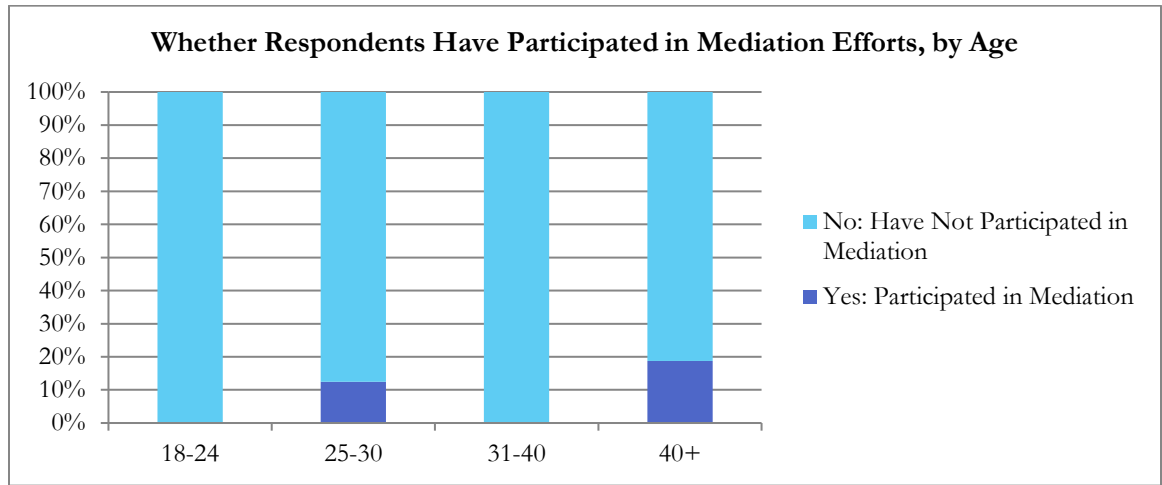
Figure 40: Whether Respondents Have Participated in Mediation Efforts, by Whether They've Heard/Thought of This Issue



Thus, only participants who had heard or thought of video game inaccessibility had participated in efforts to mediate it. This participation varied and responses were excluded if they did not actually describe mediation efforts. One respondent reported having participated in a subtitles-focused beta-test for a game and another said they do their best to share Tweets and posts from pages dedicated to this issue on Twitter and other social media outlets. The parent of a d/Deaf adult said that they participate by helping explain in-game information that is presented only auditorily. Two respondents said that they have directed complaints to game developers or participated in surveys put out by these companies. Several of the “Yes” responses only emphasized a person’s frustrations that games were inaccessible or discussed their participation in accessibility provisions outside of video games.

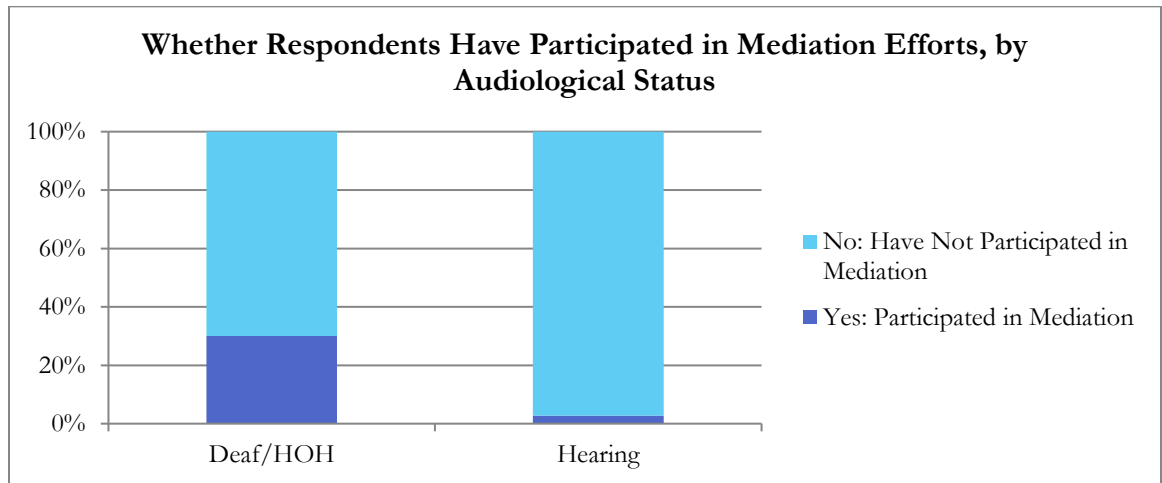
Respondents that reported participating in mediation efforts were 40+ years old, or 25-30 years old, with 19% having participated from the former and 11% from the latter. Nobody ages 18-24 or 31-40 had participated in mediation efforts, and 81% of those 40+ had not, as well as 89% of those 25-30 who had not (see Figure 41).

Figure 41: Whether Respondents Have Participated in Mediation Efforts, by Age



Compared to the group of Hearing participants, d/Deaf and Hard of Hearing respondents were significantly more likely to have participated in mediation efforts, although the majority of them still had not. Approximately 25% of d/Deaf and hard of hearing respondents had participated in mediation efforts (75% had not), and about 2% of hearing respondents had (98% had not). This is reflect in Figure 42.

Figure 42: Whether Respondents Have Participated in Mediation Efforts, by Audiological Status



Despite disagreement and discord in other questions, where responsibility for corrections should lay was significantly more similar across demographic groups. Nearly everyone suggested that the creators of games should be responsible for improvements to

video game accessibility. This category of “Creators” includes all responses for developers, creators, producers, makers, and others directly involved directly with gaming companies. Of respondents 18-24 years old, 6 said Creators should be responsible, 1 said the Law should, and 2 said Advocates should be. Of those 25-30 years old, 7 said Creators should be responsible, 3 said Consultants should be, 1 said the Deaf Community, 2 said Gamers, 2 said Advocates, and 1 said Interpreters. Of those 31-40 years old, 13 said Creators should be responsible, 2 said Consultants, 2 said the Deaf Community, 1 said the Law, and 1 said Advocates. Finally, of those aged 40 or older, 10 said Creators should be responsible, 1 said Consultants, 2 said the Deaf Community, 3 said Gamers, and 4 said the Law. This information is in Figures 43 and 44.

27 hearing respondents suggested that Creators should be responsible, 6 said Consultants should be, 5 each said the Deaf Community, Gamers, the Law, and Advocates, and 1 said Interpreters. 9 d/Deaf or Hard of Hearing respondents said Creators and 1 said the Law. Consider Figures 45 and 46 for this information. Several respondents suggested that the work should fall to an individual or group, usually a member of the d/Deaf community that was consulted by the creators of games. Where this consultative nature was specified, “Consultants” was coded instead of “Creators” or “Deaf Community.”

Figure 43: Who Participants Think Should be Responsible, by Age

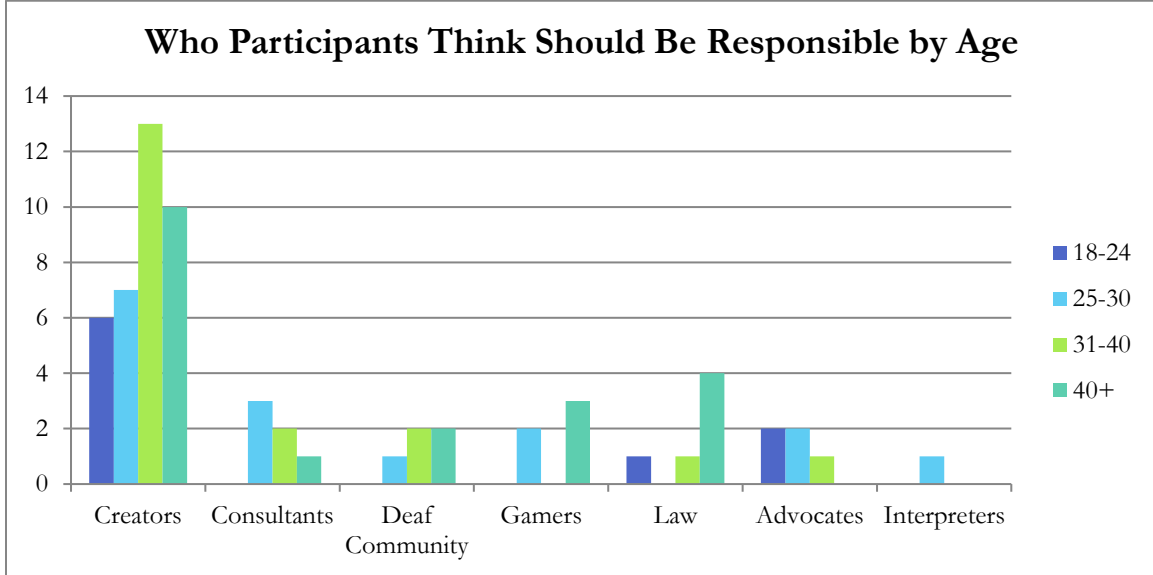


Figure 44: Who Participants Think Should Be Responsible by Age: Percentages

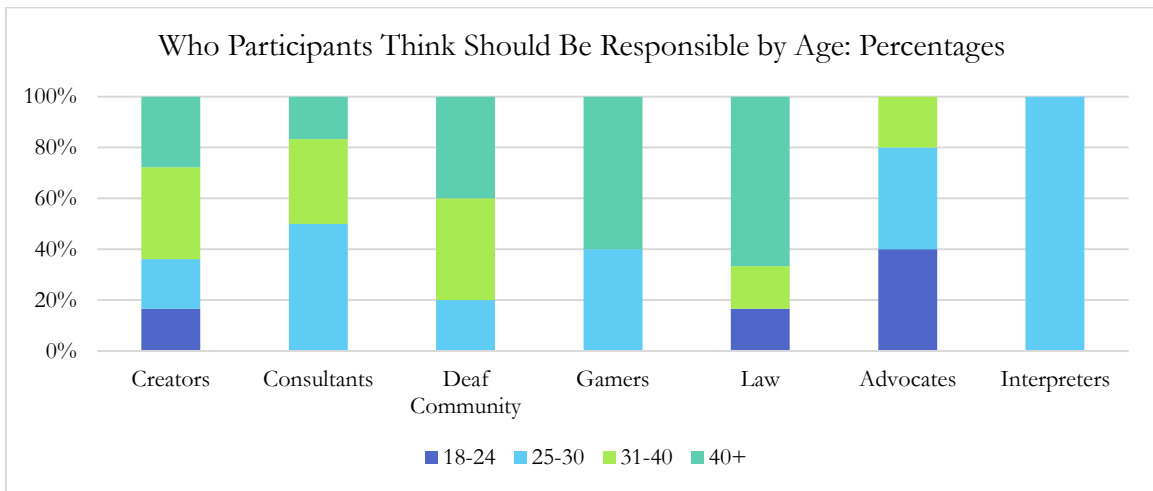


Figure 45: Who Participants Think Should Be Responsible by Audiological Status

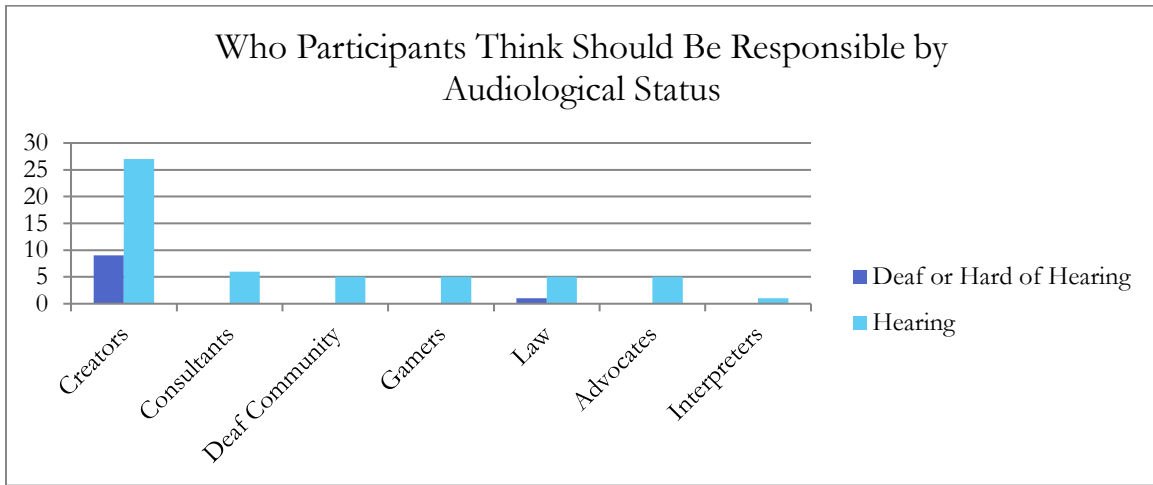
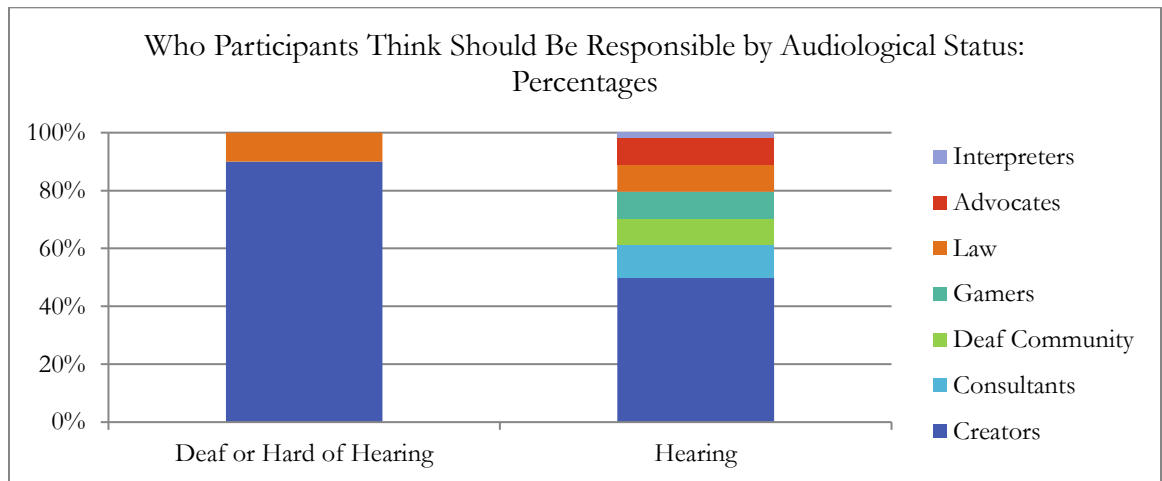


Figure 46: Who Participants Think Should Be Responsible by Audiological Status: Percentages



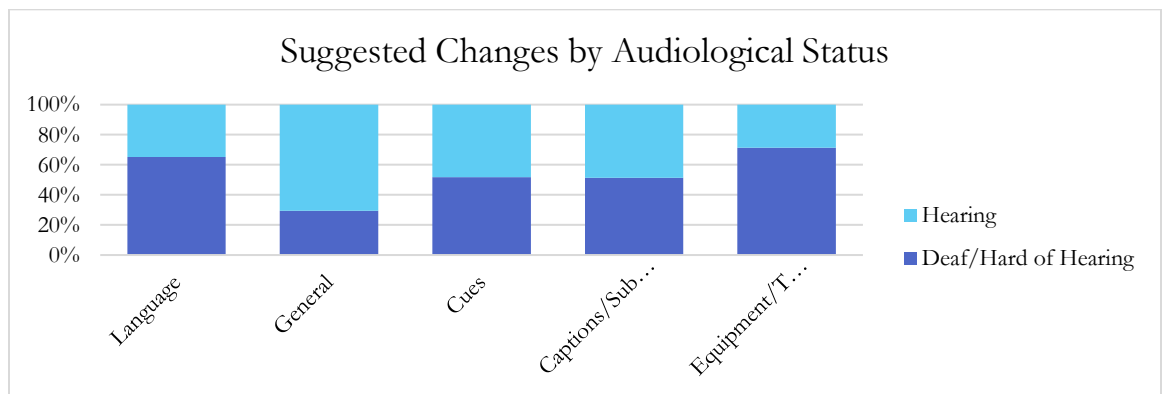
Participants were asked to explain what changes they would like to see towards video game accessibility. Excluding responses like “I don’t know,” there were a total of 38 responses that were coded to produce the items found in Table 8. Some respondents wrote more, offering as many as 4 matching codes. Others only produced 1. Responses that did not produce any are not included. Altogether, 19 responses expressed a desire to see improvements in Captions/Subtitles, 15 wanted to see General changes but weren’t specific, 7 were about Cues, 5 Language, and 4 Equipment/Technology (see Table 8).

Table 8: Changes Respondents Would Like to See Towards Video Game Accessibility

Code	Description
Captions/Subtitles <i>n = 19</i>	That improved or included subtitles or captions would improve video game accessibility.
General <i>n = 15</i>	That some change should be made. An affirmation beyond “I don’t know.”
Cues <i>n = 7</i>	That visual cues, kinetic cues, or some other way of cuing gamers about otherwise auditory information would improve video game accessibility.
Language <i>n = 5</i>	That offering materials in a signed language that is accessible to Deaf gamers would improve video game accessibility. Variations were suggested, from a signed version of the entire game to a signed set of directions available at tutorial phases.
Equipment/Technology <i>n = 4</i>	That equipment or technology might be used to improve video game accessibility. Suggestions included webcam accessibility for online play among players, altered controls, ready-made add-ons, and more.

These responses varied by respondent’s audiological status as well. 8% of hearing respondents wanted to see changes to Language, 36% wanted General changes, 14% suggested changes to Cues, 36% discussed Captions/Subtitles, and 6% discussed Equipment/Technology (see Figure 47). These numbers compare to 15% of responses by d/Deaf or Hard of Hearing individuals regarding language, 15% about General changes, 15% about Cues, 38% about Captions/Subtitles, and 15% about Equipment/Technology (see Figure 47).

Figure 47: Audiological Status and Suggested Changes



Several hearing individuals also suggested that video games and affiliated materials be provided in a signed language, as well as several d/Deaf and Hard of Hearing individuals who suggested the same thing. However, hearing respondents were primarily torn between a general desire for video games to be more accessible and offering the suggestion that improved captions or subtitles could serve to achieve this goal. d/Deaf and Hard of Hearing participants on the other hand were almost tied across the board between all of these suggestions, although more than double the number of individuals suggested improvements to captions or subtitles than any other change. The Hard of Hearing respondent produced an Equipment/Technology answer, and both of those individuals who identified as medically deaf but not culturally Deaf and responded to this question produced Captions/Subtitles codes. One particularly poignant quote comes from one of the respondents who identified as medically deaf, who wrote:

I want to see more effort made by game companies to accommodate Deaf people from the start, and accommodate them in new content as well. Be more open. Open more channels for feedback. And ACTUALLY do something about it).

Translation Project

Process and Results

Setup Some of the initial challenges during this project were logistical. Decisions had to be made immediately about what colors to wear and what level of formality to present in dress for this project. The interpreters chose to wear dark colors—black, burgundy, grey, blue, green, etc.—colors that set off their skin colors, rather than attempt to match the business colors presented in the source video.

Most of the filming for this project took place in Hamersly Library on Western Oregon University's (WOU's) campus in one of the film studios there. While the quality of

the camera available there served the interpreters well, the lighting did not. The initial setup to establish adequate lighting took approximately forty-five minutes. Each interpreter's features had to be taken into account, including Slater Scancella's beard and Cheeley's glasses. The image below demonstrates the high contrast and glowing-effect of the lights against the interpreters' skin.



Image 1: Slater Scancella on the left, Cheeley on the right, both against a black background under harsh lighting. Slater Scancella is in a black v-neck sweater with the sleeves rolled up, and Cheeley is in a grey shirt with black $\frac{3}{4}$ sleeved cardigan. Cheeley's hair is in a ponytail.

This effect was mediated somewhat by darker makeup and a change in lighting. The latter also helped make more clear the shapes of the interpreters, as Slater Scancella's shirt faded somewhat into the background in this initial footage. Darker makeup and softer clothing choices can be seen below, in Image 2. Additionally, this image shows further challenges presented by the lighting on the interpreters' skin, as Cheeley's hands disappear completely when she signs by her face. This was also an issue due to the interpreter's signing size and style, as well as the space allowed by the setup, and the angle of the camera.



Image 2: Slater Scancella on the left, Cheeley on the right. Both are against a black background. Slater Scancella is in a black v-neck sweater with the sleeves rolled up and Cheeley is in a black shirt, her hands in front of her face. The lighting is harsh. Cheeley's hair is pulled back.

Later, more dramatic adjustments were made to test how a more casual setting might look on camera. The image below demonstrates how this looked.



Image 3: Slater Scancella on the left, Cheeley on the right. They are in a library study room with an open window and windowed door behind them. Slater Scancella wears a maroon sweater with the collar of a black shirt showing and Cheeley is in a black short sleeved blouse. Cheeley's hair is in a bun. The lighting is natural.

Height difference also became an issue as Slater Scancella is nearly a full foot taller than Cheeley. At one point, the interpreters decided to try filming the video standing, as both of them are more accustomed to interpreting standing up. However, finding an angle

that allowed both of them to be adequately captured was a challenge. Image 4 (below) demonstrates an arrangement that initially worked well, with Slater Scancella seated on a stool and Cheeley standing, but presented awkward posture differences and eye gaze challenges. This picture also demonstrates the challenge of Cheeley's long hair and the unnaturalness innate in signing to each other whilst standing beside one another, rather than facing each other.

Image 5 (below) also provides a summative idea of some of these challenges, demonstrating Cheeley's long hair, the importance of adequate lighting (to avoid blurred motion), the importance of a proper, solid-colored background, the difficulties that arose from height differences and from signing whilst seated, and more. This take was one of the primary reasons for changing so much in the end.



Image 4: Slater Scancella on the left, Cheeley on the right. Slater Scancella is in a black v-neck sweater with the sleeves rolled up. He is sitting on a stool out of shot, although his posture makes it clear he is sitting. Cheeley is leaning against the wall beside him in a black ¾ sleeve shirt. Her hair is down, although the front of her hair is pulled back. They are against a white background/wall.



Image 5: Slater Scancella on the left, Cheeley on the right. Slater Scancella is in a black v-neck sweater with the sleeves rolled up. Cheeley has the front of her hair pulled back but the rest is down and she is in a black ¾ sleeved blouse. They are sitting on a burgundy couch against a white wall.

Language. One additional challenge and consideration was the use of classifiers and space. As many of the terms in the source video do not have direct translations (consider “dock,” “home button,” etc.), and others required more information than the source provided in speech (consider “plug it in” when talking about a power cord compared to a USB port, or “plug it in there” without reference to where it was being plugged in), it was important to make decisions about how these things would be shown. An example of this is shown below. Image 6 shows Slater Scancella signing J-C for “JoyCon” (one of the devices included with the console in the source and discussed in the text). Image 7 shows Cheeley using a classifier to show the same meaning (“JoyCon”) after receiving feedback that a more visual representation might be more clear. Finally, Image 8 shows an example of another classifier used in a later take that was maintained from early translation work.



Image 6: Slater Scancelli on the left, Cheeley on the right, both against a black background under harsh lighting. Slater Scancelli is in a black v-neck sweater with the sleeves rolled up, and Cheeley is in a grey shirt with black $\frac{3}{4}$ sleeved cardigan. Cheeley's hair is in a ponytail.



Image 7: Slater Scancelli on the left, Cheeley on the right. They are in a library study room with an open window and windowed door behind them. Slater Scancelli wears a maroon sweater with the collar of a black shirt showing and Cheeley is in a black short sleeved blouse. Cheeley's hair is in a bun. The lighting is natural.



Image 8: Slater Scancella on the left, Cheeley on the right. Slater Scancella is in a black v-neck sweater with the sleeves rolled up. He is sitting on a stool out of shot, although his posture makes it clear he is sitting. Cheeley is leaning against the wall beside him in a black ¾ sleeve shirt. Her hair is down, although the front of her hair is pulled back. They are against a white background/wall.

This change also required the interpreters to understand how the console worked and what its use actually looked like in order to depict it correctly. Additionally, both interpreters needed to make sure they signed the same thing and did so consistently. This was occasionally difficult in some cases, particularly when depicting the size of the device or the box from the source. Because Slater Scancella's arms and hands were so much longer/larger than Cheeley's, his depiction of a slim box was often much larger than Cheeley's, and her use of gesture to show the size of the box resulted in a much smaller box than did Slater Scancella's.

Presentation. The ultimate goal was to produce a prepared interpretation that was easily accessible for a range of audiences, primarily the intended audience of the original text, and that was clear and usable. Often times, when there are multiple speakers in a source text and multiple interpreters, the interpreters will each interpret for one person and be shown facing forward in individual boxes alongside the original video material. However, because this text involved so much physical interaction, overlap, and engagement with each other, the interpreters decided to record themselves in one singular video as is seen above.

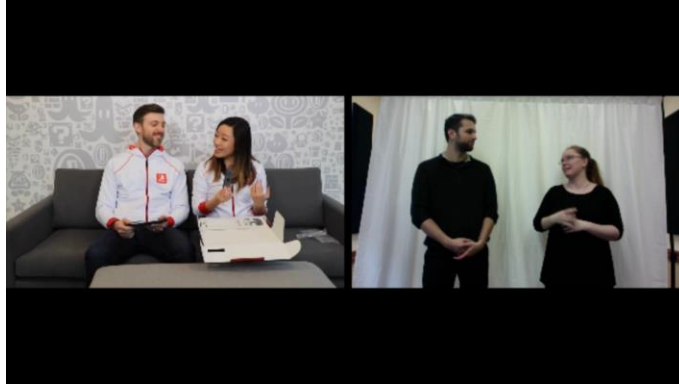


Image 9: Side-by-Side Orientation



Image 10: Picture-in-Picture Orientation, Source Primary



Image 11: Picture-in-Picture Orientation, Interpretation Primary

This presented its own challenges as the interpreters had to figure out how to put the two videos together in a way that met the criteria they had originally set in mind. Several methods were attempted. Images 9, 10, and 11 are examples of some ideas that were discussed. Each had particular pros and cons, summarized in Table 7, and none of the options were wholly satisfactory. For a viewer watching the texts together on a computer screen, side-by-side orientation might offer the best view of both texts despite some cons.

However, this would be almost impossible to see on a mobile device. While both picture-in-picture options covered important material and left the rest very small, they did offer larger visuals for the partially covered footage. Ideally, a viewer would be able to select which of these, or any other, orientation they would prefer.

	Pros	Cons
<i>Side-by-Side Orientation</i>	The entirety of both videos are visible.	Both videos are small; the videos are further apart from each other/the speakers and interpreters do not align visually/physically.
<i>Picture-in-Picture Orientation, Source Primary</i>	The entirety of the interpretation is visible; most of the source video is visible most of the time; the visuals presented in the source video are large enough to be easily seen.	The interpretation is small; the source video is partially covered at times.
<i>Picture-in-Picture Orientation, Interpretation Primary</i>	The entirety of the source material is visible; most of the interpretation is visible most of the time/the entirety of Cheeley’s interpretation is visible at all times; the interpretation is large enough to be easily seen.	The source material is small/the visuals are small; the interpretation is often covered, particularly Slater Scancellla’s work.

Table 9: Pros and Cons of Different Orientations

Conclusions

For this particular translation, or prepared interpretation project, with no real-life consumer and months to prepare, the risks involved were relatively low. Settings where interpreters might work with video games or video game related content include PAX East, TwitchCon, live Twitch streams, YouTube streams, YouTube videos (such as the one used in this project), E3 conferences, specific conventions, pre-releases and early-releases, interviews (recorded or live), panels, and more. Deaf consumers at such events and of such recorded materials could range from the friend or family member of someone immersed in video game culture or a video game player themselves. As time goes on, Deaf consumers will hopefully include game developers, writers, and producers more often.

To perform in these fields, the need for adequate knowledge, both linguistic and extra-linguistic, is massive. The amount of research that went into this particular project—despite both interpreters being avid game players themselves—was immense and demonstrates the need for prep time, prep materials, and interpreters well-versed on the subject material. Additionally, interpreters must consider the demographic of their consumers and how best to match the environments they find themselves in, as well as the lack of established video game terminology in ASL. The ever-changing English lexicon provides a further challenge and interpreters working with consumers in settings related to video games would do well to work from a model that promotes a collaborative work between the interpreters and the consumers.

Despite a growing internet presence on forums and blogs, much of the interaction between gamers is verbal, either in person or via voice communications during online gameplay. Due to this, and for other reasons, it cannot be assumed that a Deaf consumer will necessarily benefit from fingerspelling of video game terminology, slang, or jargon, just as it cannot be assumed in any other setting. Additionally, the internet- and text-based nature of video game communications when such text-based communications exist mean that spellings are often unconventional and that terms are often based on mainstream words for other concepts.

Both translators were surprised to discover how much their own experience with video games was utilized in order to produce an accurate translation of the source video. At the time, neither translator had owned or used the gaming hardware discussed in the source video, and the work to present this information accurately was made much harder. At some point, Slater Scancellia had the opportunity to use one and both translators took extra time to research the appearance and functionality of the product, immensely improving their work.

Feedback from Deaf community members was crucial in identifying areas that could be improved in drafts and most feedback was related to the use of classifiers to present information more clearly. Thus, the need to understand the size and shape of the device itself and various associated hardware, the location of ports, buttons, and switches, as well as other aesthetic information became even more crucial. Like much video game hardware, the left and right sides of the device, as well as the left and right controllers in this case, were unique, making it necessary for the translators to agree on their use of space. Additional challenges would have presented themselves had one of the translators been left handed and the other right. Again, consistent depictions of size and space between translators was of the utmost importance.

Additionally, the translators considered the importance of affect-matching and representation of source language speakers. Since this is a consideration present in most, if not all interpreting work, it was natural for Cheeley and Slater Scancelli to look for ways to incorporate the affect of the source speakers into their translations. However, this also presented a challenge if the goal of the text was to inform viewers about a new device. Linguistic traits like overlapping, repetition, sarcasm, teasing, and references to visual information not present in the translator's environment (such as comments like "look at that," which required expansion on the part of the translators since "that" was not available to them) all necessitated analysis and cultural consideration. The translation was not only about the product discussed in the video, the content, or the goals, but also about the representation of the hosts of the source video program and the company as a whole.

Chapter Five: Discussion

The work completed for this thesis has served to 1) confirm that there is indeed a lack of accessibility for d/Deaf and hard of hearing people to video games; 2) expose a lack of awareness of such issues on the societal scale, as well as on the smaller scale of video game design especially; 3) provide information about the cultural and health-related importance of video games and the benefits gamers receive when video games are made accessible to them, as well as the potential monetary benefits to companies who produce such games; and 4) explore the role of interpreters, both as interpreters and as allies, in collaboration with the Deaf community to seek was to improve video game accessibility.

The findings from this study indicate that a lack of accessibility in video games, particularly where access to audio information is concerned, is negatively impacting a range of players. With over 70% of the author's respondents suggesting they play games without sound "regularly" or "sometimes," out of all those who play at least "sometimes" or more often, and only 7% of all participants saying they do not play with sound because they find it unnecessary, it is clear that there is a target audience being missed in video game design..

At the start of this project, the author sought to examine the current research and literature on the topic of video game accessibility. While there are certainly materials published discussing the inaccessibility of media, the lack of standardized subtitling and captioning practices, and other general accessibility research, there is only a limited quantity and almost none on the topic of accessibility for d/Deaf individuals to video games. The overall dearth of relevant literature meant that the author had to draw from a wider variety of sources. The synthesis of this material exposes a profound lack of understanding in the field of video game accessibility and a failure on the part of video game developers to do anything about it. However, the lack of research also demonstrates a certain gap in

knowledge on the part of video game developers, which can be remedied through further research and advocacy.

Changes to video game accessibility are crucial for a variety of reasons. As wide swept a cultural phenomenon as video games are, and as massively inaccessible as they are, lack of video game accessibility becomes a lack of access to a significant part of culture. Because engagement with video games occurs both alone and in groups, and because video games are particularly popular among young adults and middling adults (again, see Lofgren's (2016) assertion that the average gamer is 35 years old and that 60% of gamers are 18 years or older), entire generations of people are being excluded from immersion in something their peers have easy access to. Considering the sociocultural value of video games, inaccessibility in this area also prevents d/Deaf gamers from engaging with an important aspect of social life.

Additionally, the studies recently conducted regarding the possible health benefits and therapeutic uses of video games (consider again Kerzner, 2015; Complex, 2015; Fagundo et al., 2013; Moore, 2010; Mangiron, 2016, and others) make it clear that there are scientific reasons lack of video game accessibility is detrimental for those excluded. Opportunities for self-care and some forms of professional mental and physical health treatments are not available to d/Deaf and hard of hearing gamers when their experience with video games is limited so severely. The importance of the immersive nature of video games goes beyond simply enjoyment, although even enjoyment is barred for many d/Deaf gamers, as was demonstrated through Surveys 1 and 2.

Hearing, non-signing gamers' reactions to the game *Moss* (Polyarc, exp. 2018) demonstrate the frustrations of those who are unused to any perceived inequality in games. It reveals a massive disjoint considering that such uproars are not so common from the

d/Deaf and HOH population. Despite the fact that hearing, non-signing gamers were not missing any gameplay features or strictly necessary meaning due to lack of ASL fluency, many still responded angrily, saying they do not want to play games they do not get all the information from. Considering the lack of complete information in subtitles, and even in captions, masquerading as access for d/Deaf gamers, this seems like a helpful mirror to understand issues that are often silenced. While discussions surrounding *Moss* (Polyarc, exp. 2018) certainly have started a conversation on accessibility issues for d/Deaf gamers, who typically play every game without full access to content, they truly are only the start of improvements to accessibility.

Worthy of particular note is that the majority of people seem to agree that game developers, companies, and producers—the creators of video games—should be responsible for ensuring an accessible product. While others in the d/Deaf and HOH community did suggest that legislation should be an enforcer in the matter, few offered other suggestions and game creators were the primary group by a massive majority. This answers the primary question, entitled in this thesis, regarding the role of interpreters in the fight or development for more accessible games.

This project was begun to explore the role of interpreters in advocating for greater accessibility in video games. The assumption was made that video games immerse players in a story, an activity, or an adventure in a way that is not equally accessible to both hearing and d/Deaf or Hard of Hearing gamers. This assumption was proven to be founded in the experience of gamers and community members who offered their own testimonies and perspectives, shaping the research and suggesting that interpreters might not have roles in changing this issue as interpreters. However, research also suggests that there is room for individuals to act as allies, in collaboration with the d/Deaf community and those

responsible for creating and producing video games. Additionally, there is evidence of a severe lack of accessibility to immersion in video game culture through events, news, media, and more, in ways that interpreters might alleviate through their professional function.

It is clear that video games currently lack appropriate accessibility, and that changes to current designs would appeal to a vast number, if not a true majority, of video game players. Solutions to issues of accessibility not only benefit those who are currently barred from immersive gameplay, but also gamers in every demographic, as well as financially benefiting game developers by opening a wider marketability for their products. Accessibility issues impact many more people than is often presumed.

While responsibility might ultimately lay with game creators, the aforementioned lack of literature points to a wider informational lack. Further steps towards education, awareness, accessibility should be taken with allyship models in mind, holding developers and creators ultimately responsible for the product while maintaining an active role in the process of achieving higher standards. These things should only be undertaken with careful collaboration with the d/Deaf and HOH community.

Ultimately, people who play video games are generally aware of accessibility issues, even if they do not label it that way. Citing dissatisfaction with subtitles and audio cues, many players report problems when they play games without sound. Additionally, many people who are not d/Deaf or Hard of Hearing do play without sound. Even more report that they only play with sound because they find that they run into problems when they play without.

While there is certainly a need for improved accessibility in video games themselves, there should also be a consideration for events, videos, and other related aspects of gaming culture. Interpreting for these settings requires the same level of familiarity with the subject,

knowledge of vocabulary and jargon, and skill level as many other interpreting settings.

Although the level of risk in this field initially seems low, it is important to consider the value of video games in players' health and wellness, as well as the cultural exclusion that might be mediated by adequate interpreting services.

Chapter Six: Conclusion and Recommendations

Suggestions for Further Research

Further research into the gaming preferences and experiences of individual players, explored through interviews and gameplay observations would tremendously benefit the fields of video game development and design, accessibility studies, and the author's topic specifically: video game accessibility and immersion. Scientific study of the behaviors of d/Deaf gamers in response to the lack of accessible games are needed to reveal more details about what accessibility issues that gamers might experience but not be able to verbally identify. For example, noting that d/Deaf gamers take longer to get around corners in first-person games than do hearing players might reveal something about the way they approach their environment when they know they are missing cues that they might not miss in the real world, like physical warnings of the movement of others. Further research is necessary to determine gameplay habits and any correlations therein.

A study of the challenges and considerations necessary for interpreting in other video game related settings would give a more holistic view of this area. Because so many of these settings do not currently include ASL/English interpretations, further research should be done by analyzing what considerations should go into setting up interpretations, through some such method as the Demand Control Schema (DC-S) (Dean & Pollard, 2001). Furthermore, introducing ASL/English interpreters to these settings and then conducting interviews and textual analysis would provide valuable data.

Due to the highly individual nature of accommodations and of video game playing preferences and behaviors, case studies might serve well to begin establishing a framework of what interpreters and interpreting looks like in video game related settings. Comparisons can also be drawn to other fields with similar demands, such as theatre, comedy, and other

platform interpreting as comparison for E3, PaxEast, and other video game conferences and fairs. A detailed DC-S (Dean & Pollard, 2001). analysis of various video game related settings would be a helpful starting point for much of the necessary research into how interpreting can fit into this area of work.

Where the research conducted for this thesis touched on how interpreters themselves might begin to be involved in the fight for accessibility in video games, it is ultimately a matter for the d/Deaf community to decide and they should be consulted at every step of the process. In-depth interviews with d/Deaf community members would serve that end well to see if/how they recommend interpreters support that process, and it may be that interpreters can best support accessibility in gaming by translating materials into American Sign Language.

Appendix A: Survey Questions and Answers

Survey 1: Video Game Accessibility

<i>Question</i>	<i>Responses</i>	<i>Possible Answers</i>	<i>Responses</i>
How old are you?	124/124	Under 18 18-25 26-30 30-40 Over 40	0 43 20 27 34
How do you identify yourself?	124/124	Male Female Neither Other	47 75 2 0
How do you identify yourself?	116/124	Deaf Hearing Hard of Hearing	8 94 14
What level of vision do you have?	124/124	Excellent Normal Below normal but corrected (glasses or contacts) Below normal and not corrected. I am legally blind.	21 31 71 1 0
How often do you play video games?	124/124	Regularly Often Sometimes Occasionally Seldom I have never played before.	30 18 23 13 37 3
What types of video games are you most familiar with? (Select all that apply)	124/124	Role Playing Games (RPG) Horror Games Adventure Games First Person Shooters (FPS) Massively Multiplayer Online Games (MMO or MMORPG) Sandbox/Creative Games Survival Games None Other	76 17 79 54 35 46 31 12 30
What platforms do you typically play games on? (Select all that apply)	124/124	PC/Mac Xbox console (any generation) PlayStation console (any generation) Nintendo Wii Other Nintendo Console Handheld Game Device Phone None	71 41 45 44 24 31 66 7

		Other	2
Which of the previous do you play the most/prefer the most?	124/124	PC/Mac Xbox console (any generation) PlayStation console (any generation) Nintendo Wii Other Nintendo Console Handheld Game Device Phone None Other	37 21 22 6 7 4 19 6 2
How do you feel about mini-maps or compasses on the HUD or gaming interface? (Select all that apply)	124/124	They are distracting. They are helpful. They are annoying. I rely on them. I don't notice them usually. I don't know what these things are.	8 69 4 31 12 31
How often do you play without sound or in an environment where you cannot hear the game sufficiently?	124/124	Regularly Sometimes Rarely Never	41 33 32 18
If you identify as Deaf or Hard of Hearing, which do you prefer:	57/124 ¹	To play with the sound off. To play with the sound up extra loud. To play with speakers located so I can feel them. None of these. Any of these. Other.	8 3 0 18 7 21
If you play without sound, why? (Optional)	63/124	(Open ended).	--
If you play without sound, do you encounter any gameplay difficulties?	71/124	(Open ended).	--
How often do you play with subtitles?	121/124	Always Usually Seldom Never	35 22 16 48
Please explain why you do or do not	80/124	(Open ended)	--

¹ Several of these responses were excluded in the consideration of actual data because respondents who were hearing answered and skewed the numbers.

prefer to play with subtitles (Optional)			
Typically, how satisfied are you with the quality of video game subtitles?	93/124	Very unsatisfied Unsatisfied Somewhat Unsatisfied Somewhat Satisfied Satisfied Very Satisfied	6 6 7 23 44 7
If you were unsatisfied with video game subtitles to any degree, please explain why. (Optional)	38/124	(Open ended)	--

Survey 2: Signers and Accessibility²

<i>Question</i>	<i>Responses</i>	<i>Possible Answers</i>	<i>Responses</i>
How old are you?	67/67	Under 18 18-24 25-30 31-40 Over 40	0 13 13 19 22
Where are you?	67/67	Outside of the United States Northeast Midwest South West Alaska Hawaii Other	0 4 14 7 36 0 0 7
How old were you when you began signing?	59/67	10 or under 11-15 16-19 20-25 26-30 Older than 30	13 9 18 9 4 ³ 6
Which of the following do you identify as?	65/67	Hearing Hard of Hearing Deaf (culturally and medically) Deaf (not culturally, only medically)	52 2 8 2

² Two responses were submitted twice, but the second response was deleted each time, and is not counted here.

³ This number includes one response from a participant who indicated their own age as 18-24, making it impossible to have begun to learn sign at 26 or older.

		Other ⁴	1
Are you:	66/67	Hearing interpreter	29
		CDI (Certified Deaf Interpreter) ⁵	0
		Neither	26
		Other	11
Where do you typically work?	66/67	K-12	13
		Post-Secondary	18
		Community	18
		Medical	11
		Legal	4
		Religious	5
		I am not an interpreter (Please select other, too)	30
		Other	38
What is your educational and training background? Discuss all that apply.	62/67	(Discussion questions)	--
What is your experience with video games?	67/67	I play frequently (Console or PC)	17
		I play frequently (On a cell phone or tablet)	9
		I play sometimes	16
		I play seldom	19
		I have never played at all	6
Have you heard of/thought of inaccessibility in video games? Please discuss.	58/67	(Open ended)	--
Have you heard of/participated in efforts to mediate this inaccessibility? Please discuss.	54/67	(Open ended)	--
Who do you think is or should be responsible for these efforts? Please discuss.	52/67	(Open ended)	--

⁴ The only “Other” response identified as “Deaf culturally but not medically.”

⁵ This question’s responses are likely skewed due to confusion—while “Hearing interpreter” does not specify level of certification (and likely includes both certified and uncertified interpreters), “CDI” does. As a result, “Other” and “Neither” likely include Deaf interpreters who are not certified, or certified hearing interpreters who were not sure whether “hearing interpreter” applied to them, and in fact some of the “Other” responses did demonstrate this. This confusion was expressed by at least one participant.

Have you participated in efforts against other areas of inaccessibility for the Deaf and Hard of Hearing inside or outside the scope of your work? Please discuss.	48/67	(Open ended)	--
What changes would you like to see towards video game accessibility?	47/67	(Open ended)	--

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