

## RESEARCH

# Who Gets to Play? Disability, Open Literacy, Gaming

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Video games are an expanding area of popular culture spanning traditional age, gender and socioeconomic divides and appealing to a diverse market. People with disability represent a significant but under researched gaming demographic (Beeston et al., 2018). While this group represent a large portion of the gaming population, inaccessible interfaces and consoles may prevent people with disability from playing games. Despite this, research dating back to 2008 suggests 92% of gamers with disability continue to play games despite these obstacles. This paper aims to put the topic of gamers with disabilities on the agenda for Open Literacies.

The paper brings into dialogue research and conceptions of disability and digital media (especially the work of Gerard Goggin, Meryl Alper, Katie Ellis and Elizabeth Ellcessor) with accounts of gamers with disability, and how we might understand digital access as a cultural practice (for instance, the work of Foley & Ferri). This theoretical synthesis leads us to draw attention to the alternative ways in which games can be played and the impacts this has for the disability community.

A secondary aim of the paper is to consider the contexts in which disability appears in gaming in popular culture and everyday life. For example, therapeutic and educational contexts dominate while recreation is considered less important. The paper concludes with reflections about the ways disabled gamers engage in open literacy to bring accessibility to the forefront and change the rules of the game.

**Keywords:** gaming; disability; open literacies; accessibility; disability media studies; innovations commons

In his 2015 article *Hackers, gamers and cyborgs*, Brendan Keogh reflected on the way the construction of the typical gamer paralleled the masculinisation of information communication technology (ICT) in general. He highlighted a number of key moments in the history of ICT to demonstrate the impact of the entrenched patriarchal structures through which video games emerged and currently operate. The transition from consumption of video games in arcades towards home consoles and microcomputers in the 1980s and 1990s represented a pivotal moment for Keogh, and one that the industry had to respond to in order to retain an audience. The selected audience Keogh explains was white, male and skilled at gameplay:

*The emergence of a normalised gamer identity was carefully cultivated by magazine publishers, with advertisements and articles strongly suggesting that a gamer was a particular kind of person – male, young, skilled at ‘gameplay’ and technologically competent. For the Western game developers [...] a stable consumer identity with a narrow, clear set of values and tastes was ideal.* (Keogh, 2015)

This imagined gamer has continued to pervade industry and popular culture concepts of the normalized gamer identity. When critiquing constructions of normality and preferred users of technology, it is important also to consider the exclusion of people who have nonnormative bodies such as people with disability. Throughout this article we add *able bodied* to Keogh’s list and interrogate the ways people with disability are both included and excluded from gaming and the gamer identity. We are particularly interested in the ways people with disability have acted as an innovation commons (see Jenkins’ article in this issue) and the impacts this has had on the availability of accessible games in the broader industry.

Video games are an expanding area of popular culture spanning traditional age, gender and socioeconomic divides and appealing to a diverse market. People with disability represent a significant but under-researched gaming demographic (e.g. Beeston, Power, Cairns, & Barlet, 2018). While this group represent a large portion of the gaming population, inaccessible interfaces and consoles may prevent people with disability from playing games. Despite this, research dating back to 2008 suggests almost 20% the gaming population have an impairment while 92% of gamers with disability continue to play games despite accessibility obstacles (Chin, 2015).

This paper aims to put the topic of gamers with disabilities on the agenda for Open Literacies. Throughout the paper we draw on John Hartley's definition of Open literacy as "user-centred and system-wide, 'bottom-up' rather than 'top down', producing unforeseen network effects that in turn change the rules of the game" (see Hartley, this issue). We begin with a literature review that brings into dialogue research and conceptions of disability and digital media with accounts of gamers with disability, and how we might understand digital access as a cultural practice. This theoretical synthesis leads us to draw attention to the alternative ways in which games can be played and the impacts this has for the disability community. The paper then moves on to consider the contexts in which disability appears in gaming in academic literature. For example, therapeutic and educational contexts dominate while recreation is considered less important. The paper then draws on the perspectives of disabled gamers as articulated in media and online commentary to argue that gamers with disability, as the experts in the ways their bodies interact with digital games, have created a series of strategies, hacks and workarounds to change the rules of the game.

## Disability Media Studies

While disability is typically considered a medical problem outside the scope of humanities and social sciences, a critical approach to disability highlights the ways disability is culturally bound to social constructions of normality. Critical disability studies attempts to break down the binaries that have been created in relation to disability. For example the medical model of disability creates a binary between disabled and not disabled while the social model, established in response to the medical model created another one – disability (socially located) verses impairment (the body) (cf Oliver, 1996). By comparison, critical disability studies attempts to move 'away from the preoccupation with binary understandings – social v medical model, British v American disability studies, disability v impairment' (Meekosha & Shuttleworth, 2009, p. 50). As Rosemarie Garland Thomson explains, disability is the result of the interaction between a nonnormative body and the social environment:

*Disability has four aspects: first, it is a system for interpreting bodily variations; second, it is a relation between bodies and their environments; third, it is a set of practices that produce both the able-bodied and the disabled; fourth, it is a way of describing the inherent instability of the embodied self.* (Garland-Thomson, 2002, p. 74)

This definition locates disability within society, built environments, social structures, people's attitudes and in the body. The role of digital media environments in creating both disabling and enabling social practices and environments is a dynamic area of enquiry in critical disability studies. Gaming in particular is gaining traction in recent years although it still remains an understudied topic within critical disability studies.

Although technology generally has been an enduring concern within both critical disability studies and the social model of disability (see Ellis & Kent, 2011; Finkelstein, 1980; Roulstone, 1998), Goggin and Newell's book *Digital Disability* published in 2003 laid the foundations for the current debate regarding disability and digital access. For Goggin and Newell, while digital technologies and the internet in particular had the potential to dramatically improve the lives of people with disability, this would not occur until disability was recognised as a social identity in the same way as race, gender and sexuality. They noted many instances where despite the potential to be inclusive of people with disability, digital environments were inaccessible and further disabling for people with disability (Goggin & Newell, 2003).

In 2011 Ellis and Kent applied this argument to the so-called web 2.0 environment. The participatory web Ellis and Kent argued, allowed ordinary people with little technical know how to create disabling online environments. Similarly, large tech companies such as Facebook displayed little interest in creating accessible environments for people with disability, despite Tim Berners-Lee's original conception of the web as powerful in its universality - "access by everyone regardless of disability is an essential aspect" (Berners-Lee, 1997). Like Goggin and Newell, Ellis and Kent noted that the internet and social media was created in the same disabling social world that erected steps in front of buildings

without a lift or ramp. They were particularly critical of what they described as a three-step process whereby relatively accessible digital environments were created however as they amassed more users became less accessible until they would finally have accessibility retrofitted at great expense and inconvenience.

Prior to *Digital Disability* and *Disability and New Media*, academic investigations of the affordances of accessible technologies focused on facilitating access to the workplace (Roulstone, 1998). However, these two books signalled a recognition that people with disability also wished to access what is often inaccessible popular culture (Ellis, 2015). The notion that often 'technology not only fails to "fix" disability but in fact creates it' (Ellcessor, 2016) first introduced by Goggin and Newell became an enduring area of concern as critical disability theorists explored the increasing digitisation of everyday life (Ellis & Goggin, 2015a; Ellis & Kent, 2015). As Meryl Alper noted, the enabling assumptions that pervade people with disability's use of digital technologies fail to grasp pervasive structural inequalities that dictate who can and cannot afford such technologies and how they are deployed in real world contexts (Alper, 2017). Disabling attitudes and the economics of disability still influence government policy and the contexts in which children with disability for example are allowed to use mainstream accessible devices such as the iPad (Alper, 2017). Significantly, theorisation began to question the distinction between face to face and mediated digital communication (Alper, 2017) establishing the importance of accessible digitisation to everyone (Ellis & Goggin, 2014, 2015b; Ellis, Goggin, & Kent, 2015).

Digital access is a form of cultural practice that included some and excluded many, particularly people with disability (Foley & Ferri, 2012). Drawing on insights established in complimentary disciplines such as literary disability studies, cultural approaches to disability recognise that the way people with disability are in/excluded is a direct reflection of our ethical core (Quayson, 2007). At the same time the United Nations Convention on the Rights of Persons with disability recognised the importance of digitisation to the full inclusion of people with disability (Alper & Goggin, 2017; Ellis, 2019; United Nations, 2006). The convention displays a strong media influence and articulates a number of digital rights (Goggin, 2015). The following section explores the ways gamers with disability, as an innovation commons (see Jenkins this issue), impact on access to games and, as a group, affect bottom up change (see Hartley this issue).

## Literature Review: Disability and Gaming

While players with disabilities are not a new area of research within video game studies, there has been a tendency to focus on the use of video games as educational or therapeutic resources. These studies range from how video games can be used to facilitate physical therapy and rehabilitation sessions (Martins, Carvalho, & Soares, 2012; Rinne et al., 2016; Rowland et al., 2016), address attention deficit and hyperactivity disorders (Santo et al., 2012), train people in the use of prosthetics (Smith, Dombrowski, Buysens, & Barclay, 2018), as well as function as educational resources for people with intellectual or learning disabilities (Delgado & González, 2012; Israel, Wang, & Marino, 2016; Saridaki, Mourlas, Saridaki, & Mourlas, 2011). While video game research has traditionally focused on younger audiences, there is also growing attention on older players and the use of games as therapeutic resources for aging. For example, studies have been conducted into how video games can: treat and augment rehabilitation for people aging with, and possibly into, a disability (Lange et al., 2010); be used in conjunction with conventional physiotherapy to treat hospitalised older people (Laver et al., 2012); improve balance and motor control (Lai et al., 2013; Mendes et al., 2012; Young, Ferguson, Brault, & Craig, 2011); as well as influence positivity and well-being (Baños et al., 2012). Research in the field of disability and gaming has not only focused on how games can be used to treat, manage, or alleviate the disability, but there is also attention being given to how to specifically design games for the education and training of people with disabilities (Kwon, 2012).

The difficulty with this focus on players with disabilities and games that are primarily educational or therapeutic is that they tend to frame players with disabilities as "treatment-receiving objects" (Wästerfors & Hansson, 2017, p. 1143). They also reinforce the notion of what Robert McRuer describes as compulsory ablebodiedness (McRuer, 2006). Such perspectives skew our understanding of people with disabilities as players of video games as they are studied from a specific angle and under precise conditions:

*In a typical study design, young persons with disabilities are exposed to an intervention with games and the result is measured in comparison with a control group. The participants are predefined as in need of training, and no consideration is given to any personal interest in these games or meaning-constructing practice around them. (Wästerfors & Hansson, 2017, p. 1144)*

This consequently provides a rather limited understanding of how players with disabilities form a part of the wider gaming demographic. Heron argues that such limited views run the risk of pigeonholing players with disabilities into “gaming ghettos” where they are closed off from the wider gaming market and culture (2012, p. 30). He also points out that they problematically assume that players with disabilities are a small and niche market, thus ignoring the ways in which accessibility options can benefit a broader population (Heron, 2012, p. 31). Such a limited view of players with disabilities also ignores the fact that they can engage with video games for many of the same reasons that players without disabilities do, including: fun, relaxation, socialisation, and challenge (Beeston et al., 2018). As Beeston et al. explain, “game designers and researchers can assume that people with disabilities want to play mainstream games with everyone else and will attempt to find a way to play” (2018, p. 12). Therefore, although it is clear that video games can be significant educational and therapeutic resources for people with disabilities, there is increasing recognition that people with disabilities are active members of the wider gaming population and share similar interests, motivations, needs, and frustrations.

The frustrations experienced by players with disabilities, however, tend to go beyond that of players without disabilities because of the various ways in which the game may intersect with their disability and thus impact their overall gaming experience, immersion, and enjoyment. As Wästerfors and Hansson explain,

*An ideal is to keep corporeality as ‘an unthematized background’ when playing video and computer games, but because bodies with disabilities may not be as self-concealing as many others (given the inaccessible society at issue), achieving this ideal is not always possible or may demand special work.* (2017, p. 1146)

When games impose limitations upon players with disabilities by not offering them the ability to adequately engage with the game, they hinder the player’s capacity to immerse themselves in the full experience of ‘play’ as a free and absorbing activity (Huizinga, 1955). Further, the “special work” required by the player to conceal their disability or overcome any resulting barriers when playing the game results in additional work on their part which can often entail an extra expense and effort.

This recognition has prompted further research into how all video games can be made more accessible to players with a range of disabilities (Heron, 2012; Trewin, Laff, Cavender, & Hanson, 2008; Westin, Bierre, Gramenos, & Hinn, 2011; Yuan, Folmer, & Harris, 2011). Accessibility issues for players with disabilities can usually be grouped into three dominant and interlinked categories: the player must first be able to receive stimuli, determine an appropriate response, and finally provide input back to the game to action their response to the stimuli (Yuan et al., 2011, pp. 83–84). These categories and actions become further complicated depending on the nature of the player’s disability and the specific needs of the respective game. Stimuli are usually in the form of visual, auditory, or haptic signals, and games that rely purely on one mode of stimuli (for example, the sound of footsteps to signify an enemy’s approach) will inevitably exclude, or disadvantage, players whose disability corresponds to that mode of stimuli.

The general assumption that people with disabilities are a small gaming market can also indicate that the lack of accessibility within video games is more often a result of omission and oversight rather than deliberate design. Heron suggests that greater awareness building and education will significantly help to overturn this, and indeed, there are a growing number of resources available to help game creators understand the issues commonly faced by players with disabilities and provide advice on how they can improve in this regard.<sup>1</sup> However, Yuan et al. are sceptical of these efforts, particularly those that attempt to establish best practice guidelines, explaining that they “often assume an absolute validity, but in practice are only applicable in specific contexts”, and that “they do not provide an explanation of what accessibility problem the guideline is supposed to solve, making it difficult for a game developer to understand when and why the guideline can be applied” (2011, p. 82). Costello et al. similarly agree that “guidelines would be able to support gamers with a variety of different needs to those similar to television guidelines ... however, could be difficult due to the nature and dynamic fluidness of user interactions and the genres available” (2019, p. 28). They illustrate the limitations of accessibility options by using the example of subtitles which, despite

<sup>1</sup> See for example, AbleGamers (<https://accessible.games>), Game Accessibility Guidelines (<http://gameaccessibilityguidelines.com/>), and Accessibility at EA (<https://www.ea.com/able>).

becoming a more common feature within video games, are not always effectively used and can impact the experience of the game itself (Costello et al., 2019, p. 25).

Despite these concerns, improving accessibility within video games need not be a difficult or expensive exercise and, as Heron explains, “great strides can be made by, simply adopting the existing good practice that is currently spread across mainstream titles” (2012, p. 29). Features such as closed captions, layered audio landscapes, accessible sound cues, and control mapping are already commonly available and can go a long way towards making a game more accessible to players with varying disabilities (Heron, 2012, pp. 33–34).

Often, players themselves find ways to work around the limitations they experience within games. For example, players with visual impairments compensate by relying on audio cues from the game itself, signals from teammates using a voice-based chat program, or employ in-game options to adjust the colour and size of visual cues to make them more clearly visible (Lim & Nardi, 2011). Depending on the nature of the game and the needs of the player, some of these work arounds can be as simple as using an extra bench or large ball for stability (Wästerfors, 2011, p. 343), while other players remap the controls or reconfigure their gaming setups to enable them to play with their feet (Wästerfors & Hansson, 2017, p. 1154). Many also rely on the use of third party extensions, accessories or equipment to facilitate their play. Players with severe motor impairments, for example, can employ the use of gaze-based interfaces which, although limited in some ways, still offer the ability for such players to engage in gaming as a social activity without the need to disclose their disability (Istance, Vickers, & Hyrskykari, 2009).

Some of the workarounds described by Wästerfors and Hansson (2017) indicate a complex literacy, wherein the player not only exhibits a detailed knowledge of their own capabilities and needs, but also a high level of technical proficiency and gaming knowledge. These are also examples of how players manage what Wästerfors and Hansson term “disability stickiness”, that is “disability as something that is socially constructed in ways that makes it difficult to disengage from” (Wästerfors & Hansson, 2017, p. 1156). In addition to being selective about the games they play, players with disabilities also need to negotiate and manage assumptions made by non-disabled people in regards to their abilities:

*When I go out, such as to an arcade, people look down on me. It's like me being in a wheelchair automatically makes me a bad gamer. But once they see what I can do, they're left in awe. In my mind, I've never been any different from other gamers. (Andrew Monkelban, quoted in Cavalli, 2008)*

Returning to Rosemarie Garland Thomson's definition of disability as also comprising a set of practices that produce both the able-bodied and the disabled, disabled gamers must navigate the disabling social attitudes of other gamers:

*“He [opposing player at an eSports tournament] told me I was full of shit, that this has got to be a joke, that there is no way I could play like that. He looked at the judge and asked if he was going to allow me to play like this.” recalled NOM4D, laughing at the absurdity. “We slaughtered them, and after we won, he argued with the ref, saying it was unfair that my reaction time was faster because the signals traveled a shorter distance from my brain to my face and not my hands.” (Randy Fitzgerald, aka NOM4D, quoted in Giampapa, 2017)*

While for some the ability to play games online offers a certain anonymity and the chance to escape such “disability stickiness”, others are more transparent and openly discuss their impairments seeing it as a chance to normalise disability (Baig, 2019; Johnson, 2019). In this way disabled gamers must become the experts in challenging disabling attitudes, creating user led innovations and changing the ways games are played. The next section of the paper explores the impacts disabled gamers have had on the availability of accessibility via a media and social media analysis of the ways this group has devised workarounds and accessibility hacks, in many cases prompting the industry to respond.

## Strategies, Hacks and Workarounds

Players with disabilities find ways to play video games that aren't specifically designed for their needs by using a number of strategies, hacks and workarounds. For example, players who are blind have successfully played certain games by relying purely on auditory stimuli to guide their actions and responses (Associated Press, 2005; Schreier, 2011). Others rely on the wide range of community-generated resources such as YouTube clips and online walk-throughs to help them learn the ins and outs of the game (Yin-Poole, 2016a).

Some players modify how they interact with the game in order to better accommodate their disabilities, for example, by using their face, arms, or feet to manipulate the controllers (Winkie, 2017). These workarounds are often accompanied by hours of practice as players learn to navigate their way through the game and accurately time their interactions (Associated Press, 2005; Donovan, 2011; Schreier, 2011).

These workarounds are not perfect and often come with limitations of their own. Vision-impaired players who rely on sound to play are heavily dependent on “sound landmarks” and clear in-game auditory cues (Associated Press, 2005; Schreier, 2011). This requires games with good sound design and nuanced attention to detail. For example Terry Garrett, a gamer who identified as being blind, observes that it is difficult to play some contemporary first person shooter (FPS) games due to the overwhelming sound of shots and explosions: “You hear shots, but can’t tell which direction they are coming from, and by the time you hear them, you are dead” (quoted in Schreier, 2011). Other players who rely on community-generated resources to learn about how to navigate certain games observe that many of these resources aren’t specifically created with accessibility in mind, and hence do not necessarily highlight issues that would be helpful for various players with disabilities to know about (Yin-Poole, 2016a).

Learning how to play games is partially a battle of finding information on the game’s mechanics (particularly for fighting games like *Killer Instinct*) or finding a guide that is readable to assistive technology such as screen readers (that convert on screen content into audio and speech output). These guides or walkthroughs, normally found on sites like GameFAQs, are mostly necessary for 3D action games such as *Halo*, *Ninja Gaiden* and *Heavenly Sword*, though since they weren’t created with accessibility in mind they don’t often list any hints that would necessarily be helpful for totally blind players. (Sightless Kombat quoted in Yin-Poole, 2016a).

Above all, players with disabilities also need to have a detailed knowledge and understanding of their own capabilities to better determine which games they can and can’t play (Cavalli, 2008; Schreier, 2011). Andrew Monkelban, a player with Cerebral Palsy, explains that:

*One example of a genre I can’t play is shooters. Mass Effect is in this genre, and I had trouble playing it, due to the controls being too complicated for one-handed gaming. When you need to hold the controller a certain way, it causes problems when needing to reach some buttons.* (quoted in Cavalli, 2008)

Therefore even though players with disabilities are finding creative and resourceful ways of playing games that are designed with more mainstream able-bodied audiences in mind, they do still encounter limitations.

However, they are speaking up. In true participatory culture style, players with disabilities have also become more vocal and more visible about their experiences with video games. Many have taken to official and unofficial gaming forums, websites, and social media to discuss how particular titles intersect with their disabilities. Players not only discuss the problems they encounter, but also the workarounds they use to overcome the barriers between their disability and the game. Online discussion forums such as the subreddit r/disabledgamers offer popular venues to talk about game and console accessibility, look for advice on equipment or controls, and discuss specific needs (“R/disabledgamers,” n.d.). While these forums and threads specifically dedicated to disability function as a useful support network, some discussions will also spill over into other avenues. Players with disabilities often use the game title’s dominant subreddits or the game’s official forums to discuss and report issues that prevent their engagement or render their previous workarounds ineffective (Borgstrom, 2017; McKeand, 2016; WheelysGamer, 2017). When a missing control option rendered *Call of Duty 4* inaccessible for professional gamer Randy Fitzgerald, aka N0M4D, he reached out through the game’s forums to sound out the community on the change:

*I thought maybe a couple of people would go ‘oh yeah, me too’, but I got 25,000 replies within a couple of days ... Every second somebody was posting something new. I don’t think I slept for two days as I was reading all the messages and trying to reply to everybody. It was crazy.* (quoted in Donovan, 2011)

The post not only caught the developers’ attention and prompted a fix, but the developers also named the new control option after Fitzgerald’s gaming moniker and have included the N0M4D control scheme as a feature in every iteration of the game since (Donovan, 2011).

Such forums and discussion avenues not only increase the likelihood of capturing the attention of one of the game creators and bringing the issue to their attention, but also tend to engage the broader community in a conversation about accessibility. This not only helps to normalise the discussion about accessibility, but can also create safer spaces for people experiencing accessibility issues to speak out. For example, the game

*The Witcher 3* received much critical acclaim, yet many players complained that the game's inadequately small font for subtitles and in-game text spoiled their enjoyment of the game (Klepek, 2015). A post on the developer's official game forums originally highlighted the issue from a usability point of view:

*When I play in regular conditions (1,5–2 meters far from screen) text is too small. QA forget that usability is also important. Do you plan to address this? For now playing on console is pain.* (Xokati, 2015)

This particular issue received much community attention with other players chiming in with similar experiences:

*After two hours playing (PS4 Version) in my 47" TV, my eyes hurts! Every text on the screen is ludicrously small, being the subtitles [sic] font size especially annoying.* (Vandroy1981, 2015)

*My wife and I are finding this to be a major problem. Our TV is wall mounted, and from our couch we are unable to read the type on the inventory screens. We are now using our daughter's binoculars to read the small type.* (Sicilian77, 2015)

None of these posts specifically indicated a vision impairment, but their contributions helped open up a space for another player to recognise that the issue was with the game itself, and not their own ability to see, a key concept in critical disability studies:

*I'm 60yrs old I thought it was me. Now I see other people are having the same problem. I have a 40 inch tv can't read any of the text way to small. I do love the game but I can't read anything!* (sgtpete54, 2015)

Players have also started creating their own modified controllers and controller accessories to enable them to play (Frank, 2017; Kraft, 2015; Ramée, 2018; Torbet, 2019; Wästerfors, 2017). For example, the Nintendo Switch was initially lauded for its flexibility as it could be adapted for three different modes of play, however its controller was clearly designed for able-bodied, two-handed players (Ramée, 2018). Disabled gamer and blogger Grant Stoner regretfully gave the Switch a negative review, observing that:

*While the Switch tablet is placed within its dock, gamers can remove the Joy-Con controllers from the system, holding them in a similar fashion to that of Nintendo Wii remotes. With this configuration, I found myself constantly needing to readjust my hand placement, ensuring that I would be able to successfully press various buttons, as well as preventing me from dropping the devices. Unfortunately for the Switch – and my physically impaired hands – the Joy-Con controllers are egregiously small, meaning that it is near impossible for me to even perform basic movement functions within any game.* (Stoner, 2017)

In response to this, community maker Julio Vazquez created a 3D-printed adaptor that would enable the Joy-Con controllers to be held and manipulated by one hand and shared the design for free for the benefit of other players (Frank, 2017; Ramée, 2018; Vazquez, 2017). Other player-based customizations have also emerged for various games and playstyles, including the ability to play *Minecraft* using one's eyes (Microsoft, 2018), affording people with limited mobility greater comfort and functionality when using virtual reality systems (Kraft, 2017), and creating customizable gaming controllers for players with limited use of their hands (Torbet, 2019).

This topic has started attracting media attention. Media have not only picked up on reporting on players with disabilities, but have also started to pay greater attention to accessibility issues with games and gaming systems. Various industry and popular news outlets have begun calling out issues such as, for example, gaming mechanics that exclude players with certain disabilities (Dale, 2018; Egliston, 2019; McKeand, 2016; Wired Staff, 2005), patch changes that render previous workarounds unfeasible (Borgstrom, 2017), and the lack of control remapping options (Klepek, 2017). The extent of online discussion and media coverage often makes it difficult for game creators to ignore the issue, however official responses tend to underestimate the scale of the problem and reveal a lack of awareness of disability issues.

The original release of the *Spyro Reignited Trilogy* included the odd decision not to subtitle any of the in-game cinematic scenes (Orland, 2019; Pitt, 2018). When questioned about this decision, parent company Activision responded:

*When Toys For Bob set out to make an awesome game collection, there were certain decisions that needed to be made throughout the process. The team remained committed to keep the integrity and legacy of Spyro that fans remembered intact. The game was built from the ground up using a new engine for the team (Unreal 4), and was localized in languages that had not previously been attempted by the studio. While there's no industry standard for subtitles, the studio and Activision care about the fans' experience especially with respect to accessibility for people with different abilities, and will evaluate going forward. (quoted in Pitt, 2018)*

This rather lukewarm statement increased the backlash against the game with many perceiving it as a dismissal of the disabled gaming community. Deaf player and game reviewer Susan Banks summed up the general feeling in commenting:

*I can't help but feel insulted by what Activision said, honestly, ... They made a conscious decision to exclude deaf and hard-of-hearing gamers. We're often forgotten about or thought of as an afterthought, but with this, they admitted that they just don't care as much about deaf gamers as they do the rest of their fanbase. (Susan Banks quoted in Orland, 2019)*

The backlash eventually forced the company to address the issue in a patch four months after the game's original release and included further accessibility options:

- Added subtitles in all languages (across all three games) for previously unsupported cinematics, including:
  - Character headers to identify active speakers
  - Succinct line splits for readability
  - Colored text for improved character association in most languages
- Subtitle on/off toggle added under the Options menu (Activision, 2019)

Activision is not the only company to come under criticism for its treatment of players with disabilities. When AJ Ryan, a player with arthrogryposis, contacted Nintendo to express his frustration at the lack of control remapping options with their Switch console, he received a response stating that “it can certainly be very frustrating to not be able to enjoy the same games as many others do due to having an unfortunate condition, and we sincerely empathize” (quoted in Klepek, 2017). However, Ryan was less than impressed with the company's response:

*An unfortunate condition is an extremely patronizing and demeaning thing to say to someone with disabilities ... Almost everyone I know was repulsed by the statement. Even a junior level representative should know better than to use such language. Empathy from a representative also isn't something that I needed. (AJ Ryan quoted in Klepek, 2017)*

For Ryan, the use of the term “unfortunate condition” demonstrated the company's general lack of awareness and understanding of disabilities, further pointing to the underestimation of the disabled gaming community and market.

This underestimation of the disabled gaming market is often programmed into the game from the beginning. For example, a recent addition to the popular Pokémon franchise, *Pokémon Let's Go*, included motion control as a key aspect of the game, requiring players to use a throwing motion when playing (Dale, 2018; Eglinton, 2019). The lack of alternative options meant that players with limited mobility or motor control issues were excluded from the game. An interview with the game's director revealed that the reason for the motion control requirement was simply because they wanted players to try something new:

*The primary reason is really just to provide a new experience. There are a lot of people out there, I think, that really do want to throw a Poké Ball and role-play that. And as well as a lot of people out there who maybe haven't played the main series of Pokémon, but would find that really appealing. By making that the only way to do it, I just wanted people to try this new experience. (Junichi Masuda quoted in Hilliard, 2018)*



Masuda's comments reveal that the game was designed with the assumption of an able-bodied gamer in mind, thus demonstrating that the industry still has a long way to go in recognizing the diversity of their audience and market.

However, not all game creators and companies have been dismissive in their attitudes to the community. There is also growing media coverage on the positive steps that game creators are taking to make their games more widely accessible. This includes accessibility features such as the option of control remapping, adjustable difficulty levels, options for people who suffer from colour blindness or motion sickness, subtitles or closed captions, and even the simple ability to pause action (Chan, 2018; Clarke, 2018; Frank, 2018; Gaddes, 2018; Gwaltney, 2017; Kuchera, 2010; McKeand, 2015; Sarkar, 2016; Yin-Poole, 2016b). These efforts have been supported by community-led initiatives such as: AbleGamers,<sup>2</sup> a charity who not only help provide players with disabilities with modified gaming equipment but have also established a website of accessible gaming resources for game creators;<sup>3</sup> the DAGER System,<sup>4</sup> a website that discusses and reviews games from an accessibility perspective; and the Game Accessibility Guidelines,<sup>5</sup> a collaboration by studios, specialists and academics focused around helping game creators build in accessibility from the start.

There's also increasing recognition that players with disabilities enjoy playing games that both entertain and challenge them, and the players themselves have proved appreciative of this recognition. Speaking to *Wired* magazine, Michael Feir, a gamer who has been blind from birth, observes that "Games now don't make us feel like we are playing a dumbed-down game for blind people, but real exciting quality games" (Cohn, 2005). Josh Straub, editor-in-chief of the DAGER System website, similarly concurs: "Game accessibility does not mean taking all of the challenge out of a game. No serious gamer, no matter what their limitations, would advocate nerfing a boss fight to the point that there is no challenge" (Straub, 2012).

There is a growing industry of game development specifically tailored towards designing accessible games for players with disabilities (Baig, 2019; Cohn, 2005; Diver, 2017; Eglinton, 2019; Schreier, 2011). These efforts towards game accessibility have also been complemented by developments in hardware accessibility with gaming companies investing in more accessible controllers and game accessories. Microsoft recently released the Xbox Adaptive Controller, a customizable controller "designed primarily to meet the needs of gamers with limited mobility" (Microsoft, n.d.). Originally conceived at Microsoft hackathon, it was developed and refined in consultation with a number of disability communities and organizations including AbleGamers (Bailey, 2019; Brody, 2019). The inclusion of this controller to Microsoft's existing line up of Xbox accessories has been applauded with observations that:

*The announcement is a major deal, showcasing that hardware manufacturers are doing more than just nodding their heads at the problem of accessibility and saying "we're listening." They're actually trying to do something inclusive. (Gwaltney, 2018)*

It is also seen as long overdue recognition of players with disabilities as a significant part of the overall gaming population, and that they are a significant market in themselves. AbleGamers COO Steven Spohn views it as confirmation that:

*... the disability community is here to stay. This isn't a flash in the pan or a fluke, an organization like AbleGamers getting some attention and we will eventually go away. Players with disabilities are a real demographic that need attention. If a juggernaut like Xbox is willing to work with organizations like AbleGamers for over three years to make a controller, you know that means they're doing it because it's the right thing to do and because they think it will sell. (quoted in Gwaltney, 2018)*

This recognition, while most welcome, has been hard fought and driven from the bottom up. Players with disabilities have shouldered the large burden of identifying the issues, drawing attention to them, and advocating for better inclusion and access.

<sup>2</sup> <https://ablegamers.org/>.

<sup>3</sup> <https://accessible.games>.

<sup>4</sup> <https://dagersistem.com/>.

<sup>5</sup> <http://gameaccessibilityguidelines.com/>.

## Conclusion

By comparison, our literature review of gaming and disability demonstrated a compulsory able-bodied focus as disabled gamers are most often considered in the context of therapeutic intervention or pedagogical support measures. Such a focus ignores the possibility people with disability may play games for fun, relaxation, socialisation, and challenge. At the same time, the gaming industry has disregarded people with disability as a potential audience demographic via both inaccessible designs and disabling social attitudes. While there is no clear definition of what accessibility should look like, Straub describes it as “giving as many players as possible the best opportunity of completely experiencing a game” (Straub, 2012). A significant part of this is involving players with disabilities in designing and building processes so that they can provide feedback on accessibility issues from the start. As *Sightless Combat* explains:

*developers should be willing to engage with the visually impaired gamers who play mainstream titles and are willing to provide constructive criticism. This includes in user testing/research (where potentially invaluable input could be provided for audio cues/feedback), marketing/reviewing (where a unique/different perspective on why the game is entertaining could be provided) and even in the base level of development (where building a game with accessibility in mind from day one could theoretically make for a more streamlined experience in general, not just for players who specifically need it to play the game).* (quoted in Yin-Poole, 2016a)

Even when the industry does not engage players with disability in the design and building process, disabled gamers who make up about 20% of the gaming population have found other avenues for feedback via online discussion forums and communities of users. This user led feedback has received increasing mainstream media attention. This in turn has led to a growing recognition amongst the industry of the importance of accessibility.

As Henry Jenkins, Tara McPherson and Jane Shattac observe in *Hop on Pop*, one of the challenges in engaging with popular culture for populations who have historically been excluded from production and representation is the question of how to ‘acknowledge the pleasures they have derived from engaging with popular culture as well as their rage and frustration about its silences, exclusions and assaults on their lives’ (Jenkins, McPherson, & Shattac, 2002). Throughout this paper we have drawn on examples of disabled gamers engaging in open literacy to express their frustrations about exclusions from games via inaccessibility. These players, through their user-led social innovations across demographic borders, at global scale, have changed the rules of the games.

## Competing Interests

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