

Disability, Neurological Diversity, and Inclusive Play: An Examination of the Social and Political Aspects of the Relationship between Disability and Games

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Abstract

This article explores existing connections between disability studies and game studies, and suggests how the two fields might better inform each other. While existing research explores the use of games to reduce pain and achieve rehabilitative goals, new research on games from a disability studies perspective can also consider the persuasive messages that games advance about disability, and how these messages affect questions of identity, inclusion, and acceptance. By arranging the relationship between disability and games into four topics – therapeutic and educational tools, game simulations, accessible features and controls, and narrative inclusion and identification – this article explores, attempts to address, represent, and simulate autism in digital games. It focuses on *Auti-Sim* (2013), a simulation exercise, and *To the Moon* (2011), an adventure role-playing game. Drawing on the writings of autistic activists and existing scholarship on disability simulations, the author considers how these games may influence the player's understanding of autism at social and political levels, and how these artifacts engage with the overarching goals of disability inclusion and autism acceptance.

Author Keywords

Disability studies; game studies; autism; *Auti-Sim*; *To the Moon*; inclusivity; disability in games

Game Studies and Disability Studies

Players engage with disability in games at multiple levels. Despite many points of intersection, few scholarly works consider disability studies approaches to games.¹ Research approaches to disability and games often consist of studies of the efficacy of using games to achieve therapeutic outcomes.² This article argues that the social and political aspects of disability deserve greater research attention. Disability studies perspectives allow for a consideration of the ideological and cultural implications of using games to manage and represent disability. The growing attention that game studies scholars devote to studying inclusion in games at the levels of access and representation with respect to other marginalized groups is meaningful for disability studies as well; game studies approaches to inclusion, which show how games engage with questions of identity, embodiment, and experience, can inform disability studies.

This article uses paradigms from disability studies to examine autism and games, devoting particular attention to *Auti-Sim* (2013), a simulation exercise, and *To the Moon* (2011), an

adventure role-playing game. Disability studies approaches to games may be arranged into four topics: therapeutic and educational tools; disability simulations; accessible features and controls; and narrative inclusion and identification. At the instrumental level, this article examines games as therapeutic and educational tools for people with disabilities, and games as educational and experiential tools designed to help non-disabled individuals understand disability. At the expressive level, it examines popular titles by considering games as cultural artifacts that should be accessible, and games as narrative forms with representational power.

Disability studies is an interdisciplinary field devoted to examining disability as a social and political experience. Critiquing a medical model that characterizes disability as an individual problem, scholars emphasize the disabling impact of built environments and social attitudes. Many researchers work within the social model, which distinguishes between impairment as a bodily state and disability as an experience of marginalization (Pfeiffer, 2002). Other scholars critique the social model's strict distinction between disability and impairment.³ Shelley Tremain (2002) explains that definitions of impairments are historically and culturally contingent, pointing toward a generative model of bodily difference (p. 34). The majority of early scholarship in the field focuses on the body, but increasingly researchers study intellectual, invisible, and psychological disabilities.

Disability studies research on autism examines how it has been understood through a series of neurological deficits. Many autistic people have deployed the concept of neurodiversity to speak back to discourses that construct autism as a tragic condition that needs to be cured. Ari Ne'eman positions neurodiversity against a deficit model of disability, defining it as "the idea that the paradigm of acceptance extended toward racial, religious, and other similar differences should apply to neurology as well" (in Broderick & Ne'eman, 2008, p. 470). Others use a rhetorical perspective to show how autistic communication is meaningful (Heilker & Yergeau, 2011; Walters, 2014). These developments in the study of autism are important for considering how games influence understandings of inclusion and acceptance.

While few academic articles discuss games from a disability studies perspective, many bloggers have chronicled experiences using systems like the Kinect to help reduce pain, and have evaluated the representation of disabled characters based on their experiences as disabled gamers.⁴ Groups like the AbleGamers Foundation and the Semaphore Research Cluster are working to make mainstream games more accessible, and promoting the role of people with disabilities as innovators (Ore, 2014). Although existing writing on educational and therapeutic games tends to be detached from writing about characters in popular titles, these games deserve to be discussed in conjunction. Scholars examining diversity in game culture focus on both representation and access. Similarly, supporting the inclusion of disabled people in game culture, industry, and research should involve looking at engagement as it occurs at multiple levels.

Rehabilitative and Educational Games

Games for Health and Normative Expectations

Games are increasingly used to promote health and manage disability in clinical settings. Some researchers have repurposed existing games for use in rehabilitation (Deutsch, Borbely, Filler,

Huhn, & Guarrea-Bowlby, 2008). Others have created games that are designed to help people achieve therapeutic outcomes (Annett et al., 2009). For example, researchers at the University of Washington HITLab and the Harborview Burn Center created *SnowWorld*, an immersive reality intended to encourage pain distraction for patients undergoing wound care; research has shown that the game mitigates the painful experiences of undergoing treatment (Hoffman, 2014). Other researchers have created educational tools like *Re-Mission 2*, a game that provides support to children with cancer by “giving players a sense of power and control and encouraging treatment adherence” (HopeLab, 2014). Another example is *Audiopolis*, an audio and haptic video game designed to help blind players develop wayfinding skills (Sánchez, de Borja Compos, Espinoza & Merabet, 2014). *Social Clues*, a game currently in development through the University of Southern California, aims to teach autistic children about appropriate behaviours. Players take on the role of communiKate or particiPete, learning about the meaning of facial expressions, the importance of eye contact, and the value of empathy (*Social Clues*, 2014). Since games like the ones listed above are designed to be enjoyable for younger patients, efforts to use them are praised without necessarily attending to how such games can expose our cultural investments in ‘normal’ bodies.

Coverage of disability in scholarship about games often takes the form of examining efforts to ameliorate experiences of living with disability and illness. Developers working on games designed to help autistic people and adults recognize different learning styles, and respect preferences for digital tools. However, efforts to change behaviour through gamification deserve critical attention. Disability studies approaches can allow for an exploration of whether the content of serious games allow for multiple understandings of disability. Ivan Leslie Beale (2011) argues that education and change should be the goal of games for health. In contrast, Danielle Stock (2013) argues that developers might move beyond correcting behaviour and recognize that other factors besides a lack of knowledge generate non-compliance. She explains that Beale “seems to understand illness as a series of physiological and psychological indicators, and thus, [his book] entirely dismisses opportunities to supportively intervene at the social or cultural levels” (Stock, 2013). Pointing to McGonigal’s *SuperBetter*, Stock argues that one of the meaningful differences between this game and other games for health is its recognition of the need for communal support. Researchers might also explore how games could make visible the cultural investments placed in returning to ‘normalcy’.

Our cultural scripts are filled with narratives of overcoming the body that elide the disabling role of inaccessible environments and present certain bodies as undesirable. Studies of the utility of games in achieving measurable outcomes take place, but researchers might also explore ways that games could provide alternative scripts that can question the ideological investments placed in returning to ‘normalcy’. The importance of walking is an unquestioned assumption in many rehabilitative practices, as Gibson et al. (2012) explain in their examination of beliefs about walking in rehabilitative settings: “independent walking and ‘standing on your own two feet’ symbolizes largely taken-for-granted virtues – rectitude, dignity, autonomy” (p. 62). With respect to *Social Clues*, eye contact also has cultural significance that we associate with values like trustworthiness and confidence. In a supportive article on *Social Clues*, Emily Payton (2014) points out that eye contact is a difficult social cue to teach because its significance varies across cultures; in some societies using eye contact is considered rude. Furthermore, many autistic people critique

the pressure that they face to modify their behaviour in ways that are painful or uncomfortable (Sequenzia, 2012).

A disability studies lens provides an alternative reading of *Social Clues* as implicated in attempts at normalization. Gibson and Teachman (2012) argue that “parents and children need exposure to counter-narratives of disability to help them write alternative life scripts that do not rely on pursuing an arbitrary construction of normal” (p. 481). While existing research in games studies examines the role games play in helping individuals achieve clinical outcomes, the possibility of games aiding in the formation of alternative life scripts deserves greater consideration. With knowledge of disability studies, game designers interested in using games as tools might explore alternatives to rule-based systems that normalize certain behaviours, and avoid positioning the movement toward a more able avatar as an achievement. A disability studies analysis of games as tools draws attention to the cultural narratives about normalcy that they risk reinforcing.

Disabling the Player in Simulation Games

Another way in which disability has been explored in video games is through simulations that allow players to explore alternative sensory or personal experiences. One such game is *Auti-Sim*, which was developed during the 2013 Hacking Health Vancouver Hackathon, an event designed to foster collaboration among health experts, programmers, and designers. The first person simulation game, created in the Unity engine and playable in browser, immerses the player in a children’s playground and uses overpowering sound effects and visual distortion to raise awareness of auditory hypersensitivity. As the player approaches the play structure, the screen fills with static and the background chatter intensifies. When she walks past the faceless children, one child begins to chant the alphabet over rising static punctuated by screams. Unlike other games for health that seek to change the behaviour of disabled people, *Auti-Sim* attempts to intervene at the level of social attitudes. It explores sensory experiences, experiences that are often elided in popular discourse and fiction about autism (Murray, 2012). Yet while the game aims to build understanding, many player responses suggest that their experience of the game was a fearful one that encouraged them to pity autistic people.

In *Auti-Sim*, there are no clear objectives that need to be achieved in spite of the environmental difficulty. Like many simulation games, it does not include a cohesive narrative structure or distinct player objectives, and it is not designed to be enjoyable. While the game presents no clear goal, the implied player objective is to find a means to relieve one’s senses. Analyzing the game at the level of procedural rhetoric, which Ian Bogost (2007) defines as “the practice of persuading through processes in general, and computational processes in particular” (p. 3), the connection between the player’s retreat from the playground and the corresponding decrease in noise highlights how quieter environments may be preferable for autistic people. As the player moves away from the source of the visual and audio distortion, the game instructs that autistic children may respond to overwhelming sensory experiences by moving away from large groups and retreating to quiet places.

Although disability studies scholarship of video games is still developing, many scholars have studied the use of simulation games in educational settings. Participant reviews following simulation exercises designed to raise awareness suggest that many leave such exercises with

confirmed beliefs that being able-bodied is objectively preferable to being disabled. Sheryl Burgstahler and Tanis Doe (2004) show how simulations reinforce understandings of disabilities as individual deficits, and overlook the disabling impact of social attitudes. They caution that trying on disability, by using a wheelchair, playing with a blindfold, or navigating an inaccessible website, does not teach people how individuals develop strategies over time to manage their environments. In other words, the panic that a player experiences during a simulation will not capture the daily experience of living with disability, and may reinforce ableist assumptions. More recently, research has shown that simulating physical impairments can negatively influence perceptions of the ability of disabled people to live and work independently (Silverman, Gwinn, & Van Boven, 2015). Disability studies scholarship that examines the process of turning embodiment itself into a game shows how some efforts toward awareness can increase stigma, rather than combat it.

Many player responses to *Auti-Sim* on its *GameJolt* page concern the instructive value of the experience as an exercise in empathy. However, while some players express the extent to which the game is a valuable tool and a viable representation of their own experiences, others offer critique. These critiques primarily consist of concerns surrounding the accuracy of the game's portrayal, the lack of consultation with autistic adults during the design process, and the game's representation of autism as a nightmare. On his developer's blog at Toughcell games, Taylan Kadayifcioglu acknowledges many of these critiques. He writes of *Auti-Sim*, "[a]lthough it was built hastily in just about 12 hours and has its fair share of flaws, it went viral easily for having found an extremely receptive audience of people who care about the subject matter deeply" (Kadayifcioglu, 2013). Bearing in mind that sensory experiences differ from one autistic person to another, perhaps an important question is not necessarily whether the game's representation is accurate, but whether the game's use of fear to represent autistic people will encourage neurotypical players to be accepting of autistic difference.⁵ Player reviews on *GameJolt*, including that of one user who noted, "I feel sorry for children who really have this disease," demonstrate how simulations can promote pity, and pathologize disability (Nodzi, 2013).

One of the main goals of neurological diversity is to critique efforts to cure autism, efforts that are often driven by fear. Reviewers describe how *Auti-Sim* borrows from the horror game genre through its use of audio and visual distortion, but they do not consider the implications of using fear to raise awareness of disability. One reviewer describes how "Auti-Sim draws on horror game tropes to rather brilliant effect" (Grayson, 2013). Another calls the game "shudder-worthy," noting that, "*Auti-Sim* does a better job at distressing its player than any survival horror game" (Sterling, 2013). The work of autistic activists who question the perception that autism is a tragedy, and the work of scholars who question the value of disability simulations, suggests a need for critique of video game simulations of disability too. Associating neurological difference with fear and suffering encourages pity, which limits possibilities for accepting autism as a valuable state of being, and for helping to shape more accessible environments for people with sensory differences.

Scholars' beliefs differ with respect to whether simulations should be reframed or abandoned entirely. Burgstahler and Doe (2004) argue that if disability simulations are to be used, they must be designed with attention to disability as a social and political experience. While disability simulations can be educative even if they include negative experiences, from a disability rights perspective, linking these experiences to social barriers avoids promoting pity, and directs player

attention toward action. One of the examples that they describe of a positive simulation was led by an instructor who was a wheelchair user. After students spent time in a wheelchair, their discussion centered on disabling social environments and enabling universal design principles. Although some suggest that simulations are always inappropriate, Burgstahler and Doe's flexible conclusion creates space for a nuanced exploration of the expressive power of autobiographical games, a genre that shares some similarities with simulation games. Anna Anthropy's *Dys4ia* (2012) and Zoë Quinn's *Depression Quest* (2013) encourage players to empathize with experiences similar to those that the developers have personally experienced. *Dys4ia* combines narrative and mini-games to allow the player to experience many of the frustrations that accompanied Anthropy's experience of hormone replacement therapy. Quinn's *Depression Quest* is an interactive fiction that allows players to make decisions from the perspective of a person who experiences depression. These games come from creators that have been marginalized in the mainstream gaming industry, and criticized for making experiential games.

Games like *Dys4ia* and *Depression Quest* offer the player an opportunity to assume a social identity rarely explored in games. Quinn and Anthropy's games might be understood as digital equivalents of Burgstahler and Doe's simulations guided by people with lived experiences. Many *Depression Quest* players praise its use of the first person for encouraging empathy and dispelling stigma. Quinn told the *New Yorker* that, "some therapists even use the game as an exercise to generate empathy between a sufferer and his or her family" (in Parkin, 2014). The epilogue to *Depression Quest* includes an important caveat that the game itself is specific to one experience, and that the objective of the game is not for the player to overcome depression (Quinn, Lindsey, & Shankler, 2013). However, the endings to the games suggest that some outcomes are more favourable than others. Maddox Pratt (2013) critiques the biomedical treatment of depression in the game for portraying depression as "something to be moved through as quickly as possible." She suggests personal experiences of depression can be valuable in a way that the game elides "[b]y claiming depression has a clear system, and designing a system around it in which players are encouraged to make the 'correct' choices – ones which lower depression levels in the status bar". Pratt's critique is a reminder that player responses are part of a game's cultural meaning as well, and that while empathy is the desired result of a simulation exercise, other player responses are possible too. Pratt's critique of how the game encourages players to move through the experience of depression quickly is relevant to *Auti-Sim* as the game similarly presents experiences of disability as negative.

While many autistic people do have painful sensory experiences, the game does not explore some of the more pleasurable aspects of sensation, as recounted in such resources as The YouTube performance piece "In My Language," by Mel Baggs. The video is divided into two segments; the first part, "In My Language," captures Baggs interacting with hir⁶ environment. The video shows hir engaging hir senses through such actions as stroking the surface of a laptop, pressing hir cheek against the page of a book, and waving hir hands while making an 'e' sound. In the second part of the video, "A Translation," Baggs uses a text to speech synthesizer to create a monologue that serves as voiceover as sie continues in hir embodied language. Sie explains that being sensitive to hir surroundings is hir way of communicating with the world, stating, "...my language is not about designing words or even visual symbols for people to interpret. It is about being in a constant conversation with every aspect of my environment" (2007). Hir argument that hir movement constitutes a language in its own right calls attention to the normalizing aspects of efforts to teach

children to increase their eye contact, or refrain from stimming. While *Auti-Sim* attempts to intervene at the level of neurotypical perception, as opposed to at the level of autistic behaviour, its presentation of autism has unfortunately encouraged some players to pity autistic people. While games can create awareness, whether awareness is enough is a question that disability studies can bring to games studies scholarship.

Popular and Independent Games

Accessible Content and Enabling Production

Game studies explores the expressive power of video games, for both developers and players.⁷ Research has demonstrated that people with disabilities would prefer to play the same games as other players, but tangible barriers to access persist (Kearney, 2005). The AbleGamers Foundation is generating greater awareness of the lack of inclusion of disability at the level of game design, offering accessibility reviews and an *Includification* guide for developers. Alison Harvey (2013) notes that issues of access and inclusion are also present within the field of games studies in her report on the *Different Games* conference held in New York, in which she discusses concerns raised surrounding the absence of people with disabilities from panels.

Efforts to make games more accessible meet with overt and subtle resistance, as gaming fosters a culture of difficulty and a belief that only certain players deserve to advance. Consider, for example, the backlash against former Bioware writer Jennifer Hepler's suggestion that players should have the option to skip combat, in the same way that they can elect to skip dialogue. Consider, as another example, when an EA Chief Creative Officer expressed concern that the company's games were too difficult to learn, players responded with concern that games were becoming unnecessarily easy. Starkey (2015) explains that for these gamers, "the fact that most people feel locked out of the games was seen as a feature, not a bug." While this backlash may not represent a calculated exclusion of disability, a belief that certain games should be "hard work" certainly leads to its exclusion (Gibbons, 2013). While individuals who argue against making games more accessible to new gamers may not be directly considering disability in their discussions, their wish that certain players be barred from accessing levels or narrative content if their play does not demonstrate sufficient skill represents exclusionary thinking.

Katherine Cross (2014) addresses harassment in gaming communities, arguing that we need to embrace new cultural scripts that will allow for greater inclusion of women, people of colour, and LGBTQ people in gaming culture and design. Representation can contribute to these new scripts. Steve Wilcox (2014) notes that while "systemic misrepresentations of cultures and subcultures, genders and races, are fair game in literary and film criticism...in games, however, there is little accountability of this nature...". Increased access to games as players, and greater inclusion at the level of representation in the stories games tell, are connected issues. Disabled gamers have often been excluded from gaming culture as players and creators, and the narrative inclusion of disabled characters, and particularly playable characters with disabilities, has also been limited. In the face of tangible barriers to access that players experience, issues surrounding the representation of disabled characters may seem less urgent. However, critical examinations of narrative in games from a disability studies perspective show how game narrative can serve as a powerful tool for identification.

Disability, Narrative, and Identification

Diane Carr (2014) points out that ability is so natural in games that “it hides in plain sight when it comes to critique or reflection.” While discussions of the need for more diverse characters in terms of gender, sexual orientation, and ethnicity are increasingly common, little attention has been paid to the presence of disabled characters in games (Disturbing Shadow, 2013). Jordana Erica Weber (2013) addresses this issue in her article “Patricia Tannis, Asperger, and Me,” in which she struggles with her feelings of whether the representation of Tannis is a caricature of Asperger’s syndrome, or a meaningful narrative of inclusion. In the absence of an answer from the writers, she decides that she appreciates knowing the character’s diagnosis (p. 260).⁸ New discussions of play from disability-identified players in games journalism demonstrate how analyzing the narrative content of games and their potential for allowing for what Gibson & Teachman (2012) call “alternative life scripts” is important cultural work (p.481).

One game that has resonated with autistic reviewers is *To the Moon*, an independent adventure role-playing game by Ken Gao. The player controls two scientists, Dr. Rosalene and Dr. Watts, who have been contracted to perform a memory alteration for Jonathan “Johnny” Wyles, whose dying wish is to go to the moon. To discover the reason for Johnny’s wish, the two scientists enter his memories and establish links that allow him to traverse from one point in his life to the next. The player gathers links and clicks through written dialogue between characters in Johnny’s memories. As the player enters Johnny’s past, she encounters Johnny’s deceased wife River, whom the narrative refers to as having a condition. The game does not name Asperger’s syndrome directly, but the player witnesses a memory in which River receives a diagnosis during an appointment with a doctor. He notes that her condition is a pervasive development disorder, and gives her a book by Dr. Tony Attwood.⁹ One autistic reviewer for Polygon describes River’s character as “the sort of representation we as a medium should be pushing toward: showing that there is hope for people with disabilities without erasing the very real problems we face” (Parlock, 2015). While analyzing game narrative *about* disability should not replace recognizing and fostering efforts to write or program games *from* disability – particularly when fictional depictions by non-disabled people often receive more recognition than depictions by disabled people – analyses of representation play a role in shaping a more inclusive gaming culture.

While the scientists manage to connect the majority of memory links with relative ease, they are not able to venture back to the earliest moments in Johnny’s childhood. Dr. Watts discovers that his client file did not indicate that he had been given beta blockers to suppress his memory of his twin brother Joey, who died when he was very young. The doctors learn Johnny had met River when he was a child, even though he believed that he had met her as a teenager. As children, the two had made a promise to one another that if they were lost they would meet on the moon. A dilemma arises for the scientists, who know that they are required to grant their client’s last wish, but who also know that he only wants his wish because of River. Believing that Dr. Rosalene is attempting to erase River from Johnny’s memories so that he can travel to the moon, the player assumes control of Dr. Watts and attempts to stop her. The player fails, and River is erased from the memory, and replaced with Joey, Johnny’s twin brother. As the player enters Johnny’s new memory of NASA, she discovers that River is there as a fellow recruit. In his final moments, Johnny experiences a memory of travelling to the moon with River.

Gao's game is not necessarily more accurate than other representations of autism in games, as experiences of autism vary from person to person. Not everyone believes the representation is helpful; for example, Tucker (2015) felt that the game romanticized a diagnosis he shares.¹⁰ However, it is a powerful representation of a disabled character in a game that avoids using disability as a game mechanic, or a physical challenge to overcome. One of the central questions of the game is who has the ethical right to make decisions for others, a question raised by the narrative and paralleled by the player's journey to balance the imperative to respect their client's wishes with the imperative to act based on the information that they have discovered about his past. An argument could be made that River functions as a "narrative prosthetic," a term referring to how disability functions as "a crutch upon which literary narratives lean for their representational power, disruptive potentiality, and analytical insight" (Mitchell & Snyder, 2001). River's inclusion and exclusion at key moments in Johnny's life alters the plot of his story, but the player is ultimately controlling two different characters and working for Johnny. Reviewer Laura Kate argues that the character's representation is ultimately more powerful because of its inclusion within the larger story arc:

I've never seen such an amazingly handled piece of fiction on the subject before and the fact that this is all hidden inside a game that on the surface seems to be about time travelling and helping a Neurotypical (non Autism spectrum) man to achieve his personal goal is a stroke of brilliance. One of the most moving games I've played in a long time, as well as one of the best in terms of making me feel included by an industry that so often portrays me as essentially being Sheldon from *The Big Bang Theory*.

Kate (2013)

Kate's review provides an important explanation of how the game moves beyond stereotypes associated with autism, but the game is also significant for its attempt to address disability in a social context. The *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* suggests that autism is marked by a failure to communicate effectively, but does not consider the role that the listener plays in communicative interaction. One of the critical aspects of the narrative in this game is that it challenges the initial assumptions of the scientists that the difficulties that Johnny and River experienced were because of River; in other words, in its uncovering of the story of their relationship, the game insists that the neurotypical person has an obligation to listen, and this obligation is one that the player must fulfil.

Although the game never names River's condition, it provides various clues that she has Asperger's syndrome.¹¹ River's friend Isabelle is also autistic, which becomes apparent when Johnny tells her about a decision that he plans to make that he believes is in River's best interest. Isabelle, who disagrees with Johnny's plan to lie to River, tells him, "I really dislike when you neurotypicals think you know what's best for others" (Freebird Games, 2011). When Johnny asks Isabelle why she often seems so normal, she responds by discussing what it means to 'pass':

With effort, it is possible to acquire a guise of social norms systematically. But you know what? I both envy and pity River. Me...? I'm an actress because I've been doing it all my life. Not only on-stage, but off-stage...and at practically every

moment. I've gotten good at it because acting is the only option I have. It is the only way for me to be 'normal'. But River...she never did that. She remained an outcast and refused to learn how to step against it. I don't know if it was by choice or by limit, whether by bravery or cowardice. There are days where I just can't stand faking it anymore. And then I realise that it's too late. The Isabelle that people know of is all an act and the real me has long become a stranger. I think in the end...I just envy her.

Freebird Games (2011)

Isabelle explores the idea that disabled people often work to pass as normal because of the pressures associated with identifying as disabled. Johnny's question of why she appears so normal also raises the issue that society expects individuals on the spectrum to prove themselves by answering for their differences from other autistic people. Disability studies theorist Tobin Siebers describes the pressure that disabled people feel to 'pass' as normal in some situations, and the pressure that they feel to make disabilities that do not always have clear visual markers present in other situations. Anthropologist Dawn Prince-Hughes, who is autistic, addresses this issue in the introduction to her memoir, noting, "I am glad that I am so successful at appearing normal (whatever that is), but I also wish at times people knew how hard I work at it" (p. 2). Rather than making disability a condition that a player must overcome to progress, the game explores the implications of assumptions that other characters make about disability.

While *To the Moon* is in many ways an interactive fiction, it also requires the player to complete puzzles and gather key items. As the player proceeds through Johnny's memories, she must gather items from each memory that serve as links. The central conflict of the game concerns River's inclusion in the narrative of Johnny's life that the player reshapes. The game's exploration of Johnny's memories in reverse forces the player to re-evaluate interactions between River and Johnny, including her creation of origami rabbits. The player encounters these creations in the basement of Johnny's home upon receiving a tour from the children of his caretaker. In the later memories, River asks Johnny to describe her rabbits, asking him, "What else?" as he fails to remember what they signify (Freebird Games, 2011). During their childhood meeting, the two had traced a constellation of a rabbit in the sky, with the moon serving as its belly, but Johnny cannot recall this memory. The game's narrative allows readers to uncover the communicative significance of River's paper creations, and shows how the onus for effective communication should not only be placed on River.

Inclusion and Acceptance

Auti-Sim (2013) and *To the Moon* (2011) are two recent games that explore autism from different perspectives and with different rhetorical purposes. Studying the narratives and experiences of disability that they offer in conjunction with one another suggests the importance of using disability studies perspectives to analyze and explore disability in context. While much of the existing scholarship surrounding disability and video games focuses on utility, and the potential for using games to improve rehabilitative or behavioural outcomes, critical studies of narrative and play are also essential for considering how games, in their emerging popularity, shape our cultural understandings of disability.

While this article focuses on the overt engagement with and representation of disability in games, disability studies methodologies can also be useful for studying games that may not on the surface appear to be about disability. As Carr (2013) points out, “ability hides in plain sight”. Similarly, disability can be hidden but is always present. In many role-playing games, the ability to upgrade one’s characters becomes a means of rendering them more able, and more capable of succeeding in the given environment. An able body in a science fiction game setting, for example, differs from what we consider an able body in the present, demonstrating how what we consider a disability is historically and culturally contingent (Gibbons, 2013). Even games that are primarily understood as tools play a role in either reinforcing or challenging cultural beliefs about disability.

Progress toward the end goal of a game does not need to be progress toward overcoming or curing disability for a game to be meaningful for disabled people. While scholarship often focuses on how games might ameliorate experiences of disability, critical efforts to make disability a part of gaming can also echo the existing work that scholars, players and developers have begun with respect to fostering greater inclusion and representation of diversity. As with other efforts at ensuring greater inclusion and greater representation, efforts to include and represent disabled people should consider both access to playing and developing games, and greater narrative representation. In charting some of the ways games have attempted to ameliorate, recreate, or tell stories about autism, I argue that while effective and realistic representation has been one concern, another should be the potential for games to consider how autism is not only embodied, but how it is lived out in a social context.

References

- Alper, M. (2013). Making space in the makerspace: Building a mixed-ability maker culture. *Humanities, Arts, Science, and Technology Alliance and Collaboratory*. Retrieved from <http://www.hastac.org/blogs/merylalper/2013/03/18/making-space-makerspace-building-mixed-ability-maker-culture>
- Annett, M., Anderson, F., Goertzen, D., Halton, K., Quentin, R., Bischof, W.F., & Boulanger, P. (2009). Using a multi-touch tabletop for upper extremity motor rehabilitation. *Proceedings of the 21st Annual Conference of the Australian Computer-Human Interaction Special Interest Group* (pp. 261-264). New York: Association for Computing Machinery.
- Anthropy, A. (2012). *Dys4ia*. [Adobe Flash game]. Retrieved from https://www.google.ca/webhp?sourceid=chrome-instant&rlz=1C1CHFX_enCA502CA502&ion=1&espv=2&ie=UTF-8#q=dys4ia
- Baggs, M. (2007). *In my language*. [Video]. Retrieved from <http://www.youtube.com/watch?v=JnylM1hI2jc>
- Beale, I.L. (2011). *Video games for health: Principles and strategies for design and evaluation*. New York: Nova Science Publishers.
- Bogost, I. (2007). *Persuasive games: The expressive power of video games*. Massachusetts: The MIT Press.
- Broderick, A. & Ne'eman, A. (2008). Autism as metaphor: Narrative and counter-narrative. *International Journal of Inclusive Education*, 12(5-6), 459-476.
- Burgstahler, S. & Doe, T. (2004). Disability-related simulations: If, when, and how to use them. *Review of Disability Studies*, 1(2), 4-17.
- Carr, D. (2014). Ability, disability, and dead space. *Games Studies*, 14(2).
- Corker, M & Shakespeare, T. (2002). Mapping the terrain. In Corker, M. & Shakespeare, T. (Eds.), *Disability/postmodernity: Embodying disability theory* (pp. 1-17). New York: Continuum.
- Deutsch, J.E., Borbely, M., Filler, J. , Huhn, K. & Guarrea-Bowlby, P. (2008). Use of a low-cost, commercially available gaming console (Wii) for rehabilitation of an adolescent with cerebral palsy. *Physical Therapy*, 88(10), 1196-207.
- Disturbed Shadow. (2014, March 27). A look at characters with disabilities in video games. *Kotaku*. Retrieved from <http://tay.kotaku.com/a-look-at-characters-with-disabilities-in-video-games-1552513077>
- Freebird Games. (2011). *To the Moon*. [Computer Game].
- Garland-Thomson, R. (2005). Feminist disability studies. *Signs*, 30(2), 1557-1587.
- Gibbons, S. (2013). Playing for transcendence: Deus ex: human revolution and disability. *First Person Scholar*. Retrieved from <http://www.firstpersonscholar.com/playing-for-transcendence/>
- Gibson, B.E. & G. Teachman. (2012). Critical approaches in physical therapy research: Investigating the symbolic value of walking. *Physiotherapy Theory and Practice*, 28(6), 474-484.
- Gibson, B.E., Teachman, G., Wright, V., Fehlings, D., Young, N.L., & McKeever, P. (2012). Children's and parents' beliefs regarding the value of walking: Rehabilitation

- implications for children with cerebral palsy. *Child: Care, Health and Development*, 38(1), 61-69.
- Grayson, N. (2013). Playground nightmare: Auti-Sim is about childhood autism. *Rock, Paper, Shotgun*. Retrieved from <http://www.rockpapershotgun.com/2013/03/01/playground-nightmare-auti-sim-is-about-childhood-autism/>
- Green, H. (2014, May 28). How the Kinect saved my health, and why I don't want to see it go away. *Polygon*. Retrieved from <http://www.polygon.com/2014/5/28/5757684/motion-controls-health-kinect>
- Halton, J. (2008). Virtual rehabilitation with video games: A new frontier for occupational therapy. *Occupational Therapy Now*, 9(6), 12-14.
- Harvey, A. (2013, May 7). Different games: A report and challenge for the future. *Widget*. Retrieved from <http://widgetau.org/different-games-a-report-and-a-challenge-for-the-future/>
- Heilker, P. & Yergeau, M. (2011). Autism and rhetoric. *College English*, 73(5), 485-497.
- Hoffman, H. G. (2004). Virtual reality therapy. *Scientific American*. Retrieved from <http://www.behavioralassociates.com/pdf/scientificamerica.pdf>
- HopeLab. (2014). About. *Remission 2*. Retrieved from <http://www.re-mission2.org/#/about>
- Hughes, D. P. (2004). *Songs of the gorilla nation: My journey through autism*. New York: Harmony Books.
- Joyal, A. (2012). Mass Effect's joker, the supercrip, and the normate body. *Reconstruction*. 12(2). Retrieved from <http://reconstruction.eserver.org/Issues/122/Joyal.shtml>
- Kadayifcioglu, T. (2013). Indie game marketing part iv – How and where to find your audience. *Toughcell Games*. Retrieved from <http://toughcellgames.com/blog/>
- Kate, L. (2013, May 29). To the Moon: A story of women and aspergers. *Indie Haven*. Retrieved from <http://indiehaven.com/to-the-moon-a-story-of-women-and-aspergers/>
- Kearney, P. R. (2005). Playing in the sandbox: Developing games for children with disabilities. *Proceedings from the Digital Games Research Association Conference: Changing Views – Worlds in Play*. Retrieved from <http://summit.sfu.ca/item/188>
- Mitchell, D. & Snyder, S. (2001). *Narrative prosthesis: Disability and the dependence of discourse*. Ann Arbor: University of Michigan Press.
- Murray, S. (2012). *Autism*. New York and London: Routledge.
- Nodzi. (2013). Comment on Auti-Sim. *Game Jolt*. Retrieved from http://gamejolt.com/games/strategy-sim/auti-sim/12761/?comment_page=5#comments
- Ore, J. (2014, April 29). Games for the disabled: Semaphore & AbleGamers' accessibility arcade. *Dork Shelf*. Retrieved from <http://dorkshelf.com/2014/04/29/games-for-the-disabled-semaphore-ablegamers-accessibility-arcade>
- Parlock, J. (2015). Writing characters, not symptoms: A gamer with autism discusses what our hobby gets wrong. *Polygon*. Retrieved from <http://www.polygon.com/2015/3/31/8319167/gaming-and-autism-what-we-get-wrong>
- Parkin, S. (2014). Zoë Quinn's depression quest. *The New Yorker*. Retrieved from <http://www.newyorker.com/tech/elements/zoe-quinns-depression-quest>
- Pfeiffer, D. (2002). The philosophical foundations of disability studies. *Disability Studies Quarterly*, 22(2), 3-23.

- Pratt, M. (2013). The game of depression: Depression Quest and writing without power. *The Orts*. Retrieved from <http://theorts.tumblr.com/post/54658499774/creating-without-power-narratives-of-madness>
- Quinn, Z., Lindsey P., & Shankler, I. (2013). *Depression Quest*. [Twine Game].
- Sánchez, J., de Borba Compos, M., Espinoza, M. & Merabet, L. (2014). Audio haptic videogaming for developing wayfinding skills in learners who are blind, (pp. 199-208). *Proceedings of the 19th International Conference on Intelligent User Interfaces*. New York: Association for Computing Machinery.
- Sequeniza, A. (2012). Autism, being autistic, and acceptance. *Autistic Self Advocacy Network*. Retrieved from <http://autisticadvocacy.org/2012/05/autism-being-autistic-and-acceptance/>
- Silverman, A.M., Gwinn, J.D., & Van Boven, L. (2015). Stumbling in their shoes: Disability simulations reduce judged capacities of disabled people. *Social Psychological and Personality Science*, 6(4), 464-471.
- Social Clues. (2014). A curriculum based on ‘evidence-based practices.’ *Social Clues*. Retrieved from <http://www.socialcluesgame.com/#!science/c7jq>
- Starkey, D. (2015). Games have basic, huge accessibility problems (that we celebrate). *Polygon*. Retrieved from <http://www.polygon.com/2015/2/10/8012451/games-have-basic-huge-accessibility-problems-that-we-celebrate>
- Sterling, J. (2013). Anti-Sim, a game about autism, is very distressing. *Destructoid*. Retrieved from <http://www.destructoid.com/anti-sim-a-game-about-autism-is-very-distressing-247388.phtml>
- Stock, D. (2013). [Review of the book *Video games for health: Principles & strategies for design and evaluation* by Ivan Leslie Beale]. *First Person Scholar*. Retrieved from <http://www.firstpersonscholar.com/author/daielle-stock/>
- Toughcell Games. (2013) *Auti-Sim*. [Unity Game]. Retrieved from <http://gamejolt.com/games/auti-sim/12761>
- Tremain, S. (2002). On the subject of impairment. In Corker, M. & Shakespeare, T. (Eds.) *Disability/postmodernity: Embodying disability theory* (pp. 32-48). New York: Continuum.
- Tucker, J. (2015). How ‘L.A. Noire’ created the illusion of an autistic protagonist. *Vice vs video games*. Retrieved from http://www.vice.com/en_uk/read/how-la-noire-created-the-illusion-of-an-autistic-protagonist-838?fb_comment_id=fbc_658628447575717_658638790908016_658638790908016#f224cb5d18
- Walters, S. (2014). *Rhetorical touch: Disability, identification, haptics*. Columbia, SC: The University of South Carolina Press.
- Weber, J. E. (2013). Patricia Tannis, Asperger, and me. *Five out of ten: Thought beyond play*, 3, 256-260.
- Wilcox, S. (2014). Procedural realism: The political representation of reality in video games. *First person scholar*. Retrieved from <http://www.firstpersonscholar.com/procedural-realism/>.
- Young, I.M. Foreword. In Corker, M. & Shakespeare, T. (Eds.) *Disability/postmodernity: Embodying disability theory*, (pp. xii-xiv). New York: Continuum.

¹ Some articles that analyze representations of disability in games include Carr, 2014; Champlin, 2014; Gibbons, 2013 and Joyal, 2013.

² For research on the efficacy of using games in rehabilitative settings, see, for example, Annett et. al, 2009 and Halton, 2007.

³ The social model creates a distinction between disability and impairment that is similar to the distinction that feminists created between gender and sex (Shakespeare and Corker 3). Iris Marion Young explains that “while the social model of disability destabilizes the assumption that the ‘problem’ with some people has to do with the attributes of their bodies and functions, it nevertheless continues to presume a certain fixity to these bodies...” (xiii).

⁴ For examples of bloggers, see Disturbing Shadow, 2013; Green, 2014; Parlock, 2015.

⁵ A related issue is the use of a child to represent autism. Although autism is a lifelong condition, misperceptions that it only affects children, or that children can be ‘cured’, continue to circulate. Although *Auti-Sim* does not show that autism is temporary, the use of a child to represent autism is a political choice in the context of these debates.

⁶ As Baggs identifies as genderless, I use the gender-neutral pronouns “sie” and “hir” outlined on hir *Ballaexistenz* blog. The term “sie” replaces he or she, and the term “hir” replaces his or her.

⁷ Meryl Alper’s model of a mixed-ability maker culture might serve as a model for game development too. She describes this culture as, “one committed to an equitable, ethical, and sustainable democratic future. It requires us to look closely not only at the materiality of making, but also the social context that surrounds participation in and exclusion from maker culture” (Alper, 2013).

⁸ Other writers, like Tucker (2015), express a preference for reading characters without labels as autistic.

⁹ Tony Attwood is a psychologist whose work focuses on Asperger’s Syndrome.

¹⁰ An accessibility feature that the game does not include is the use of audio cues to supplement visual cues. The game conversations are only available as written text.

¹¹ Although this article refers to both autism and Asperger’s syndrome, it does not engage with the distinction between these two diagnoses. The decision is not simply to reflect the amalgamation of these diagnoses in the *DSM-5*, but to recognize activist concerns that using two different terms to describe a spectrum of conditions creates an artificial distinction.