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Pokémon Go and Urban Accessibility

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This chapter examines the relationship between disability, mobile technology and gaming, with a specific focus on the augmented reality mobile game *Pokémon Go*. Current research and commentary on the experience people with disabilities have of *Pokémon Go* and other augmented reality mobile games has focused on either inaccessibility (specific for people with mobility impairments) or the opportunity these games provide as a learning tool, specifically for people with intellectual disabilities and autism. This chapter reviews this commentary, arguing the nature of this game – located both within and outside of the mediated format of gaming – allows for an extended understanding of access. In particular, utilising the social model of disability (Finklesteinm, 1980), we consider how mobile augmented reality games such as *Pokémon Go* can reveal exclusions in 'real' urban space. Connecting with research being undertaken at the University of Bologna by Catia Prandi et. al. (2015), we also consider how future mobile games which similarly utilise mapping could be harnessed to facilitate both more accessible gaming opportunities and understandings of accessible urban space.

Making *Pokémon Go*

Pokémon Go is globally recognised as the 'killer app' of augmented reality games, essentially meaning that the launch of the game was the moment that augmented reality hit widespread popularity and recognition. However, Niantic, the company that partnered with the Pokémon Company to create *Pokémon Go*, learned a lot of lessons from their previous game which introduced many of the game mechanics and use of location data that would later be at the heart of *Pokemon Go*. Niantic's earlier game, *Ingress*, featured competition between two teams whose play spaces meshed the digital and physical worlds together. Using augmented reality technology, which utilises GPS coordinates on mobile devices (mostly smartphones) to overlay game elements on to existing physical locations, monuments and spaces, *Ingress* players fought for control of portals which had to be found and visited by teams in the material world in order to be part of that battle (Blasiola, Feng, & Massanari, 2016).

Augmented reality play centres on the smartphone as the device which adds the additional layer of meaning, but also, and quite vitally, builds upon the existing layers of a physical place which has its own character, meanings and terrain. The portal sites in *Ingress* were crowdsourced, insomuch as players within the game suggested each location, and submitted the physical and photographic details, which often meant that sites of cultural and historical significance were the location for portals (Stark, 2016). When Niantic spun off from their parent company Google, the location database developed by *Ingress* players was one of the company's most important assets, and one which provided the initial map for the entire global *Pokémon Go* experience.

When *Pokémon Go* launch in mid-2016, the real world was suddenly filled with Pokémon, or pocket monsters, that appealed to both children and adults alike, with the nostalgic appeal very high for the older players (Goggin, 2017). Playing involved walking through physical spaces and finding Pokémon that would 'spawn' or appear in different locations at different times. Pokémon Gyms or Pokéstops, appearing at the locations used for Portals in *Ingress*, allowed players to collect Pokéballs used to capture Pokémon, as well as send their Pokémon in to battle against others once players reached a sufficient level of game experience. These locations also randomly provided potions for healing battle damage and Pokémon Eggs. Each player could walk with one egg at a time, and after taking a certain numbers of steps (either 2, 5 or 10kms worth depending on the egg), a new, sometimes rare, Pokémon would hatch out of it. As with the videogames, cartoons and card games of the Pokémon franchise, the aim of the game was to catch as many different species of Pokémon as possible.

The physicality of play is augmented reality games is seemingly inescapable. Indeed, playing *Pokémon Go* has been directly linked to increased health and physical activity, including increasing daily step counts while playing the game regularly (Khamzina, Parab, An, Bullard, & Grigsby-Toussaint, 2020), although the duration of this increased activity was rarely for longer than a few months (Baranowski & Lyons, 2019). As Brendan Keogh (2018) has convincingly argued, all videogames, even ones played on desktop computers, are always deeply embodied experiences, with bodies, interfaces, devices and the games all linked together in the activity of playing. For augmented reality games, and locative media more generally, that embodied activity is even more obvious as physical movement thought different spaces is the key game mechanic used to render the material world part of the game space.

Yet as Hjorth and Richardson (2017, p. 5) argue, locative media games such as *Pokémon Go* are also "manifestly ambient as they become embedded in our daily routines, pedestrian movement, and interaction with familiar strangers populating our neighbourhoods and urban spaces." For many players, the ability to play the game walking to the bus, strolling the neighbourhood, in a doctor's waiting room, or even during a university lecture, made the game part of their experience of everyday life. As Salen Tekinbaş (2017, pp. 35–36) notes, however:

> *Pokémon Go* challenges players to find and capture Pokémon, which requires time, patience, skill, and the freedom to access the game map (i.e., spaces in the real world) to its fullest extent. When players are denied full access, either through a technical glitch in the game—like when a server crashes or when networks become unavailable—or through real or imagined threats of violence or harassment, the game becomes inherently unfair.

For many people with disabilities, especially those with visual and mobility impairments, the unfairness of the game was not a glitch or momentary, but rather a permanent, or at the very least persistent, issue. The very physical nature of the game—requiring players to get to specific locations in order to play—makes *Pokémon Go* is an important case study for disability studies theorists, raising issues of accessibility that discussions of 'traditional' gaming in private space have not.

Pokémon Go and disability – public and academic critique

As a game which entails players being physically in an environment in which the augmented reality game takes place, the bodily requirements of the player are emphasised in a way that they

are not in other games. Indeed, disability in gaming has been associated with a level of disembodiment, or delineation between 'synthetic' and 'real' bodies (Castronova, 2005), particularly in games that involve avatars. Thus the experience (and discussion) of disability in this particular game is unique. Though the accessibility of, or within, games have been critiqued by theorists such as Yuan et. al (2011), Heron (2012) and Powers et. al (2015), the accessibility of *Pokémon Go* reframes the discussion, shifting it beyond the confines of the game itself and into the broader realm of urban accessibility.

The accessibility of the playing environments in *Pokémon Go*, that is various urban (and suburban) spaces, have been scrutinized publicly. Disability activists and commentators such as Michael Peckitt (https://thelimpingphilosopher.wordpress.com), The Mighty, AbleGamers and AbilityNet have all highlighted a range of accessibility issues. Likewise, media coverage of *Pokémon Go* and disability have focused on the limitations the game places on people with physical disabilities, specifically people with mobility impairments (Alexander, 2016; D'Anastassio, 2016; Larson, 2016). Discussions on Reddit, gaming forums and Tumblr also reiterated these concerns:

> And it's not "a few people", there are a significant number of disabled persons in the world. The only way to catch Pokémon in Pokémon Go is to travel. By foot. If your in a car, it will limit the number of Pokémon you find and any you do find you'll be past before you have a chance to enter the encounter. It doesn't count anything over a certain speed for hatching eggs. There's no way to trade Pokémon in game. Again, the only way to play this game is to be able bodied and to walk, a lot ('jpcguy89', 2016).

Several of the responses to the physical limitations and accessibility issues involved in playing identified the role of 'spoofing' or the use of emulators – using a third-party software to falsify your location, thus allowing a player to avoid being tangibly in the required location. Indeed, several discussion forums, such as on Reddit, were set up to detail how people with a range of disabilities (including vision and mobility impairments) could still play the game without having to travel to the Poke Stops. For example, one user responding to a post about how *Pokémon Go* could be played by a vision impaired user who was not able to drive, explained:

> Hey, I have both vision and joint problems. My boyfriend, while able-bodied, doesn't have a phone that can run it, but he's been using a program called Bluestacks which allows you to run phone apps from your computer. You basically click instead of tapping, and use another app called FakeGPS to move around. If you don't mind playing entirely from your computer, you could probably use this method. Here's a tutorial for how to set it up: http://mspoweruser.com/play-pokemon-go-windows-pc/

These forum discussions and workarounds are exemplars of what Branham and Kane (2015) refer to as "collaborative accessibility" whereby people with disability take active roles in co-creating an accessible environment. However, this practise, while allowing for a level of accessibility that was not provided by the game developer itself, resulted is players becoming blocked or banned from the game. Using an emulator, that is falsifying ones GPS location, was quickly classified as 'cheating' by Ninantic (Johnson, 2016). Ninantic never publically responded to the criticism it received for banning disabled players, and the use of emulators continued to be prohibited. However, some additional accessibility features and additions were later added (perhaps in response to feedback on the lack of accessibility of the game), with

Ninantic offering an update which measures distance (rather than simply steps) for wheelchair useres if they are using an Applewatch (Gaca, 2017).

Academic engagement with the lack of accessibility of this popular game has been limited, despite the prevalence of literature recently focused on the relationship between new mobile media and disability. What research that does exists on disability and *Pokémon Go* has, instead, explored the role of augmented reality games such as this as a 'learning tool' for people with developmental disabilities or autism. Martin-Sabaris and Brossy-Scaringi (2017) found augmented reality experiences for people with Down Syndrome are "useful for moving around public spaces, which enables autonomy" and "were helpful in maintaining attention, acquiring information and long-term memory " (737). Research by Walker et. al. (2017) build on a broader body of work that has argued that augmented reality games can be used as an educational tool for students with autism and intellectual disabilities, enhancing engagement and learning.

Whilst this perspective is in line with current research into the 'positive' benefits of mobile technology for people with disability, Wästerfors and Hansson (2017) are critical of this tendency in gaming and disability literature that emphasises a 'habilitation frame', that is, the way gaming can be used to improve, train, or as a tool for young people with disabilities. "The element of 'fun in games', as Goffman calls it, is essentially disregarded or subordinated by therapeutical purposes" (p. 1144) and "tends to reproduce a narrow image of disability, youth and gaming". Instead, they emphasise the social and cultural aspects of gaming, young people and people with disabilities. Moreover, scholars such as Finklestein (1980) and Oliver (1990) have critiqued views of disability as an inherent individual problem, and thus one which can be 'readdressed' using specific techniques or tools (such as the smart phone). Indeed, the social model of disability redefines the 'problem' of disability as being located in social processes and constructions such as inflexible social policies, prejudicial attitudes, and inaccessible public space. Therefore, we argue that *Pokémon Go* and other augmented mobile reality games are poignant social artefacts that can be analysed for what they reveal about accessibility in contemporary urban space.

Disability, mobile technology and inaccessible public space

The proliferation of mobile use (and specifically, smartphone use) in everyday life and in augmenting experiences of public urban space has provided an opportunity to analyse the relationship between new mobile technology and what Chib and Jiang (2014) refer to as a 'biopsychosocial model' of disability, or attentiveness to the subjective physical, psychological and social experiences of people with disability (Chib and Jiang, 2014; Borrel-Carrio, Suchman, & Epstein, 2004). Some researchers have attempted to capture this experience directly from people with disability's smartphone use and or experiences navigating urban environments. For example, Taylor and Jozefowicz (2012) provide a focused analysis via an extensive empirical study in Poland of people with disability experiences (specifically in relation to access and mobility) of urban space for recreation and leisure. Other, earlier quantitative research include: Matthews, Beale, Pictone and Briggs (2003) study and GPS mapping of wheelchair users in Northhamptonshire, UK; Casas (2007) study using GIS mapping which tracked access for people with disability via a 'one-day travel diary' across the Buffalo-Niagara region in New York; and the accessibility study by Schmocker, Quddus, Noland, and Bell (2008). Consistently, across

each of these studies, participants found urban spaces were often inaccessible, and the emphasis remained on the individual to achieve or mitigate access issues.

Alternatively, accessibility apps and mapping systems have been used to highlight inaccessible spaces, thus acting as an accessibility tool. Projects such as Megafone aim to capture these experiences of urban space by both people with disability and other people marginalized within society, through the use of mobile phone technology and the Megafone app in the aim of creating a 'map' of current use and inaccessibility:

> Producing a location-based taxonomy of obstacles, barriers, and 'incivilities' as well as points of accessibility (M.I.A. 2014).

The project, started in Barcelona buy artist Antoni Abad (now also working in conjunction with The Mobile Media Lab), now captures experiences across urban centres globally.

Other apps and prototypes have been developed to facilitate the use of the smartphone as an assistive technology, and in particular, an assistive technology for the purpose of increasing the accessibility of urban spaces. These apps aim to: provide accessibility information (eg. AXS Map, WheelMate, or AccessNow); provide object identification (for people with vision impairments, eg. BeMyEyes and TapTap See); or provide an accessible paths or navigation (eg. NotNav or WheelyApp).

The success of accessibility apps have been varied, with urban space information, or geospatial data, a crucial limiting factor. Information about the accessibility on an environment (whether a footpath is broken, a curb is step, the presence of potholes, or the incline of a hill) is not provided via GPS mapping software (eg. Google Maps or Apple Maps) and thus accessibility apps that aim to provide this information typically require input from either people with disability or the broader public. Crowdsourcing information has a variety of limitations, one being the motivation of a user to contribute the provision of information. The opportunity for gaming to intersect with garnering public contribution to accessibility information offers a potential remedy to this issue.

Alternative opportunities for *Pokémon Go* in disability studies

Pokémon Go, and other mobile augmented reality games, offer opportunities for environmental feedback and the garnering of geospatial data, while also offering an opportunity to re-examine the relationship between bodies, technology and the built environment. Whilst the game was generally criticised for excluding people with disabilities, the emphasis on this critique was exclusion via inaccessible spaces. Thus, while people with mobility impairments were excluded from the game when Stops were inaccessible, it could be argued that the onus on accessibility should be redirected to those responsible for the space itself. This argument is in keeping with Rob Imrie (2012) who suggests that increased attention to the inclusive capabilities of new, mobile technology distract from continued exclusivity and barriers in urban space.

The challenges of playing games in urban spaces were also highlighted by many people of colour who noted that playing in public spaces where they would not normally expected or imagined to be, especially at night, could result in unwelcome attention. Indeed, Omari Akil (2016) went so far as to suggest that playing *Pokémon Go* could be a 'Death Sentence if you are a Black Man' as the entry by people of colour into certain urban areas could result in police interference which, as the Black Lives Matter protests of 2020 have so powerfully highlighted, could indeed result in

harassment, arrest, or even untimely death at the hand of law enforcement officials. Yet these stories also utilise the game as a mechanism to highlight the certain groups of people can have very different experiences of urban space compared to the safe, clean, inviting spaces rendered inside the augmented reality of *Pokémon Go*.

The way in which augmented reality, and specifically augmented reality mobile games, allow for new meanings and experiences of spatial landscapes, further extends the challenges and opportunities to reappropriate an inaccessible space, applying understandings of accessibility and inclusivity in places. Liao and Humphrey's (2017) work is useful here, making the distinction between space and place in relation to augmented reality and mobile technology.

> We adopt Harrison and Dourish's (1996) definition that "space is the opportunity; place is the (understood) reality" (p. 69). Space can be thought of as the more abstract term that describes the broader three-dimensional (3D) realm in which we live, whereas place is more socially constructed (p. 1420).

As such, the mobile augmented reality games, such as of *Pokémon Go,* could offer users with (and without) a disability a new way to engage in urban spaces and respond to inaccessible spaces, "enabling a digital recreation of [the] physical [space]" (Liao and Humphrey 2017, p. 1420).

Gaming, smart phones and accessibility - future directions

Gamification has become a valuable model for obtaining geospatial information not currently available in popular online mapping applications. Augmented reality games thus have the potential to capture players feedback on and experiences in urban spaces. Several researchers from the Department of Computer Science and Engineering at the University of Bologna, Italy have developed a critical body of work that explores the relationship between gaming (and gamification), smart phones and urban accessibility. Developing and utilising an accessibility mapping application called mPass – "a system designed to collect data about urban and architectural accessibility and to provide users with personalized paths, computed on the basis of their preferences and needs" (Prandi et. al. 2014) – researchers investigated the limitations, and potential resolutions, of crowdsourcing the ability to gather pertinent information about the urban landscape. In keeping with other findings from Comai et. al. (2015) in their review of existing city accessibility apps and prototypes, the researchers recognized that the amount of data required for an app such as this to work successfully was dependent of "critical mass engagement", and it was often difficult to generate motivation for this mass collection of data (Prandi et. al. 2015). They resolved that gamification of mPass (that is, the use of games or game elements, to increase motivation in performing certain tasks) was a useful strategy to both increase motivation in the broader community (in particular, beyond people with disability) to contribute urban accessibility data, and ensure trustworthiness of data (Prandi et. al 2015). In doing so, they developed two location based games that encouraged players to report accessibility barriers (obtaining points or vouchers for reporting inaccessible places or accessibility features). The increase in reporting and motivation to report on urban inaccessibility increased significantly via the gamification of the mPass system (Prandi et. al 2015).

Playing in a Pandemic: *Pokémon Stay*

When Niantic followed up on the success of *Pokémon* Go with the 2019 release of *Harry Potter: Wizard's Unite,* the new game was beset by the same lack of accessibility options players

lamented when *Pokémon Go* was launched three years earlier (Sung, 2019), suggesting the company was either unwilling or unable to priorities accessibility. However, for a game based on rewarding movement across physical space, the COVID-19 pandemic and associated lockdowns and lack of personal mobility for people across the world, was a huge challenge. In the *New York Times,* James Poniewozik (2020) succinctly summarised the situation: "If you don't go anywhere, you don't get anywhere. 'Go' is in the name, after all. And yet here we are, in the era of Stay." Yet rather than accept that *Pokémon Go* was one more thing that couldn't be enjoyed during a pandemic, Niantic reinvented the rules of the game, effectively facilitating the shift from *Pokémon Go* to 'Pokémon Stay' by: increasing the active time of incense, an item used to attract Pokémon toward the player, to a full hour; new Pokéballs and other items would appear daily for free in the Pokémon store ensuring players always had some capacity to catch new Pokémon every day; Remote Raid Passes let players join group battles against powerful Pokémon without having to be physically near the location of the battle; and other bonuses based on mechanics other than movement through space also became available (Niantic, 2020). In short, when a significant proportion of the world faced accessibility issues, Niantic revealed they could find ways to redesign the game so that movement through space was no longer the only way to play. One of the lessons of the 2020 pandemic, then, is that with sufficient motivation, games designers and companies can overcome many of the accessibility issues with their games.

Conclusion

Pokémon Go, and augmented reality games more broadly, present new opportunities and new challenges. Despite their popularity across disabled and non-disabled players, locative media games can "accentuate feelings of loneliness and inaccessibility for those less physically mobile" and can equally "increase danger and risk for those disempowered, marginalised or stigmatised" (Hjorth & Richardson, 2017, p. 5). The initial design of the game clearly did not prioritise accessibility features, or game mechanics that might enhance accessibility.

Moreover, the game highlighted the multiple ways in which disability continues to be created by society, online and offline, generating a layering of inaccessibility. For *Pokémon Go* players with disabilities, existing barriers in the built environment were compounded by new digital barriers in the game itself, which was designed around notions of normative bodies.

Videogame developers are making strides toward the inclusion of accessibility options and features that can make games available to, and more enjoyable for, many people with disabilities. However, the approaches thus far are haphazard, with every game development process seemingly reinventing the wheel in terms of considering accessibility as part of the design process (Brown & Anderson, 2020). Yet the COVID-19 pandemic has shown that with sufficient attention and resources, augmented reality games can be redesigned in such a way that overcomes many of the accessibility issues people with disability face. In the future, if games companies can systematise this new knowledge, and apply it to all new games, not just in pandemics, then augmented reality games, and videogames more broadly, have the opportunity to become significantly more inclusive and accessible from the day that they are launched.

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