"Formerly known as “I'm a hero . . . in a game!”: Augmented Technological Mediation in Mobile Gaming Apps" -- given the time constraints of the presentation, we thought it best to cut out our analysis of Zombies, Run! and leave that for a future blog post.
Overview of Talk

✗ Keywords
✗ Augmented Reality vs COVID-19
✗ Case Study: Pokemon Go!
✗ Intersectional Feminism & Game Design
✗ Concluding Remarks

Keywords
Augmented reality: technology that “seamlessly overlays virtual content over the real world, so that both can be experienced at the same time”. AR is becoming increasingly popular in video games, where virtual images and computer graphics are overlaid on the real world, but can also include other interactive elements like audio clips, GPS tracking, etc. (Billinghurst).

Technological Mediation: Bruno Latour presents the notion of technical mediation as an encounter between subject and object, where both act as agents and are able to mutually (re)constitute one another. For Latour, “each artifact has its script, its ‘affordance,’ its potential to take hold of a passer by and force them to play roles in its story” (1994).

Assemblage: the term suggests there isn’t a fixed ontology for the world, but social formations are a combination of social, cultural, biological, etc., factors; challenges our thinking about relations of parts and wholes, and how they can function both independently and together. Assemblage “enables us to remain deliberately open as to the form of the unity, its durability, the types of relations and the human and non-human elements involved” (Anderson and McFarlane 124).

Interface: “…the point of interaction between any combination of hardware/software components” and, more broadly, a “technology—whether it is a fascicle, a typewriter, a command line, or a GUI—that mediates between reader and the surface-level, human-authored writing, as well as, in the case of digital devices, the machine-based writing taking place below the gloss of the surface” (Emerson x). Emerson
characterizes an interface as a threshold and says that although an interface does grant access, it also is in a process of continually revealing bits of information, the game, etc., “through concealing and concealing as it reveals” (Emerson x).

Public Space: Traditionally, public space is thought to offer “the potential for social communion by allowing us to lift our gaze from the daily grind, and as a result, increase our disposition towards the other” (Amin 2008). But Ash Amin, in his seminal work, posits instead that “the link between public space and public culture should be traced to the total dynamic—human and non-human—of a public setting” where “the collective impulses of public space are the result of pre-cognitive and tacit human response to a condition of ‘situated multiplicity’, the thrown togetherness of bodies, mass and matter, and of many uses and needs in a shared physical space.” (Amin, 8) It is this posthumanist, ecologically-driven theory of public space that informs our talk.

Universal Design: or UD for short, posits that stigma surrounding disability and access for all can be overcome with the implementation of universal designs, ie. designs that work for all bodies. Critics like Jane Bringolf and Joe Clark maintain that UD is a myth, “a utopian ideal,” never able to actually accomodate all users equally. This does not, however, mean that the principles of UD have no merit; indeed, to echo the words of Rick Godden and Jonathan Hsy: “the recognition of failure at the heart of Universalist paradigms can enable us to attend more closely to the particular embodied orientation of users and stakeholders” (2016). And so, reaching for UD places “emphasis on process over product, on becoming, and emergent technologies over closed-systems” (Godden and Hsy 2016). When done well, it is an adaptive process without end.

Image: Berlin-Nuuk Program Launch August 2016. ARNBJÖRG MARÍA DANIELSEN.
Augmented Reality vs. COVID-19
What insights can be gleaned from AR mobile game updates during a global pandemic?

In the midst of the current global COVID-19 pandemic, how users play and experience augmented reality (AR) mobile apps have been pushed to evolve as new ideas of public space and our ability to move safely through them change.

Our presentation seeks to address current pitfalls within AR mobile game design, and offer up a set of guidelines for future game designs with the hopes of moving towards the production of games that account for an intersectional understanding of identity with regards to personal risk in particular spaces. To do so, we draw on post-humanist understandings of technological mediation, human geography, and the social ecology of public space.

THE SAFETY OF OUR GLOBAL PLAYER COMMUNITY IS OUR TOP PRIORITY. COVID-19 IS CHALLENGING US AND THE WORLD TO ADJUST.

Niantic Labs
Guiding questions

How are AR worlds being reimagined in response to COVID–19?

Some existing work on AR, VR and gaming:


And how does this increased attention paid to “user safety” prompt questions like: what about the general safety of women, people of colour, queer and trans folk, and disabled people who play “open world” AR games like Pokémon GO?

How does this increased attention paid to “user safety” prompt questions like: what about the general safety of women, people of colour, queer and trans folk, and disabled people, for example, who play “open world” AR games like Pokemon GO -- particularly when these changes seem to be motivated primarily by profit, as opposed to ideological motivations, with the aim to maintain a user base?

Case Study: Pokémon GO!
What is Pokémon GO!

✗ A location-based augmented reality mobile game developed by Niantic, Inc. in 2016.

✗ It uses mobile device GPS

✗ Users walk outside to complete actions like capturing and battling Pokémon, visiting Pokéstops and Gyms, and hatching eggs.

With the COVID-19 pandemic, the creators have increasingly implemented a number of features designed to help users play at home and maintain their social distance.

Some updates have enabled basic remote play without any costs. For example, the updates on March 20 to the GO Battle League enabled players to more easily battle against random remote trainers. Previously, the GO Battle League required users to walk a certain distance to ‘unlock’ battle opportunities. The updates on March 23 to Gifts enabled your pokemon ‘buddy’ to travel to nearby PokéStops and bring back gifts for you to send to other players (gifts include items like pokeballs, berries, potions, eggs, etc).

However, updates like doubling the gym interaction distance still require users to go outside, and remote play options like remote raid passes and special remote events must be purchased through the app with pokecoins. PokéCoins can be purchased for a fee in the app or be collected by walking to a gym and leaving your pokemon there to ‘defend’ the gym (again, requiring users to go outside). The paid remote play options like remote raid passes and special remote events are the primary way for users to catch rare or higher level Pokémon, putting them at an advantage over other players.
These changes continued throughout March, April and May, with promises of Play at Home guides to come in late May or early June.

Images:
What do these changes do?

<table>
<thead>
<tr>
<th>Good</th>
<th>Questionable</th>
<th>Bad</th>
</tr>
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<tbody>
<tr>
<td>The developers have shifted to a &quot;play at home&quot; model.</td>
<td>Several &quot;play at home&quot; changes require users to complete in-app purchases.</td>
<td>The changes provide a one-size-fits-all approach to enabling safe play in public spaces and continue to be built on existing problematic structures.</td>
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**Good:** Instead of focusing on motivating users to move through and interact with each other in the physical world, the developers have shifted to a "play from home" model.

**Questionable:** Because it is a commercial game, the motivations for these changes seem more focused on keeping up their user base (and revenue) than focused on user safety. Pokémon GO's business model is largely based on in-app purchases, whether through special events or special item bundles you can purchase, and a number of the changes made require in-app purchases of some kind. VentureBeat reports “Pokémon GO saw global player spending reach $23 million during the week of March 16, according to mobile market researcher Sensor Tower,” which suggests that these measures have paid off (literally). In other words, in the midst of a global pandemic in which many people, small businesses, and organizations are struggling financially, Pokémon GO is profiting from its user base at increasing rates. See [VentureBeat](https://venturebeat.com) and [Mobile Marketer](https://www.mobilemarketer.com) for more details.

**Bad:** The changes don't do much to help those who can't safely access public space and continue to be built on existing problematic structures, so none of the unconscious bias built into the game (in the map, for example) has been addressed. This is a one-size-fits-all changes that are meant to help everyone (universal design).
Intersectional Feminism & Game Design
Here are some example headlines about just some of the problems with Pokémon GO.

To develop Pokémon GO!, Niantic used a map from a previous AR game called Ingress, which was built from a combination of crowdsourced data from a Historical Marker Database, and crowdsourced data from early Ingress players. Both the database volunteers and Ingress players seem to be young, English-speaking males (Huffaker). Huffaker explains: “the locations of pokéstops and gyms are taken from the locations of ‘portals’ in Niantic's previous augmented-reality GPS-based game, Ingress. And Ingress's portals, while not available as an exportable list, are viewable on a world map, making it possible to compare city demographics to the distribution of Ingress portals.” Today, the only way for users to create new pokéstops or gyms is to become level 40 -- the highest level in the game -- and submit new locations for review.

The result is that there tend to be significantly more “locations” -- PokéStops and Gyms -- in White, affluent neighbourhoods (and in downtown cores) than in Black neighbourhoods and rural spaces. Living in an area with lots of PokéStops and Gyms means that you can gain more experience points, collect items, fight in gyms, leave your pokemon to defend a Gym (which gives you pokecoins, which can be exchanged for items in the in-app store), and more. In other words, it gives you an advantage
over players who don’t live in areas with many PokéStops or Gyms.
For players who have to travel to different neighbourhoods in order to access PokéStops or Gyms, this can present a number of problems -- from accessibility issues to fear of being stopped by police, as Omari Akil wrote in 2016: “When my brain started combining the complexity of being Black in America with the real world proposal of wandering and exploration that is designed into the gameplay of Pokémon GO, there was only one conclusion. **I might die if I keep playing.**” (emphasis original).

So, although the developers have made changes to Pokémon GO! designed to make gameplay safer during the COVID-19 pandemic, these changes have been built on top of an unequal playing field and don't account for the lived realities of marginalized players.
Digital Redlining & Pokémon GO

Back in 2016, Aura Bogado pointed out on Twitter that there are way more PokéStops & Gyms in areas that do not look like her predominantly Latinx/Black neighbourhood back in Los Angeles, and asked others to share their neighbourhoods and racial identities.

Reported in Allana Akhtar, USA TODAY.
According to *Urban Institute* researchers, there is an average of 55 PokéStops in predominantly White neighborhoods in stark contrast to the 19 in predominantly Black neighborhoods. This pattern was found to also repeat itself in Black neighbourhoods within Detroit, Miami, and Chicago. (Allana Akhtar, USA TODAY)
Pictured above is a geographic analysis of Pokemon Go locations, demonstrating a lack of PokéStops (yellow dots) and Gyms (red dots) in disadvantaged neighbourhoods, effectively restricting gameplay for residents. The map compares metropolitan Downtown Miami (a) and Hialeah, a closeby municipality with a significantly higher Hispanic population (b) (Juhász and Hartwig, 2017).

What would it mean to take crime data, historically employed by law enforcement bodies, & use it to serve those who are denied protection from, or explicitly brutalized by, the state?
What if Pokemon GO had some of the functionality of an app like SpotCrime, coupled with a setting that players could turn on or off depending on whether they are interested in playing in heavily policed areas?

SpotCrime is a “public facing crime map and crime alert service” that draws police agencies and validated sources, and also allows for users to submit a crime tip. (SpotCrime)
What if we could expand the prompts Niantic issues in order to better protect their community of players to include prompts that better protect marginalized members of their community?
Do these added features actually increase well-being?

<table>
<thead>
<tr>
<th>Imagined Benefits</th>
<th>Potential Cost</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>All players can equally engage with the game &amp; play safely.</td>
<td>✓ Promotes neighbourhood stereotypes</td>
<td>An app “designed to do good” that instead harms w/out actually fixing the problem</td>
</tr>
<tr>
<td></td>
<td>✓ Encourages ‘digital redlining,’ ie. racial segregation</td>
<td>Black men in America, for example, face when playing</td>
</tr>
<tr>
<td></td>
<td>✓ Constant reminder of oppression &amp; exclusion</td>
<td>Pokemon GO in certain neighbourhoods . . . or indeed the threat posed to them by virtue of existing anywhere in the United States.</td>
</tr>
<tr>
<td></td>
<td>✓ False sense of security</td>
<td></td>
</tr>
</tbody>
</table>


TikTok, a platform popularly used to share videos, was caught limiting the reach of videos from users who were identified as “overweight” or disabled. The invisible feature users had no choice to opt in or out of was discovered to be “part of an internal policy called ‘imagery depicting a subject highly vulnerable to cyberbullying’” (Telegraph, December 3rd 2020). A sobering example of a social media company trying to “protect their users” and instead causing more harm by treating the symptoms (cyber bullying) and never the cause (an ableist culture that fat shames) -- a much taller order. The method of intervention here is of course different than the one we are critiquing, but the impulse to protect users without a grasp of what those users actually want and need from the app in order to be able to act as a full participant, without disproportionate personal risk, must be done with stakeholders at the table.
There are of course apps that make good use of crime mapping, such as Hollaback and Safe & City.
Alternative approaches to plotting maps, with a more dystopian twist -- where Proximity Apps leverage safety in order to poll surveillance data from smartphone users (EFF), where every smartphone signals a beating heart.
A Cautionary Tale

There are many* examples of mobile gaming apps that apply principles of intersectional feminism in productive, reparative ways. We are certainly not saying this kind of work is not possible, or meaningful. Far from it!

Instead, we offer up a limitation to the kind of hopeful tinkering we sought to achieve in our critique of Pokemon Go!, or indeed any AR app that invites users to treat public spaces as safe & recreational.

Closing Remarks

We hope this thought experiment raises important questions and concerns when thinking about the design and development of AR mobile games and to what degree these games can be built from an intersectional feminist framework that addresses anti-oppression work, safety, and wellbeing.

Image: “Detective Pikachu” from Official Pokémon Site
Towards a safer gaming experience for all players

✗ Extend remote play options to non-paying users

✗ Revise the language on the opening screen

✗ Extend the ability to suggest new PokéStops and Gyms to all users, regardless of rank

Projected Outcome: a more accessible and safe app to play for marginalized members of the Pokémon Go community. In this model, rather than steer players and reinforce digital redlining or neighbourhood stereotypes, players are able to judge for themselves when and where is safest for them to play, and disabled players as well as low-income players in disadvantaged areas are also afforded equal playing opportunity.

N.B. This image certainly does not represent “all players.”
Thanks!

We look forward to your questions.

You can also tweet us @abilemak & @kieraobbard
Image: “Detective Pikachu” from Official Pokémon Site