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Virtual place during quarantine – a curious case of VRChat

Abstract: During the first months of the COVID-19 pandemic many governments imposed forced lockdowns and implemented social distancing measures. At the same time there was also a large increase in gaming sales, which was particularly pronounced in the Virtual Reality (VR) sector of the market. We hypothesize that this is no coincidence since VR immersion and the capability of inducing embodiment and a feeling of presence can mitigate the loss of contact with outside world. VR has social and spatial potential to provide space and place for human interactions in time when physical contracts are restricted. To investigate this, we analyse reviews of VRChat (a social VR game) posted on the Steam platform, both before and during the pandemic. Among several themes that were identified, we found indications that spatiality plays an important role in the players' experience. Users describe virtual worlds of the game using emotional language that suggest bonding and presence of place attachment. In the reviews made during the pandemic there is a strong theme of safety associated with virtual places of VRChat – a replacement of physical space that is no longer accessible or is perceived as unsafe. At least for some users, VRChat has provided a sympathetic and comfortable environment during the pandemic to act as a surrogate for social interaction during social distancing and isolation. Future interviews with users are needed to extend and validate this preliminary research.

Key words: virtual reality, space and place, COVID-19, social distancing, place attachment

"Do You Know Da Wae?
Do You Know Da Wae?
Do You Know Da Wae?"

Ugandan Knuckles

Introduction

This is a strange time for a geographical thought. On the one hand there is a tragedy of global pandemic sweeping through every country, disrupting geographies of every scale and taking its toll in human life – at the time of writing (July 2020) there were already more than 600k deaths attributed to COVID-19. On the other hand, this is an unprecedented situation where we can observe artificially induced and controlled large scale changes – both in their extent and severity, in human spatial behaviour and in the perception of space and place. To combat the pandemic many governments implemented lockdowns and encouraged social distancing. In these unprecedented circumstances there is a choice to be made by every social scientist – whether to use this time and opportunity to pursue new problems and study them, or consider the ethical choice as dictating that we stand aside and help with the relief effort, without the risk of exploiting the situation. This is a matter that must be considered individually, and in the context of the work being done – see for example a special issue of "Dialogues in Human Geography" journal where a COVID-19 related call for papers met with a strong criticism (Rose-Redwood 2020). We choose to have a voice on the matter than stand aside. Our research is already ongoing in the middle of this crisis and for us this is a critical call to action – to try to understand the changes that are taking place. We do it in hope that this will help with understanding those changes and to better prepare for the future. We feel that the discussion on the implications of how people choose to allocate their time between physical and virtual worlds is significant, especially in the context of lockdowns and social distancing. That this will help in the future both with mitigation and with understanding.

For our contribution to this special issue we take a closer look at Virtual Reality (VR) technology and its social and spatial potential to provide space and place for human interactions in time when physical contracts are restricted. This is an issue that, in our view, rose to importance since the COVID-19 pandemic forced many governments to impose restrictions on freedom of movement and social contact. Measures of various type and severity were undertaken to prevent spreading of the virus ranging from simple recommendations to stay at home to fully enforced curfews. Public parks were closed, and cultural gatherings prohibited. At the time of the writing of this proposal some of those restriction in Poland and Wales have been lifted but there is an ever-present spectre of their restoration since the number of confirmed cases is still growing. No matter how light or severe those restrictions were, people were less able to perform their social and spatial behaviour as normal. As a result, they turned to various technological solutions in search for surrogates for missing parts of everyday life that were related to movement and socializing. This can be seen by the increases in number of users in online digital games (Smith 2020). One of the branches of gaming and social technologies that could be being able to mitigate the loss of spatial and social dimensions is VR (Gao et al. 2020). Due to its immersive potential and capability of inducing embodiment and feeling of presence (Slater 2003) VR can mitigate lack of contact with outside world. This is a long time

promise of VR and its sales pitch – to replace material world in all kind of human interactions in a dream of a metaverse (Evans 2018).

Even before pandemic, and outside the scope of immersive VR apps, some researchers postulated that an increasing number of people spend more and more time in virtual worlds (Coulson et al. 2019) – where their experiences, at least at the emotional level, mimic those in the physical world. This phenomenon has been called by Castranova (2007) the 'exodus to the virtual world' and marked as a significant sociological turning point. While VR was never at the forefront of the causes for this 'migration', the pandemic coincides with a resurgence in interest in this form of computer environments and interfaces. Evans (2018) called this an "re-emergence" since virtual reality technology has already a long history. The thing that makes VR special in spatial context is that it offers a new mode of mediated social interaction and *immersion* and *presence* are two terms that are frequently used to describe the experience of VR (Evans, Rzeszewski 2020). While immersion is 'simply what the technology delivers from an objective point of view' (Slater 2003, p. 1), presence is contrastingly understood as being 'a human reaction to immersion' (p. 2). Immersion, as Evans (2018) argues, is a unique selling point of VR. Engaging with VR has often been considered an immediate gateway to the experience of feeling immersed. Immersion was defined by Jerald (2015) as presence, the subjective feeling of 'being there' or of being at another artificial place, and users can get a feeling of being 'transported' to another world. This conflation of terms is problematic, although common. According *to* Shin (2017, p. 65), "immersion and presence are terms used to describe an experience in which the line between reality and imagination is blurred". In psychology, the term immersion is used to describe a state of mind in which the participants are 'completely involved in something while doing the action(s)' (Muhanna 2015, p. 347). Evans and Rzeszewski (2020) argue that the critical difference between a sense of immersion and a sense of presence in VR is due to the kinds of relations between the human user, the technology and the interface and the world itself – in essence how the human and technology work together to remediate the experience of the world. An experience of presence requires a focal relation, an embodiment relation and a hermeneutic relation where the meaning of the existential locale itself is constructed through the relation of human and technology towards the world. Presence is therefore both a phenomenological state of being and a construction which is contingent on the technology of VR, the interface of VR, the design of the experience, the content of the experience and the intentionality and mood of the user towards feeling embodied and present in a VR experience. In the context of social VR then, the use of a head-mounted display (HMD) alone is not enough for presence; the VR user must also be oriented towards a sense of embodiment and presence, and the VR environment must be accommodating to this orientation

From the above we can assume that VR has the technological tools to invoke a sense of place and more importantly a *place attachment* through immersion and embodiment mechanisms. The place attachment is a term used in environmental psychology and geography to describe emotional bonding that people develop

towards a place that is meaningful for them. It is one of the components of the sense of place (other being place meaning) (Kudryavtsev et al. 2012) and it is from our perspective a more important one in the context of VR. The reasoning behind this is that forming an attachment to place is an indication of the significant relation being created between a person and a place. The digitality of current human existence – of which the ubiquities of mobile media and digital forms of communication is but one example – results in increasing importance of digital content in the layers of meaning that form a palimpsest of a digi-place (Zook 2007). However, the emergence of virtual environments, that potentially can provide a space for human dwelling with the use of the VR technology, poses another conceptual challenge, since it removes the physicality of the location from the sense of place equation. And that exact physicality has been for a long time traditionally assumed to play an important role in forming an attachment to place (Lewicka 2011).

The place itself, while differently defined in many disciplinary traditions – and even within the geography itself (see for example Creswell 2014) – has always been perceived as something that is a natural condition of human existence. This claim is characteristic for phenomenology (Heidegger 1962, Tuan 1975, Tuan 1977), where it provides a kind of a stable anchor for a human in an ever-changing world (dwelling = being) (Lewicka 2011). The importance of place importance in the age of the digital has been debated from the late 70s and 80s and especially since the dawn of locative media. The main points of critique lay within a perceived loss of the cultural specify of places – that they are becoming indistinguishable from one another, and that it results in creation of placelessness (Relph 1976) and non-places (Augé 1995). As John Meyerowitz noted in his famous book "No Sense of Place" (1986), media technologies disassociate physical place from social space and thus left media users without the sense of place.

On the other hand, it seems that while the concept of non-places is still valid as an explanatory tool (Bauder 2016), there is a growing number of studies that show that not only the role of place has not diminished but it is growing (Janz 2005, Gustafson 2006). We engage with space and place through mobile media on a daily basis (Wilken 2008) and our urban experience is defined by public spaces produced by media technologies (McQuire 2017). Many places are created solely through of the use of digital media by people that aim to construct locational capital or to take advantage of social value of a given location – and those new discourses and practices becomes embodied in spatial habitus (Halegoua 2020). The re-emergence of VR occurs therefore in landscape already rich in social mechanisms that adopted digital technologies as one of the components of everyday spatiality. And the COVID-19 pandemic can probably be seen as an impulse for many people to incorporate VR into their own spatial practices and their everyday geographies and that it could potentially build an attachment to place in virtual environment of VR social app. In this research we aim to identify the indicators of place attachment to virtual place by investigating on of the many VR social apps – VRChat.

VRChat – a virtual reality social software

For our investigation we are interrogating the use of VRChat software. It is a free-to-play, massively multiplayer online virtual reality social platform. It allows players to choose 3D models (avatars) to represent themselves and to wander through various gamespaces (worlds) and interact with other users. VRChat is available for a wide range of VR headsets and it can be also played in desktop mode. One of the features it provides is the full-body tracking that can be used with appropriate equipment (e.g. Vive Tracker) to bring additional modes of social interaction.

VRChat is one of a range of social VR platforms – with other examples like AltspaceVR, Rec Room or Facebook Spaces. Since 2018 these applications have become more popular among VR users due to their increasing sophistication.

Fig. 1. One of the Author's avatars as seen in the mirror of the default home world in VRChat

While they all share the promise of providing an immersive social experience to users, they vary greatly in tools that they employ to create it. VRChat uniqueness lays in the ability of players to create almost any avatar they like and copy those that are being used by other players (Fig. 1). In the same way players can create worlds of their own with using software development kit (SDK) created by game developers for Unity – a very popular cross-platform game engine. Worlds provide background and structure for social interaction. As one of the Reddit users wrote in the "Rec Room vs VRChat" discussion:

> "VR Chat – Social app that has you feel immersed in different environments. You're mainly talking with other people while taking in different surroundings. You won't get much gameplay-wise, but the environments will hit you on an emotional level."

Entendretimestwo on r/oculus

Those two aspects of VRChat (avatars and world building capabilities) made it in our opinion a good field to investigate the role of place in VR during pandemic. Avatars are known to have the potential to help with invoking a sense of presence through building a relation between real and virtual body (Slater et al. 2008) and this is even more true for immersive environments where they play an important role with in cognition (Steed et al. 2016).

It is also worth mentioning that one of the features of VRChat games is that due the creative tools it provides it is also a space for all kinds of curiosities. The quotation that is provided at the beginning of this paper comes from perhaps the most popular meme that originated in VRChat, the infamous "Ugandan Knuckles". At the end of 2017, the worlds of VRChat were swarmed with groups of players adorning distorted avatars of the game character Knuckles and following and "trolling" other players endlessly asking the question "*Do You Know Da Wae?*". In a variation of this behaviour, trolling players selected female avatars and according to their reactions either accepted them as their "Queens" – which was signalled by clapping sounds or as "Fake Queens", in which case spitting sounds were emitted. As can be seen from this example, VRChat, as with all social media, can be a breeding ground for both racist and sexist behaviour. However, unlike other media, VRChat is an experience that can potentially provide a sense of place and place attachment, meaning that one can feel trolling and intrusion more deeply than on other social media platform. Deviant Artist *tideflayer* – the creator of Uganda Knuckles 3D model that was used in VRChat trolling – expressed exactly this concern when he learned about the widespread use of its creation[1]:

[1] https://gaming.ebaumsworld.com/articles/ugandan-knuckles-creator-says-the-meme-has-gotten-out-of-hand/85551375/

> "It's like…. It's like that special place for me. To get away from the real world and be someone I'm not…. But right now. VRChat has become a meme ground and I feel I have helped to dig a grave for VRChat."

Tidiestflyer

Those interactions and phenomena play significant role in perception and widespread adoption of the use of virtual worlds. It is therefore important to investigate the spatialities of these environments, to understand the reasons for adoption and the maintenance of this adoption over time.

Methods

To investigate questions about the role of place in virtual experience of VRChat we have decided to investigate user reviews. They can provide a valuable source of information on various aspects of games and gaming in general. They have been proven useful in recognizing success factors in game sales (Ahn et al. 2017) and can be treated as a resource important for game developers to gauge satisfaction of users and identification of bugs and errors in game design (Li et al. 2019). Here, we are using reviews as a source of information about in-game experiences that are related to perception of space/place and place-attachment. The time of the pandemic is special in this regard since social distancing and limits imposed on the ability to use public spaces are exposing those factors in VR gaming. While in-depth-interviews would be also useful as a method we think that using game reviews provide a valuable data source since we are able to look into past reviews from before the pandemic and gain access to views and opinions that are not affected by the current situation. Steam.com was selected as a data source since it is the most popular gaming platform[2] and had the most reviews for VRChat at the time of writing. We did not use other platforms like the Oculus Store since the review mechanisms implemented there are different and that would comparisons between review sources problematic.

Data was obtained using *Steamworks*[3] which is a freely available API made available to Steam game developers. Using a custom-made script, we queried Steam for all the reviews of the VRChat game. For each review, apart from the text content, we also stored additional information like user ID, time of creation, votes, number of comments and whether it was classified as negative or positive. As of 1 July 2020, this procedure resulted in a database of 28334 unique reviews. Since we were mainly interested in new themes that could emerge during the pandemic, we decided to split the data into two periods. Therefore, we created two datasets – from November–December 2019 (BP – Before Pandemic) and

[2] https://whatnerd.com/why-steam-most-popular-pc-gaming-platform/
[3] https://partner.steamgames.com/doc/home

from March-April (DP – During Pandemic). From both datasets, we randomly selected 2000 reviews. Their text content was the analysed using CAQDAS software (NVivo) and an open coding technique. Individual code was grouped into categories and patterns according to the principles of grounded theory (Corbin, Strauss 1990, Glaser, Strauss 2017).

Apart from the reviews, we used our own experiences to interpret the data in the form of an autoethnography. This was based by our own use of VRChat software – both researchers have at least 100 hours of gameplay. While the software is available both for desktop and VR platforms, we have used only the latter method of engagement since its immersive capabilities are important in context of space and place.

Results

During the coding procedure we created 41 individual codes, that were then categorized into eight themes. The limited number of codes that we used is a direct consequence of the nature of our data. Product reviews are mainly repetitive statements that praise or criticize a product and VRChat reviews on Steam are no different; this resulted in a few codes dominating the hierarchy. That being said, there are many reviews in which users were very open and shared their emotions and experiences during their time in VRChat. We believe that those reviews provide us with a sufficient empirical saturation. Below, we briefly describe the themes that we found important. Most of them were present in both datasets – reviews made before and during the COVID-19 pandemic, but when this is not the case and there is a significant difference, we have highlighted this in the description.

Table 1. Main themes (with percentages) identified in both datasets – before and after pandemic

		% of cases belonging to theme in dataset	
No.	Main themes	BP (pre-COVID dataset)	DP (COVID dataset)
1	VRChat is fun	45.1	51.2
2	Glitchiness	30.7	25.8
3	User created content and agency	13.3	20.1
4	Toxicity	25.3	10.1
5	Spatiality and place attachment	20.9	26.0
6	Safe social space in the pandemic	6.2	35.3
7	Virtual Reality technology	5.1	10.3
8	The Other World	4.1	8.8

Theme 1: VRChat is fun

As the overall sentiment towards VRChat is overwhelmingly positive it came as no surprise that this theme is dominant. The main type of comment is just a one sentence post with something akin to this one:

> "It is a fun game to play with friends, as well fun to meet new people."

Most of the reviews of this type emphasise that fun, when being described in more detail, comes mainly from the social aspect of this game. Users are highlighting the fact that they are meeting lots of friendly people and that they can interact with them. The manner of this interaction is another characteristic that is often mentioned. People are praising the non-linearity and randomness of the gameplay that together with the overwhelming possibilities of creating worlds and avatars (another important theme described below) brings potential of endless play. As one user describes:

> "Joining friends and hanging out together is really fun, whether that means chilling in a treehouse and looking at some cool views, partying while a visualizer turns a YouTube video into something colourful and stellar, playing games like freeze tag or a co-op version of Doom, or just goofing around with silly tools and avatars".

Theme 2: Glitchiness

One of the most common critiques of the game is the amount of errors, bugs and inconsistencies in the gameplay. VRChat often crashes and, when it is working, lags and glitches are a common occurrence (this uncanny oscillation between functioning and non-functioning has been described as the *glitch ontology* of the computational, see Berry 2012). This is caused by the constant changes that game engine is undertaking. The sheer complexity of the game world creation that requires user created content to be optimized together with the game engine is not an easy task to do. As one user puts it:

> "They try to optimize the game and only for it to run worse than before. Think of it like this, every update is a step forward, but every update is also two steps backwards. (…) the fact is the game does not run that smooth for most average computers out there."

It is worth mentioning that glitches are mentioned both in positive and negative reviews and in the former they are seen either as a feature that is just a minor annoyance or even as an additional level of randomness that add to the experience.

> *"This is one of the best glitchiest games with all the random fun you need!"*

Glitches and errors are often found in complex open world games, but the social aspect of the game make it particularly stressful and unpleasant since they forbid a player to join their friends and newly created social life. The significance of this drawback was even more severe in the time of the pandemic when it adds another layer of stress:

> "I have no idea why my VR keeps crashing. It was working perfectly fine a few days ago and no i can only be in chat for like 10 minutes then it crashed and kicks me. It's not just me too this happens with my friends as well. Like everything is fine, the internet works fine, i just updated my computer. (before i updated it, it still done the same thing) I'm just trying to play this damn game but it's not working and it's stressing me the hell out."

A sub-theme, that is connected also to the toxicity theme below, is the crashing the game by having or encountering a badly optimized avatars or being in a custom world that is full of glitches. This can happen because the game itself is very resource-hungry and some of the special effects (*shaders*) that can be added to the avatars, put a serious strain on weaker machines. What is interesting is that this is used by the so-called "*Crashers*" that are often accused by other players of causing this effect on purpose.

> "Fair warning however, some people within the VRChat are incredibly toxic people. Specifically, the type of person known as «crashers». They load avatars with animations that make people's games, or even computers, crash. Just because they can."

Theme 3: User created content and agency

The third them is directly related to one of the main unique selling points of VRChat – the ability of players to create their own avatars and worlds. While doing it requires some level of technical knowledge, it is very easy to make use of a wide range of public content to create a new avatar. There are even whole worlds – *Avatar worlds* – solely dedicated for this purpose only. This is an important feature for many players and there is a vibrant market on the *Discord* platform for such commissions. These two reviews are a good illustration of this theme:

> "This game also allows you to make avatars and worlds freely in unity, so you can be as creative as you'd like! Bit of a warning: This game changes your life but in an amazing and perfect way!"
> "This game is amazing, I commissioned an artist to do a 3d model so I have my own custom avatar"

The ability to create things give the sense of agency that make the experience more immersive and people can become attached to VR world personalised through their own creation quite easily. This attachment mechanism is akin to the very similar process that is responsible for producing place attachment for physical places – when people bond strongly to a place, it has been carefully selected for living (Bolan 1997). This also gave people the ability to express themselves in new ways:

> "This game is what helped me from being anti-social. There are many worlds that you can find with a lot of people in and you can choose an avatar that best suits you."

Although these type of comments – that express the importance of agency and the ability to create content – are present in reviews made during and before the pandemic it is slightly more visible in the former. This could mean that the agency, however limited, is still providing a prosthetic for a physical world. As one user put it:

> "yes, however i got this sick awesome giant D.va avatar and ppl could ride in my hands it was amazing. imagine caring some cute fox girl in your hand... i know amazing right. well they updated the game like 2 days ago and now i can't carry anymore e-girls, i mean fox girls in my hand anymore. and now I'm sad. Mr dev or devs plz bring this back. I need the cuteness in my life, COVID-19 is taking everything please let me be a weeb."

Theme 4: Toxicity

VRChat, at its core, is an online social community with all the drawbacks this brings. One drawback that is often mentioned in the reviews is the toxicity of some of the players. This can take form of intentional crashing (as mentioned before), various hacking attempts, using offensive avatars (like avatars styled on the KKK), trolling (like Ugandan Knuckles) or behaviours ranging from stalking to simulated rape. Some of the reviewer expressed their disgust and disappointment caused by those toxic encounters:

> "There are plenty of upsides to this game but with good, comes bad. You will find yourself struggling, suffering and feeling down due to the toxicity of the community, they will beat you down and make you feel worthless before you get a chance to start a real conversation, this will not stop, it will continue and you'll feel that every attempt you make to find new people to hang out with, comes with nothing but drawbacks."

While it could be assumed that in the case of the quarantine this kind of behaviour will be more easily found in the reviews – since it would be more emo-

tional harmful – we have not found this in our research. This may be the result of the relatively short time that new players spend in the game – toxic behaviour is a thing more prevalent in older online communities where there is an enhanced awareness of group-specific norms (Lea, Spears 1991).

Theme 5: Spatiality and place attachment

One of the unique aspects of VR games is the promise of immersion and presence. In describing VRChat, this is revealed in the descriptions of the spatial experiences of players as being hospitable and enduring. This spatiality of the game experience is common in the reviews. Users mention world exploration, places they can visit, being able to move from one location to another location or even the ability of VR to provide a separate world to live in (we focus on this last aspect in a separate theme below). They often mention how important this spatiality is for them as one user emotionally describe:

> "There are a lot of worlds you can join, and whenever I visit some worlds, I get really emotional seeing how far I've come. In a span of 6 months I was able to become a part of a welcoming community, become more confident, and overcoming the depression that has loomed me for years. I was able to get VR, watch movies with friends together, have a sleepover and sleep in VR. There are amusement parks, concerts, game worlds, avatar worlds, cafes, bars, sleep rooms, hangout rooms, theatres, etc."

Here, as it was briefly mentioned in Theme 3, it can be also seen that in some cases there is a bond between players and virtual worlds of VRChat – attachment to places they created or that tat they frequently visit, often to see friends and likely-minded people. For them, VRChat became a significant part of their personal spatiality – a place where they can go exactly line in the physical place:

> "So far I recommend this game a lot. Feel free to hit me up if you want. VRChat is my second home, and I have a really caring group of friends I can call my family. So, I hope your experience is the same, there's so much fun to do and so much worlds to explore if you expand your horizons.
> See you in the metaverse."

It is worth mentioning that there is a visible change in the way people write about space in the reviews made before and during the pandemic. The spatiality is no longer mainly focused on exploration of new worlds and the signs of place attachment are more visible – therefore we separated pandemic spatiality into a new theme below.

Theme 6: Safe social space in the pandemic

The concept of the virtual world of VRChat being a safe space for interaction and social life emerges before the pandemic but social distancing has intensified it and changed its character. Before the pandemic, VRChat was perceived as safe because according to some users it can mitigate social anxiety. For some people, it is far easier to make friends and acquaintances in the virtual world. One does not need to look into other people eyes to make contact, toxic people can be blocked and there are enough strange things to hide in the social background. Here are some of the examples of the reviews that are focused on this theme:

> "Have you ever had the fear of looking people in the eyes as you speak to them? If you have then VRChat is right for you. You can stare at mirrors as you and your friends talk to each other and avoid eye contact, making it easier for Introverts to meet up"
> "In the harsh reality, some people suffer from Depression, loneliness, and other disorders that make it difficult for them to make friends, have a clear head, and get tasks done. I was once one of these people. When no other game fuels your need for attention and desire for social interaction, VRChat is here."

During the pandemic, this theme has expanded. People feel safe here not only from social anxieties but from the terrible reality of the pandemic marked with social distancing. Virtual worlds are, for some of the users, almost a direct replacement that mitigate the loss of physical spatiality. For those that cannot go anywhere during quarantine, it can replace the outside world completely as one of the reviewers put it:

> "In these times of 2020 pandemic lockdown, VRChat offered a way to go outside, go to a night club, go the beach, moon, forest. Go anywhere in VR while locked indoors in real life. In VR there's no social distancing, no queues, no worries about catching a deadly virus. Just fun, meeting people from all over the world and exploring, laughing, playing games, drinking, dancing... Do whatever you want to do. Be whoever you want to be."

For others – those that do go out, for example, to work – VRChat can replace the third places in their life:

> "I just love and am so fascinated with the concept of entering the virtual world after a long day at work, or after a stressful day, and meeting up with your friends in a dance club taking shots."
> "Because of covid19, we need to stay home. But you can go out with it. There're so many worlds, so that I can go to the muscle gym, the night club without social distance, hooray!"

It must be noted that our data provide a very limited insight into the actual emotions and behaviour of the people that started using VR as a safe social place. However, there is a strong indication that this is a real phenomenon that could be explored further using other methods and observed for a longer period. We know for example that the influx of the new users of VRChat is quite real and have been noticed by other, "older" players since their behaviour is different:

> "With the quarantine the traffic has been a lot higher than normal. Which has been both good and bad. A lot more client users who don't care when messing with people, crashing, portaling on top of people and such."

It would be therefore interesting to observe if the people that immerse themselves in social VR during quarantine will become regular users afterwards – which will indicate a presence of a place-attachment mechanism.

Theme 7: Virtual Reality technology

The appeal of VRChat as a social media application lays in its utilization of VR technology. User generated content allows players to think of new and unexpected ways of using VR and VRChat includes many relatively new tools, like full body tracking, to support this creativity. VR itself (i.e. the use of an HMU) is perceived as a "killer feature" of this software:

> "Someone said to me: "If you're not in VR then it's not VRChat, it's just chat'" "Of course, you can play the game without VR but as you use VR, the experience is night and day. Being able to have custom avatars with limitless possibilities that can have unique emotes and also being able to explore user created worlds with other players in VR is truly something special."

For others, the most important aspect of VR is that it allows them to be co-present with others, to be present in other place that their own home, something that rise in importance in periods of social distancing:

> "This is the perfect software for people using VR or Not that want to be social without going anywhere, especially due to the pandemic this is a great solution to social distancing, I get to feel like my friends are actually there."

VRChat can also be played without a VR headset which make it a unique game in this respect. Of course, playing without a headset has its limitation, but still many reviewers found this experience a positive one:

> "This is a fun game that has so many worlds you will never be able to see them all. The best part is you don't need a VR Headset to play. I play it on my desktop and i easily put hours into this game. Everyone should try this at least once."

Still, it is often mentioned in the reviews by desktop players that they want to join a VR crowd, since they are aware of the elements they are missing from the game experience:

> "I only have the desktop version but can't wait to get an actual VR headset to play this game as I am addicted."

The fact that both desktop and VR players co-exist in the gameworld at the same time produces difference in levels of perceived and actual agency. While this is also true for VR players with and without full body tracking, the desktop players are at the bottom of this hierarchy which causes some resentment:

> "if you are desktop user be aware that sometimes people will make fun of you that you don't have vr."

Theme 8: The Other World

While researchers from various disciplines debate the existence and significance of the divide between the virtual and real world (Leszczyński 2015), players of VRChat seems to adopt the view that when they enter the game, they enter a separate virtual world. They tend to compare the experience of VRChat with real situations and real places and describe as other futuristic world, parallel to our own:

> "But what this leads to bring up, is that no other game has made me feel this way. It's like I am genuinely living a second life in here, as I am experiencing all these emotions like we as humans naturally cause in the real world. But that's all I have to say as of today. I may update this further as I play more, I think this is interesting to log my thoughts as I experience this. But my final note is this: This VR stuff, it's the future man!"
> "when computers/the internet was first exploding into what it is now a butt load of people thought that in 50 years everyone would live a virtual life and be automatically feed by robots and this game is basically the closes thing to that(...)"

Within this view it is hard to escape comparisons to visions of the future that are the work of fiction. Two references that are most common are the 'metaverse' from Neal Stephenson's "Snow Crash" (1992) and more the more recent 'Oasis' from Ernest Cline's popular novel "Ready Player One" (2011). Those two visions of virtual world form the most common frame of reference when the theme of other world make its way into a review. Below are two examples of such posts:

> "You think Ready Player One is good representation of what internet would look like in VR? Oh you sweet summer child..."

> "VRChat is this generation's Oasis; if you dig the world of "ready player one". The city of golden shadow, the other-land. Everything is made by its users and as broken as some things can be from time to time, there's so much more to it. It boasts thousands of unique users a day, and you'll NEVER run out of something new to see, which is what makes it so exciting. The content that is pushed to this game by its users is NEVERENDING."

Conclusions and discussion

The examples we have provided above show that while VRChat provides a curiously chaotic social experience, this experience is shaped in large part by its spatiality. The reviews we have analysed are rich with direct and indirect references to space and place. There are clear indications of the presence of place attachment in the way players indicate their emotions and bonding to virtual features that make the worlds of VRChat. The main mechanism that could be responsible for this is the perceived agency that users have while playing. The ability to change their avatars, their homes and to create new worlds is makes the places they visit more 'real' to them. Instead of experiencing a place created by an anonymous game developer, they can either make it personal by a creative act or choose one of the worlds that suit them best. The vast majority of these worlds are created by other players. This can perhaps result in the production of attachment in the same as way as indicated by Bolan (1997) – that bonding with a neighbourhood is stronger in people that invested more time in looking for a new dwelling place. The place attachment that people acquire in this way while playing VRChat differs from the one that is associated with for example a family home. There are no feelings of nostalgia involved but rather the bond is formed more actively, which as Gustafson (2014) observed is a distinct characteristic of the age of mobility. There are examples of a specific place attachment formed by a non-permanent resident – for example by second-home owners (Stedman 2006), and VRChat users can be seen as temporary visitors in this manner.

Another way of looking at the place attachment mechanisms in VR is perhaps through the lens of Gibsonian affordances (Gibson 1986). Specific kinds of affordances, like the mode of movement and home environment are native to VRChat (McVeigh-Schultz et al. 2018), are routinely created by active participation of the players in their worlds – like the placement of mirrors that play a specific social function in the game (see Theme 6). Those affordances can be enacted upon, due to the uniqueness of the VR embodiment experience that provide the tools necessary to perform Seamon's 'place ballet' (1980) and this enactment can produce the sense of place (Marsh et al. 2009).

This research has also indicated that, for some users, VRChat has provided a sympathetic and comfortable environment during the pandemic to act as a surrogate for social interaction during social distancing and isolation. The salient features of the game – fun, agency, world building and providing a safe space for

interaction – can build a sense of spatiality and place-attachment and overcome the experience of toxicity and the disruption of fidelity from glitches. In the context of VR, the social aspect of VRChat is important to note; Jaron Lanier was arguing in the 1980s that co-presence and social interaction in VR would be critically important to the experience of VR (Lanier 2017) and the user reviews of VRChat validate those early reflections on the power of VR when experienced with other persons. This indicates an important research agenda away from the apparent impression of VR as an extension of game studies and as commercially viable as a gaming platform.

To understand the notion of place-attachment (and therefore dwelling) in social VR, future interviews with users are needed to extend and validate this preliminary research. While place-attachment in social VR is seen as important and positive as a social interaction surrogate in the time of COVID-19, there may be other issues that arise from this phenomenon. Fried (2000) warned that strong attachment to place can lead to decreased mobility and Druzhinina & Palma-Oliveira (2004) connected this to our willingness to move in the face of natural dangers. It would be important to observe whether this behaviour is also visible in VR users and what form will it take. Will those that found a sanctuary in virtual worlds during the pandemic and formed an attachment to virtual places have enough investment in that environment beyond the pandemic? Would this experience change their spatialities and relations to the 'material' world? How has this influx of new players with different motivations changed the gameworld and how the game interface is built? Most importantly, especially from the geographical point of view, what is the role of physical, material space in the human spatial experience of VR? All those questions are worth pursuing since the potential of VR to provide safe social space is hard to overlook – whatever the future brings.

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Wirtualne miejsce w czasie pandemii – ciekawy przypadek VRChat

Zarys treści: W pierwszych miesiącach pandemii COVID-19 wiele rządów narzuciło swoim obywatelom różnego typu ograniczenia i wprowadziło zasady dystansowania społecznego. Jednocześnie nastąpił również duży wzrost sprzedaży gier komputerowych, co było szczególnie widoczne w sektorze rynku Virtual Reality (VR). Stawiamy hipotezę, że nie jest to przypadek, ponieważ zanurzenie w VR oraz zdolność tej technologii do wywoływania wrażenia ucieleśnienia (*embodiment*) i poczucia obecności (*presence*) mogą potencjalnie łagodzić utratę kontaktu ze światem zewnętrznym. VR ma naszym zdaniem społeczny potencjał, aby zapewnić przestrzeń i miejsce dla ludzkich interakcji w czasie, gdy fizyczne kontrakty są ograniczone. Aby to zbadać, analizujemy recenzje VRChat (gry społecznościowej VR) opublikowane na platformie Steam, zarówno przed pandemią, jak i w jej trakcie. Wśród zidentyfikowanych motywów przewodnich znaleźliśmy takie, które wskazują, że przestrzenność odgrywa ważną rolę w doświadczeniach graczy. Użytkownicy opisują wirtualne światy gry za pomocą emocjonalnego języka, który sugeruje więź i obecność przywiązania do miejsca. W recenzjach pandemii pojawia się mocny wątek bezpieczeństwa związany z wirtualnymi miejscami VRChat – zastąpienie przestrzeni fizycznej, która nie jest już dostępna lub jest postrzegana jako niebezpieczna. Przynajmniej niektórym użytkownikom VRChat zapewnił przyjazne i wygodne środowisko podczas pandemii, działając jako substytut interakcji społecznych w okresie utrzymywania dystansu społecznego i izolacji.

Słowa kluczowe: wirtualna rzeczywistość, przestrzeń i miejsce, COVID-19, dystansowanie społeczne, przywiązanie do miejsca