

# Play at Work: Virtual Conferencing in Game Space

Zach Mason, Joseph Lindley, David Green, Paul Coulton

Lancaster University

[z.mason@lancaster.ac.uk](mailto:z.mason@lancaster.ac.uk)

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## Abstract:

The Covid-19 pandemic accelerated the adoption of video conferencing, making it a prominent space that our work and social lives are lived within. For many this transition to virtual co-presence has been joyless, highlighting the shortcomings of mainstream video conferencing. In contrast the video gaming community had already pleurably adopted and occupied online shared spaces for decades prior to the pandemic. In this paper we discuss the designed affordances of the video conferencing platform Gather Town, which adapts some of the conventions of video games and implements them to better support video conferencing. In this research we consider whether gaming conventions—including interactive spatial design, use of avatars, and a retro art style—may enable us to inject more joy into remote working. By critically considering Gather Town’s affordances through our own experimental spaces within it, we seek to encourage the design of more diverse and engaging digital spaces, which will enable more enjoyable remote work and social events.

**Keywords:** video conferencing, game environments, spatial design.

## 1. Video Conferencing Space Isn’t ‘Normal’ Space

Our use of digital space exploded during the global pandemic, with video conferencing becoming a core system in attempting to achieve co-presence, aiming to facilitate the vast array of activities we previously enjoyed face to face. Video calls, where you talk, or more usually, are talked at by a wall of faces, are a joyless activity for many of us due to “[t]he impact of bad design... multiplied across the billions of people striving to flourish online” (O’Toole, 2020), especially where they constitute a major part of your daily activities. It is important that we unravel why and how these experiences can make us feel so detached and put undue strain our mental capacity- commonly referred to as “Zoom Fatigue” (Bailenson, 2020, p.1). Compounding the negative impacts of video conferencing, we note that they often fail to achieve the kind of interaction they aspire to because the more users expect from remote communication the more they note that “mediated” (Nowak, 2017) interactions will never be on par with face to face interactions (Hollan, 1992, p.121). This paper considers the underlying causes of video conferencing’s shortcomings and explores how the world of video games may provide us with metaphors and heuristics to address these challenges and help us create virtual environments which support more productive co-presence (Bulu, 2012, p.155) in virtual space.



## 2. Finding Solutions in Gaming Conventions

While the pandemic forced many of us into an online existence heavily mediated by virtual interaction “the rise of games as a dominant form of recreation and socializing” (Johannes, 2021, p.1) has continued and networked games are now the norm and “[t]he idea of socialising in a game is not new at all” (Lufkin, 2020). Thus, Gamers’ ability to enjoy forms of interaction which are so alike the video conference calls many of us find unpleasant, when they were forced upon us is worthy of greater consideration. Both the conventions that game designers utilise, and the habits that gamers have developed, are attributes which may underpin virtual existences which are fulfilling to a wider audience, especially when considering it is not the winning or losing which makes gaming with others enjoyable, but more the sense of being together (Jia, 2015, p.22). By analysing such conventions, we may identify processes, mechanics, and design heuristics which can inform the design of more enjoyable forms of accessible and digitally mediated co-presence.

While we suggest that gaming conventions may offer useful design inspiration, we also note that game spaces are by no means a perfect template to adapt. Having been tailored specifically for ‘Gamers’—who amongst other stereotyped traits “have shown statistically significant gains in problem solving, spatial skills and persistence” (Barr, 2017, p.87)—often making games inaccessible as spaces for the novice. A Gamer’s level of digital literacy and experience comprehending virtual realms as spatial environments is likely to be significantly higher than that of a member of the general public. Because of this skill gap, we need to carefully consider how game techniques may be used for wider audiences where these affordances haven’t readily been experienced. A simple example is the use of WASD keys (Wilde, 2016) for ‘up, down, left, right’ movements or the spacebar for ‘jump’—such conventions are completely ubiquitous to the gaming community, yet almost entirely invisible to non-gamers. There are potential benefits to adopting gaming conventions, but in doing so we may need to devise strategies for bridging the gap between gamers’ and non-gamers’ abilities to comprehend virtual spaces.

## 3. Bridging the Gamer/Non-Gamer Gap with Gather Town

Gather Town<sup>1</sup> is a platform that aims to alleviate some of the previously discussed shortcomings of video conferencing e.g., fatigue (Bailenson, 2020, p.1) and the reality-expectation gap attached to digitally mediated interactions (Hollan, 1992, p.121) by incorporating game space conventions. Gather Town runs in a web browser and is a spatial video conferencing system. Hence, a Gather Town ‘call’ is abstracted as a space—rather than as a series of users arranged into a grid as is normal with Microsoft Teams, Zoom or other similar platforms, Gather Town spaces are presented to users as two-dimensional rooms which are rendered in a pixel art style (see Figure 1). Any user present in the space can explore it by moving their avatar using WASD keys. When two or more users’ avatars come into proximity, a traditional call is established on-the-fly, allowing them to converse as they would via any other video-conference platform (including the ability to share screens and send chat messages). Once the avatars move apart, the call cuts out allowing them to move elsewhere in the virtual environment and seek out others they may wish to speak to.

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<sup>1</sup> <https://gather.town>

In short, Gather Town's functionality is of a standard video and audio-conferencing system, videoconference which is overlaid on top of a simple game environment. By moving avatars around that environment, users can dynamically start and end individual videoconferences. The result is an unusual, liminal space which is game-like yet achieves what we would expect from a traditional video-conferencing platform. The form attempts to more closely emulate physical space in its feel both through the variety it gives the designers of its spaces, and the movement it gives to its users. This has the potential to facilitate the wider range of activities desired through online systems such as meetings, lectures and workshops within a work environment.

#### 4. Accessible Aesthetics

The visual style Gather Town uses is arguably part of its charm, drawing inspiration from early games like *Zelda*—this top-down aesthetic is so ubiquitous amongst gamers that it should be recognisable to many non-gamers. While this potential familiarity may encourage a sense of ease for some users, it is plausible that for others the design being similar to game space may be alienating. Similarly, the 2D interface removes the need to control a camera-perspective (something which is commonplace in modern 3D games), and while this makes control simple, it makes some objects' appearance more abstract.

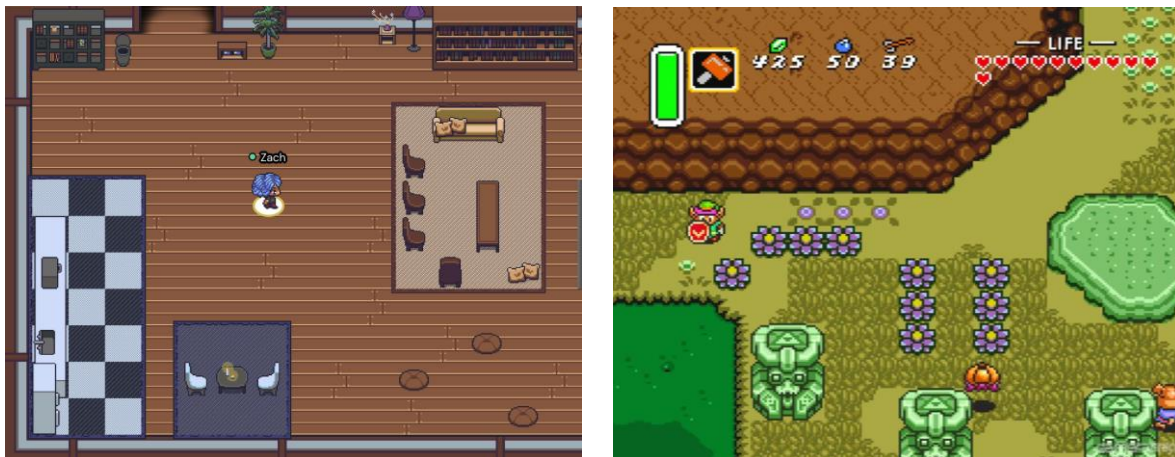


Figure 1 Left, Gather Town Home Space. Right, Video Game *The Legend of Zelda: A Link to the Past* (1991)

The 2D graphic style has been adopted in many recent 'indie' games (Fiadotau, 2018) such as *Enter the Gungeon* and *The Binding of Isaac* due to being particularly simple to work with from a technical and authorship perspective. In Gather Town, this simplicity means that spaces can be customised or adapted with simple graphic tools, and it is easy to create diverse virtual environments, including imaginary spaces, or those based on real physical places.

This aesthetic extends to how user avatars appear. Once again cues are taken from the gaming world. When connecting to a Gather Town space, users are given the choice of how they wish their avatar to appear. In games this can enable players to feel a connection to the avatar they are attempting to embody and thus feel more attached to the virtual space that avatar appears within: "self-avatars are important, and that animation of the avatar can

improve the effect of the self-avatar for most cooperative tasks within the virtual environment.” (Pan & Steed, 2017, p.3). The character editing system in Gather Town arguably boosts connection with self-avatars too. The Gather Town avatar customisation system is like that of *Stardew Valley*, with features such as hair, torso, legs, shoes and accessories each having around 10 options leading to the ability to create a significant visual differentiation between users.

This, alongside the ability to emote creates further connections to the characters users play as. Emotes are an integral part of online games, enabling short animations to be enacted by the players avatar to represent emotions. They are akin to emojis which non-gamers may recognise, but are much more vivid in their detail, enabling strong signalling when verbal communication isn't used, or to add to a voice conversation in a visual way as video calls are rarely used for online games. This Improves embodied presence within the virtual environment, allowing users to understand where they are situated when looking at rooms in Gather and enables them to identify others in order to approach them and start conversations which feel spatial. This spatial embodiment is something video conferencing platforms tend to lack. Instead, they present a flat 'wall' of faces, which can leave users unsure where to look, and stifling opportunities for dynamic spatial conversations.

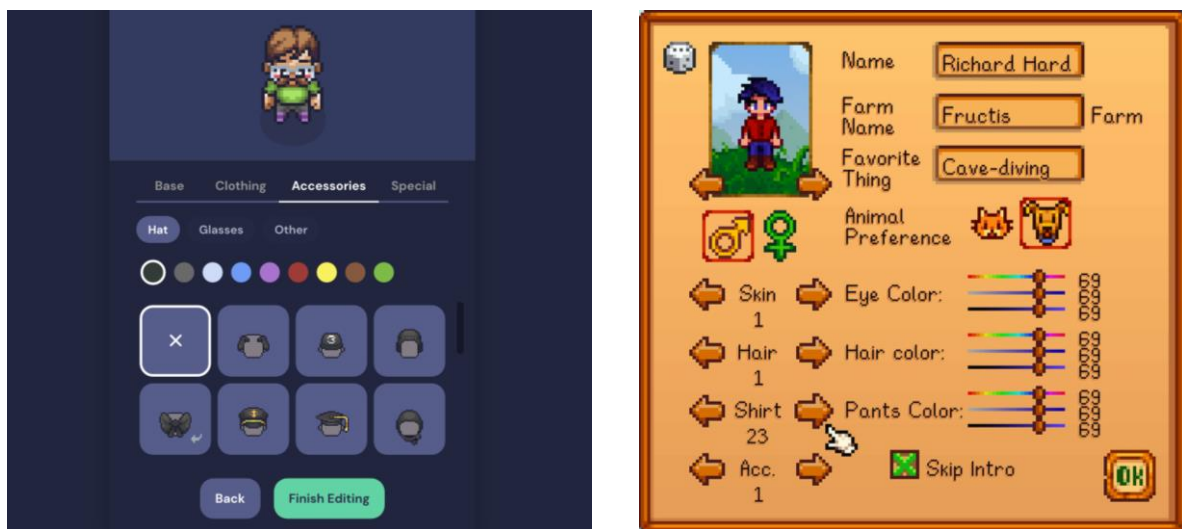


Figure 2 Character Editors for Gather Town (Left), Stardew Valley 2016 (Right).

## 5. We Live and Play in 'Space'

Our embodiment and participation, as humans within spaces, is something we took for granted before the pandemic, with the ability to experience immersive, interactive, and social moments in physical space seeming effortless: “The flow and changes in interpersonal distances between individuals in a shared space is an integral part of nonverbal communication.” (Williamson et al., 2021, p.4). Our relationship with movement, the way it allows us to situate ourselves mentally and physically, and how these factors impact our relations to each other, pose a complex challenge for designers wishing to represent these aspects in a virtual environment. One driver of this may be the long tradition of

skeuomorphism (retaining ornamental or functional aspects of non-digital versions of things in their digital counterparts) in technology design. Popular terms like Desktop, Recycling Bin, and Wallpapers are all of skeuomorphism in the design of computer operating systems. While those examples echo pre-digital office environments and have had a long time to separate their new digital meanings from their pre-digital versions, in a similar vein video conferences are the descendants of telephone-conferences. As well as being adopted in a much shorter timeframe, their design cues are skeuomorphs of telephones including terminologies and features such as 'call' and 'mute' (which appear on telephones as physical buttons). While the reason for this lineage makes sense, it does not necessarily follow that using these terms to describe features into video conferencing makes for a good experience. The Gamer-centric videoconferencing platform Discord<sup>2</sup> avoids this skeuomorph by using the term 'channels' rather than 'calls', with the intention of facilitating types of discussion. Discord channels naming encourages users to jump dynamically between different conversations seamlessly for more fluid conversations across them.

The spatial nature of digital environments is not understood equally by all users. The notion of physical presence within a digital landscape can be confusing to many, and game designers have sought ways to heighten spatial usage since the earliest games. By focusing users on the environment, rather than the interfaces on top of them, immersive tendencies can be suggested. For example, game designers encourage users to centre their focus on the middles of our screens in 'first person view' games through a crosshair or by having a prominent avatar to reground us in 'third person view' games.

During conversations, we make eye contact intermittently, and this same physical need is often replaced with looking at our own video feed in video calls because of the feeling of being unsure where to look, which in turn creates its own issues relating to personal image. Taking cues from the 'closeness' which game environments offer to their players, platforms like Gather Town leverage avatar proximity to make up for the lack of eye contact. This conversion of a physical space concept easily allows us to approach others virtually, allowing more natural conversations. When we are instead forced to focus on webcam feeds from others, the sense of spatial presence and interaction created quickly fades, leaving the same shortcomings that's exist across video conferencing platforms.

As a reoccurring theme throughout this paper, considering and implementing physical space conventions is key to virtual immersive experiences. While gamers may be used to open world exploration in digital environments, users of spaces like Gather may need more careful balancing between linearity and ability to explore to appreciate them. In the next section, we describe and dissect several Gather Town experiments which we designed for different purposes within virtual space. We reflect on these designs by referring to the discussion thus far in order to explore how to optimise the design of the next generation video conferencing systems for a more spatial approach.

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<sup>2</sup> <https://discord.com/>

## 6. Playing with Liminality

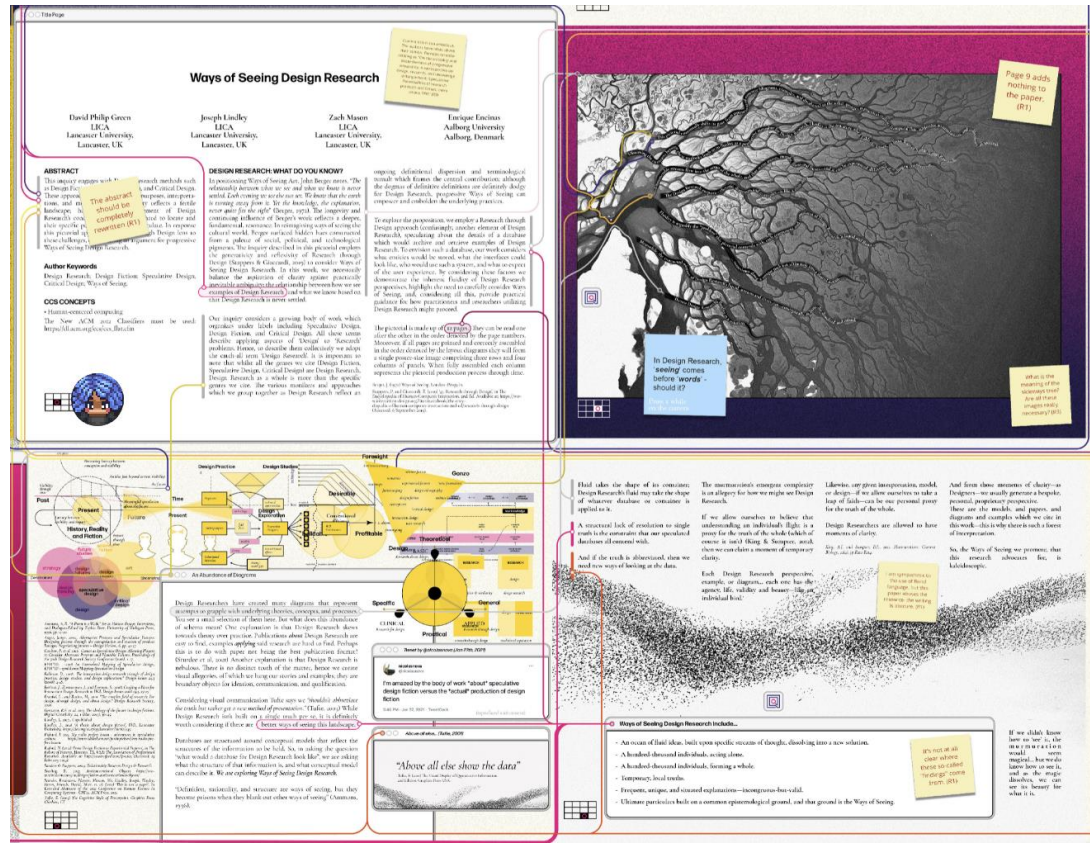


Figure 3 Gather Town: Ways of Seeing, section of mini-map 4 pages of 12.

In one of our Gather Town experimental explorations, entitled *Ways of Seeing*, we opted for an open-world style map as shown in figure 3, which would be familiar to players of *Stardew Valley* or *Zelda*. Almost everything was accessed through the main room, reached after a short introduction. This was intended to give users the options to explore the overall space, testing how an open environment may change user interaction, allowing them to create their own pathways. While this openness was meant to provide varying pathways and freedom of movement, we found it led to confusion due to unsureness as to where we were intending to get to. Already having been placed in a new piece of software, our potential users would be trying to come to terms with the controls, video conferencing elements, and our open landscape all at once, creating confusion as to what would need their attention first. Usually Gather Town mitigates this confusion by starting its participants in a small boxed in room or pixelated public park where they can quickly come to terms with the navigation and communication systems without the landscape also providing problems. This need for mechanisms to be gradually revealed isn't new, with games having tutorial segments for as long as they themselves have existed. But, because with increased number of mechanisms, the need for eased entry becomes increasingly important, simplifying introductions is vital, especially with use cases like this that emulate a workshoping environment where conversation and notetaking takes place in a nonlinear fashion.

## 7. Conventions from Physical Space

In stark contrast, the Lancaster Design Studio Gather Town space combatted this foreignness more fluidly. Having been designed for students at Lancaster University, its users started within a space they were very familiar with by literally copying the studio and building layouts from the physical namesake they had previously inhabited. Thus, this mirrored existing spatial movement patterns from the outset, with students able to employ their complex habits from the real world, focusing on interaction with the virtual environment having “evolved an exquisite sensitivity to the actions and interactions of others” (Erickson & Kellogg, 2000, p.60) from the physical version of the space. This type of Gather emulates any standard group meeting or discussion space which would have previously taken place in physical space, demonstrating how by recreating the space we can suggest the habits from the original physical environment. Copying over the interactive habits from physical space enables a quicker understanding of the virtual Gather as a spatial environment. Attached to this space was a series of portals to other related, but different, Gather Town spaces. Portals can be represented visually in any way the designer deems suitable, from doorways to spiralling wormholes. The portals in this space transport you to a series of conjoined spaceships the users could explore. While this environment is more foreign than the building you arrive in, when accessed after the initial learning of Gather’s mechanics, it appears more spectacular due its departure from the limitations of reality applying a playful subversion to the normal physical spaces we inhabit due to the pre-established expectations of a reality-based virtual environment.



Figure 4 Gather Town: Lancaster Design Studio for students with attached spaceships portal.

## 8. Balance and Chaos

Moving within the environment helps to build engagement through spatial presence, which in turn builds towards immersion (Pasch, 2009, p.173). Once the user has been encouraged to explore the environment, even on set paths, they will feel a greater willingness to deviate from defined routes. Giving users options within virtual spaces is important to enable a sense of confusion, limited to avoid absolute chaos, creating intrigue and facilitating the 'Flow Zone' (Chen, 2007). Finding a balance sparks a human sense of discovery when exploring a physical or virtual space which boosts creative thought processes. We experienced this lack of confusion when designing the Imagination Lancaster Gather Town space by trying to make something which was especially accessible and visually understandable. Created as a space to showcase current research projects to outsiders, rather than copying physical spaces, which may have allowed us to have non-linear navigation be inferred, we decided to have pathways through a spacewalk, hoping to allude to the vast open design issues Imagination Lancaster is aiming to solve. Each space deviates from a hub page which is displayed as a constellation in the sky, with green icons going forward, red backwards, and purple being external interactive links. While the visual language was extremely clear, it led to an experience where nothing is left to be uncovered. We could choose not to use paths, yet they are the most efficient way to move through the space and access information. In our efforts to create an extremely understandable environment, we removed all elements of discovery, creating a design which would effectively encourage users not to deviate from set paths which is important in creating natural spatial feeling in game space. Even if users want to stick to pathways, the option to explore the other creates a sense of openness making spaces we inhabit more inviting.

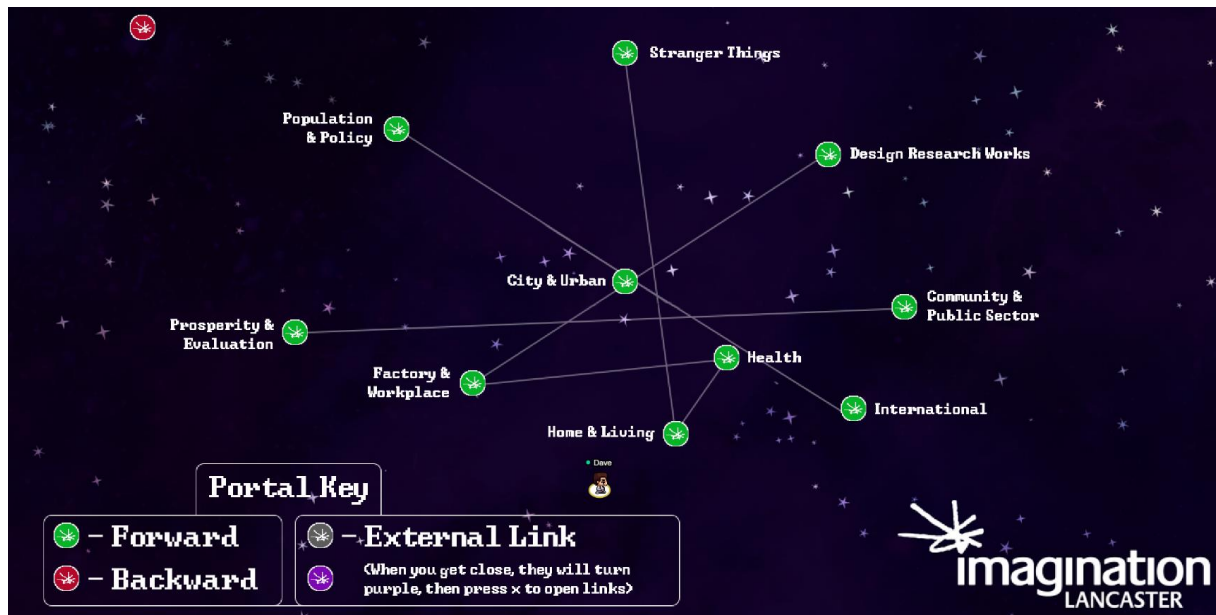


Figure 5 Gather Town: Imagination Lancaster Gather Exhibition hub room.



The visual language of virtual space is important, with rooms and sections needing unique themes and design choices to help users not only differentiate between each room within one Gather, but between separate spaces they connect to. Visual variety enables people to feel separation between the spaces they inhabit in physical space, translating this to virtual realms can help to create immersive tendencies. With standard video conferencing, the wall of faces is persistent regardless of if the call is for work purposes, socialising or something otherwise, meaning the ability for the users to feel separation between the groups they connect with is heavily diminished and their mental attitudes become blurred and fatigued. Gather spaces can be designed for different degrees of openness or purpose like game genres are. Some spaces may suit a confusing style of non-linear narrative, while others may need a thin direct path to quickly convey a message. These can connect in a sublime way to one another within one Gather space to help guide narratives, but also be used to create mental contrast for users across a range of spaces built for purpose. Some events need a clear start and end point, while others are a gradual in and out flow of people mingling and generating conversation. Gather can support each of these naturally.

*The Egg*, our first heavily experimental use of Gather helped us to learn how to design these spaces for specific experiences. By making confusion a key factor, the feeling of being lost as a user didn't feel so daunting. As it was clearly an intended part of the experience, being named after the *Easter Egg* tropes of game culture, it created a sense of mysticism, inviting users to explore its rooms without fear of becoming lost. We created colourful segments to help users recognise and distinguish different places as they jumped between them.



Figure 6 *Gather Town: The Egg an experiment in alternative publication formats.*

Balancing accessibility and intrigue for a variety of users can be hard. With *The Egg*, because there was no clear goal, some may feel lost while others revelled in its halls, even if the design intended users to merely to wander within it. As with the idea of *Easter Eggs*, different tiers of challenge can be created, some which may remain unnoticed to many users, only aimed at those most entangled in the workings of virtual environments and their

systems. The potential foreignness of these spaces needs to be considered repeatedly, and to do so means to also create divergent paths for those who are struggling to find purpose within. If a Gather space's purpose is only to create a replica of a virtual office, then most of these issues need not be considered. In this instance, the conversation becomes the primary provider of enjoyment, people only need the ability to immerse themselves within the digital environment. However, if the space aims to expand on our previously inhabited physical environments, then the additional elements or rooms need to diverge slowly from physical space norms to allow users to maintain understanding of the purpose of the space they are within.

## 9. Learning Through Play

Segmenting the learning processes within virtual spaces can help to ease loss of interest due to lack of comprehension. While teaching their parents (Aged 59 and 73) to play a modern, open world game (*The Legend of Zelda: Breath of the Wild*), one of the authors realised that even the buttons on the controller itself, and the iconification of them caused confusion. With the parents having little previous experience in digital interfaces beyond sending emails and editing a brief PowerPoint, segmentation of the game mechanics was vital. It became apparent that by separating the tropes of an adventure game, and the controls of a 3-D game, the ability to engage was greatly improved. The control of 3-D player perspective was practiced through *Superliminal*, a slow-paced puzzle game, and learning the tropes of adventure games through *The Legend of Zelda: Link's Awakening*.

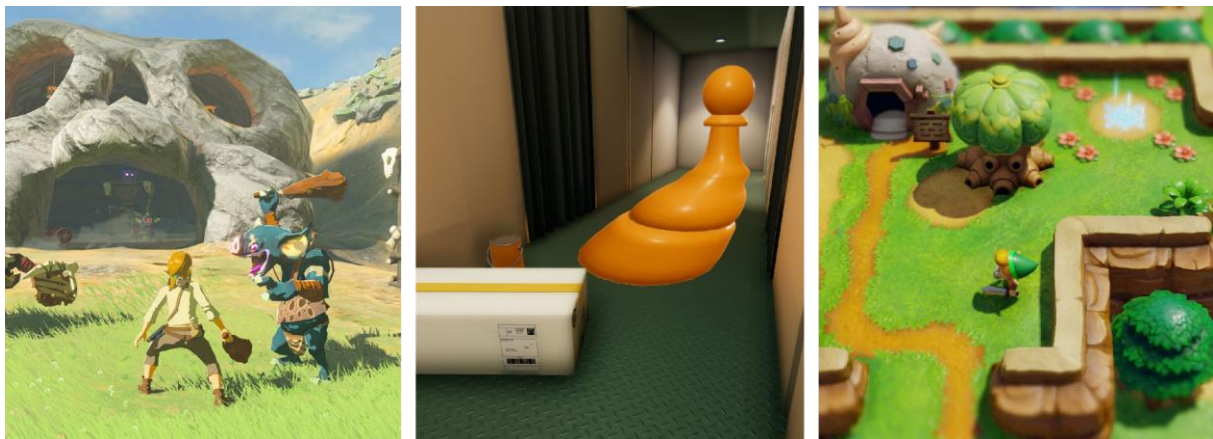


Figure 7 Stills from Games, left to right: *The Legend of Zelda: Breath of the Wild*, *Superliminal*, *The Legend of Zelda: Link's Awakening*.

Combining the skills acquired from each game was simple when returning to the original title after separated practice, and a usually subconscious game learning experience for children had been segmented for a less malleable adult mind. This highlights how Maintaining simple mechanics often seems easier than attempting to teach users complex interactive systems. It can stop inexperienced users from being unable to interact and understand more deeply engaging virtual worlds through a lack of practice and discourage them from attempting to learn to use them in the first place. In the case of Gather, stripping away any mechanism

that doesn't either provide utility within the interactive systems, or enjoyment could enact this. With general use software, mechanisms are copied from existing programs under the presumption that they have significance to their usage. Video from webcams has been treated this way in video conferencing and Gather Town, creating issues online games avoid.

## 10. Discussion: Video is the Elephant in Video-Conferencing Space

By deploying Gather Town in the various experiments described above we have demonstrated a flexible and powerful way to transcend the trappings of video conferencing. While making significant advances in its attempts to spatialise the environment for its users, many of Gather's features are transported from the assumed norms of video conferencing systems. Those in turn are skeuomorphs of teleconferencing and telephones. Why though would Gather Town, or other internet-enabled video-conferencing systems, need to inherit these design assumptions at all?

In the case of Gather, the craft and detail that has gone into the design of the spatial systems and avatar design is overridden by the disconnected assemblage of video windows popping up as we come into proximity with one another. When exploring on our own, we found ourselves enjoyably lost as users, entranced by the visual diversity of the space and the ability to spatially navigate it through our self-designed avatar. However, when bumping into others, we often found our escapism challenged due to the abrupt need to visually present ourselves through webcams, perhaps due to transferred judgement or even ridicule of those who don't turn their cameras on in standard video conferencing programs, but also our engagement in the virtual space is disrupted by a need to re-identify with the physical. This need for video is being negated with upcoming systems like *Meta* and existing online virtual social spaces like *Second Life*. Attempting eye contact with the faces that appear in our screen corner and finding a constant urge to check our own appearances on camera to make sure we are presentable creates additional unnecessary mental barriers to immersion, all while sat in our homes, a place usually free of physical judgement.

The addition of video to communication systems was intended to be used with close family and friends, conversations for mainly personal reasons which generally benefit from the increased vulnerability that a video feed presents, and almost always in much smaller groups. Audio provides a great means of communication, used across game space, and has enabled gamers to communicate effectively and comfortably while completing tasks in a similar manner to our work lives. When considering CI (Collective Intelligence), "...contrary to popular belief, the presence of visual cues surprisingly has no effect on CI; furthermore, teams *without* visual cues are more successful in synchronizing their vocal cues and speaking turns, and when they do so, they have higher CI Bandwidth..." (Tomprou et al., 2021, p.1). While audio uses little data, video can cause major issues for weaker connections, and having only the transfer of audio could mean conversations in Gather space could fade in and out from much further distances leading to more natural movement between conversations with others. Being able to keep our focus on our screens and avatars could lead to further visual presentation. The ability to express emotions through our characters while talking could be implemented through emotes as many games do. While similar to emojis or GIFs, which are already popular, emotes amplify the significance of the avatars and

help users feel more connected to them, and in turn with the virtual spaces they inhabit through them.

If video is deemed important for certain use cases, it should be within the space itself as part of our avatars rather than overlaid on top of the primary experience. The ability to read a room is completely removed in video conferencing, and the same often applies to Gather. Once in a video call in Gather we stop moving in space. We lose attachment to our characters, and therefore lose connection to what is going on in the rest of the space, feeling a great significance to tapping in and out of what should be mingling joyful conversations. Walking past a conversing group pops up a large video feed of your face on their screens, not allowing you to listen in to decide if it's a conversation you want to contribute to before being visually thrown into the centre of it, and in turn flattening the conversation back into a video conferencing dynamic rather than embracing the spatial nature of natural conversation (Rosedale, 2020). Video conferencing, Gather, and general virtual space are all evolving and intertwined systems, with the designers constantly tweaking and adjusting them. Immersive mindsets need to be encouraged across virtual space, but perhaps video is the core system that needs to be removed to facilitate this. In order to systematically shift the ideas of virtual communication for mainstream audiences, allowing it to become both enjoyable and useful without the pitfalls of video conferencing, future systems need to critically consider past conventions relevance in digital space to enhance the interactions that make virtual experiences immersive.

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#### About the Authors:

**Zach Mason** is a PhD Student and Researcher at Lancaster University in the Imagination Design Studios. (<http://oogbrain.com>) His practice centres around alternative digital sensory design approaches for envisaging an accessible and diverse future online.

**Joseph Lindley** currently leads Design Research Works (<https://designresearch.works/>) which is a 4-year Fellowship project dedicated to gathering evidence about and promoting the value of Design Research.

**David Philip Green** is a designer, documentary-maker and researcher with an interdisciplinary background spanning media, arts, design and computing. (<http://dpgreen.co.uk>) He is currently a postdoctoral researcher at Design Research Works, Lancaster University.

**Paul Coulton** holds the Chair of Speculative and Game Design within the School of Design at Lancaster University. He practices research through design to re-evaluate the present by creating experiential future worlds where emerging technologies have become mundane