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The Emotional Reality of VR: Focusing on *Oneroom-Babel* and *Worlding...*

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SANGHEE works across multiple genres, including VR, sound performance, and games, as well as two-dimensional media. She is interested in the gaps and emotions that audiences experience when physical inputs from the real world are output to the virtual world, or when they are re-output to the real world via the virtual world. She adopts the mechanics of Video games for her interactive arts to encourage bodily feedback. She focuses on the affective materiality experienced in VR. Her *Oneroom-Babel* (2022–2023) won the Award of Distinction at the Prix Ars Electronica and was nominated at Venice Immersive Competition.

The past two years of creating and presenting my interactive VR works, *Oneroom-Babel* and *Worlding...*, have been a period of grappling with my own questions about space and the body within VR. The questions can be categorized into two main areas. The first question is, “Why am I presenting this space in VR?” and the second is, “Where is the VR player’s body positioned?” If the former addresses spatial representation, the latter concerns the gaze which surveys space, and the movement of the gazer. I have been interested in exploring the specific emotional effects involved in the experience of VR play and the varying spatial horizons that respond to specific actions. This has led me to focus on the theme of emotional perception, the fluid spaces of VR that reflect these shifts in perception, and the bodies that inhabit these spaces.

Oneroom-Babel was my first VR project, and its spatial theme made it a perfect fit for the VR medium. *Oneroom-Babel* uses the “one-room,” a type of housing that symbolizes urban life in Korea, as its primary spatial backdrop. A one-room apartment is a residential space where the kitchen, living area, and bedroom are combined into a single area rather than being separated into distinct rooms. There is an inextricable link between densely populated metropolises and one-room dwelling. The one-room apartment, where residents typically live on short-term leases lasting up to about 2 years, represents a space of temporariness that embodies neoliberal precariousness. At the same time, the one-room apartment also symbolizes the delay before progressing to the next stage of life, often referred to as the “adulthood” stage, which includes marriage, home ownership, and stability. This delay can feel interminable when individuals realize that achieving a normative sense of home is not attainable through hard work alone.

This spatial and temporal paradox inherent in the one-room house has significant economic, social, and emotional implications for the situation of young people today. Jennifer M. Silva’s *Coming Up Short* and Lauren Berlant’s *Cruel Optimism* have helped me reflect on the relationship between precariousness and living in an one-room. Silva observed that post-industrial working-class youth define “their coming of age experiences” not through “blue-collar work but rather the flux and flexibility left behind by its disappearance.” This internalization of neoliberalism teaches them to achieve success on their own, leaving

them isolated and solely responsible for their “emotional fates.”¹ In *Cruel Optimism* Berlant examines the affection as how people living in a world of routinized vulnerability are driven by a desire for a better life, and discusses how this very desire fosters a constant state of self-regulation and self-development.²

As I read both books, I reflected on the emotional realities of young people who have never had a stable home in Seoul, as well as those from the provinces who are constantly moving from place to place. Although the situations described in the two books are quite different from those in South Korea, both books offer valuable insights into structuring the ‘present’ for many people forced to live with their own unique precariousness, all hoping for a better life. For me, the spatial entity where the temporality of the present was most tangibly condensed was the one-room.

When I conceived *Oneroom-Babel*, I wanted viewers to experience the one-room not just as a physical space, but also as an emotional backdrop where a person’s solitude, for which they are solely responsible, coexists with an everyday and multiplied temporariness. The best format for this experience was VR, as it positions the eyes within the space rather than outside it. To create a space for the eyes to explore, I used a LiDAR scanner, which allows for a 360-degree, three-dimensional spatial experience.

The creation of *Oneroom-Babel* began with using a LiDAR scanner to capture the actual one-room. To capture the stories of young adults in their 20s and 30s living in one-rooms in Seoul, I conducted interviews in the one-room and placed a LiDAR scanner, a 3D spatial scanner, in the same room. The primary source material for *Oneroom-Babel* was the 23 scanned data sets collected over six months of filming. The primary and most enduring challenge in creating the piece was deciding how to edit the acquired scan data and present the edited data.

1 Jennifer M. Silva, trans. Moon Hyun-ah and Park Jungyu, *Coming up Short: Working-Class Adulthood in an Age of Uncertainty* (Goyang: Luciole, 2020), 54–55.

2 Lauren Berlant, trans. Park Mi-sun and Yoon Jo-won, *Cruel Optimism* (Seoul: Humanitas, 2024).

Consisting of tens of millions of points, the point cloud data was extensive and needed to be edited and optimized using the real-time engine. On the other hand, I didn’t want my work to be an overly realistic documentation of an actual inhabited

56 space. I didn't want it to be interpreted simply as a reportage of a small, impoverished environment. Reflecting on the interviewees' statements, it is clear that living in a physically cramped space presents challenges, but there is also a sense of freedom and safety in having one's own independent space. The one-room is an all-too-familiar environment, so I needed new graphics and novel ways of representing it to convey the multifaceted emotions and stories intertwined within it.

After extensive experimentation with processing and editing the data, I obtained the mesh data of connected points. Areas with low point density were distorted by computer processing. Certain parts of the mesh data swelled or shrank, deforming and abstracting the data to the desired degree. The result was a graphic resembling coral, mottled and composed of countless scales. Spatial memories, although seemingly unchanging because they are embedded in an irreversible past, can also change in response to the present. The mesh data I chose ultimately seemed capable of graphically representing both rigidity and variability. The visual theme of coral also served as the inspiration for the work's scenario.

Returning to the question of why we showcase a one-room in VR, it relates to VR's field of view. The two questions, "Where is the VR player's body positioned?" and "Why am I presenting this space in VR?" are ultimately intertwined. In the context of digital games, which are among the most interactive genres, a person participating in the game, or 'player,' can find an 'avatar' or surrogate of themselves on the game screen. The player's avatar and the player controlling it are separate entities. The player can control the avatar by pressing buttons with specific icons or arrows that serve as analogies for physical movement.

In VR, however, the player occupies the same space and position as their avatar. The player's body is aligned with the position of their avatar in the game. Instead of viewing a flat screen, the player experiences a 360-degree video output through the headset and inhabits the virtual world from a first-person perspective, which makes them feel like a part of it. By inputting data from a LiDAR scanner, which captures a space at a 1:1 scale, players can step inside, look around, and experience the space. This experience of 'stepping inside' offers a different sensation compared to looking at a flat screen. In

the VR medium, player behavior is not entirely free. VR players must navigate the space and perform necessary controls within a defined, safe boundary. In meta-quests, players are restricted to moving within the play area (safe boundary) set by their VR device; if they exit this area, they are shown a screen that reflects the real world. This constrained play area creates a sense of enclosure and is well-suited for addressing the confined, solitary nature of a single-room space.

The VR player enters the virtual space as an imperfectly synchronized body, lacking touch and weight. In this virtual world, the player's body resembles a ghost. As a result, VR players sometimes become aware that they are in a virtual environment, or they recognize their separation from the tactile experience. Thus, the 'physicality' of the player inevitably influenced how I conceived the story. I had to envision a narrative featuring a curious, ghostly character who could bend over or adjust their eye level by standing on tiptoe, but who could not experience weight. *Oneroom-Babel* thus envisions a ghost of a time yet to come, a future character who, despite being unaware of the cultural and economic elements that define an one-room, attempts to understand them in their own way.

As a member of a tribal society in the distant future, the player is training for a coming-of-age ceremony by practicing diving and is swept away by a sea current. In the depths of the ocean, he/she discovers a room made of coral. Guided by the jellyfish, the player explores the room firsthand, uncovering texts left behind and hearing the story of its former inhabitant. I didn't use a controller to ensure intuitive gameplay. I designed the game to encourage players to explore the room naturally, allowing them to move on to the next room only after they had to interact with all the jellyfish floating around one-rooms flooded due to global warming.

In the final scene, the player encounters the *Oneroom-Babel*, a colossal tower made up of one-rooms. In the virtual world, it is possible to create buildings with an infinite number of floors and no limitations on their size. The exaggerated height of *Oneroom-Babel* reflects my desire for the complex emotions of sadness, loneliness, and joy associated with one-room to be remembered not in isolation, but as a collective memory and emotional language. However, *Oneroom-Babel*

58 vanishes like a bubble once the player finishes the game and removes the headset. I aimed to illustrate the challenges of forming collective memory and the power of forgetting through the temporary nature of the VR spatial experience.

Oneroom-Babel was a project that enabled the player's body position to naturally define itself according to the nature of the represented space. In contrast, *Worlding...*, released at the end of 2023, was a work where the space itself transformed based on the player's body position and motion. The idea was born from exploring how the VR player's body exists. VR is often described as providing a new and unparalleled physical experience, or as an alternative to experiencing physical reality. Experiences similar to VR in other media also reinforce this impression. Two examples of this are David Cronenberg's *Existenz* and Steven Spielberg's *Ready Player One*. In *Existenz*, when the player connects to the device attached to their spine, their body enters a state of sleep, and their mind is transferred to a body in the virtual world. *Ready Player One* more closely resembles the setup of today's VR devices. Players wear a VR headset and interact with the virtual world by moving and changing direction on a treadmill. However, in most VR experiences, players don't have the same vivid sense of what is happening to their virtual bodies as they do in *Existenz* or *Ready Player One*. The sensations of the physical body in the real world are not fully transferred to the body in the virtual world. The weight of the VR headset presses down on your head, and through the bridge of your nose, you can see the floors of the real world instead of those in the virtual world. Even though your body is floating in VR, your physical body is still subject to gravity.

Rather, VR is more like a player wearing a shell similar to an exoskeleton over their body. It's more than just putting on a VR headset; the virtual body is layered over the player's body like a shell. The player's avatar or surrogate in the VR world could be represented by the positional values of their own skin being tracked. For me, this imperfect superimposition of the body, characteristic of VR as a medium, is not a technical limitation that restricts the work but rather opens up endless narrative possibilities. I believe that the spatial representation in VR becomes more intriguing because the bodies of two worlds exist simultaneously in the same space, imperfectly

superimposed. While working on *Worlding...*, I explored this concept further.

Worlding... is a work that can be characterized by several key concepts, but this essay will focus on the sensation of a double body nested within a virtual world, and the world that is transformed and invoked by the actions of that double body. *Worlding...*, like *Oneroom-Babel*, is played without a controller, utilizing the player's own body for movement. The Meta Quest controller is not an easy interface for inexperienced users, as the connection between the buttons and feedback is not intuitive. It displays the shape of the hand on the VR screen, not the controller. Since the controller is hidden from view on the VR screen, it becomes even more difficult to use. Especially in environments like exhibition halls, where visitors have varying levels of experience, I believe it would be more appropriate to use hand tracking. This allows visitors to repeat simple movements and naturally learn to use the system as they interact with their surroundings. In *Worlding...*, I wanted to tell the story of a body part stained with traces of labour, a material record of history, so I used a hand-tracking method that requires viewers to constantly handle and manipulate their own hands.

The player becomes a swamp keeper and is tasked with burying a mummified giant. It is unclear whether the burial of giants is done to conceal a secret, merely for cleanliness and hygiene, or for some form of impossible mourning. A hand appears before the player and invites them to accept the mission. When a player grabs the hand, they are transported to the Swamp, the world they will be altering, and the game truly begins. For approximately 20 minutes of gameplay, the player uses their hands, rather than a controller, to bury the giant each day and reads the monotonous journals of previous keepers each night. Only when the player makes direct, bare-handed, fist-clenching and unclenching gestures does the soil accumulate and alter the terrain. Inside the VR, the player must complete a certain amount of work to end the day, which forces them to perform repetitive tasks, making them feel that their physical body is actually tired and burning out.

An art critic Lee Minjoo notes that the work uses the grammar of games to “critically reflect on the performativity of contemporary labor.”³ In this work, the player endures the painful and tedious

3 Minjoo Lee, “Reflections on Boredom and Labour in a Loading World,” *Game Generation*, Vol. 16, 2024. <https://www.gamegeneration.or.kr/article/74f9a996-ec6d-4737-a1a6-5cbd9dc572bb>

60 moments of exhausting labor through their own bodily actions and performativity.

This is done by gnawing on the player's virtual body. The visual epidermis of the player's hands in VR ages rapidly. As if reaching the end of the world or the end of history, and as if no other possible actions remain, the player's character—who has repeatedly buried the giant—seems to be reduced to a body incapable of continuing even this one task. At the end part of the game, the player must touch the ground with their hands. During the process, the player bends down and touches the physical ground that is actually being touched. At the moment the player touches the ground, their VR body disappears, and the bends in the ground—the folds of the world that they have transformed with their hands—are printed out as a contour map as a result of the game.

In doing so, the player's hands become old and emaciated in the virtual world. Conversely, the player's body, visible through the gap in the VR headset, remains unchanged. However, the pain and fatigue from repetitive tasks are experienced in the real world. Just as the player observes the desolate marsh and the giant occupying its center, they also see the hand wearing a strange shell, moving as if it were their own. The player watches the hand to make sure it is moving as the player intended and to actually feel how the hand ages.

Unlike *Oneroom-Babel*, in *Worlding...*, the player does not walk around and explore the space within a limited boundary but instead sits in a chair and repeats the same action over and over again. The player's hand serves not only as the main interface but also as an object of gaze. Although VR players cannot physically feel the muddy earth in the virtual desolate swamp, the repetitive action of burying induces physical fatigue. Players associate sensory fatigue and pain with their actions in VR. As the disconnect between the VR body and the physical body becomes more pronounced and the player's body becomes exhausted from movement, the desolate VR space in front of them is transformed. As the virtual decades of burial pass, the terrain morphs into a bumpy outline, resembling a blanket draped over a giant's body. The soft earth is transformed by the player's labor as a sacrifice. It seems possible to create a space fundamentally different from reality.

While *Oneroom-Babel* explores the memory and emotion of a space condensed into a single moment, *Worlding...* examines a space that is gradually transformed through painful repetition.

The spatial transformation in *Worlding...* is not limited to the virtual dimension but also extends to the exhibition space. After each player completes their individual playthrough, the 'map'—an image of the terrain that they have naturally transformed while burying the giant—is uploaded to a local network server set up in the exhibition hall. The networking method used in the work is asynchronous online. It does not involve real-time data synchronization. Instead, it synchronizes data with the server with a certain time delay. Rather than using a real-time online network that requires minimizing packet loss, I believe that asynchronous online connections with temporal delays clearly demonstrate the potential for seamless collaboration and networking across time and space. In 2024, at Gift of Nam June Paik 16, *Trans-Spatial: Everything Tends to Be the Here and Now*, Kris Paulsen presented *Moon is the Oldest TV: Satellites and Nam June Paik's Cosmic Temporalities*. Referring to Paik's work *Moon is the Oldest TV*, she argues that the one-second delay that inevitably occurs in art using satellites paradoxically proves that we are connected across vast distances. In this context, I used asynchronous online methods and envisioned people at the end of the world, at the end of history, and their will enduring through time.

Since the work involves the experience of using the body as a medium to alter space and its representation, I felt it was important to visualize the spatial data generated by this experience. As the title of the work, which combines 'World' and 'Loading...', suggests, I aimed to create a composition that illustrates the process of the world being 'loaded' on multiple levels through the visitors' actions during the exhibition. The ground floor of the exhibition space emphasizes the characteristics of individual game data, while the basement presents the aggregate or average value of game data.

The printers on the ground floor produce images similar to contour lines, created through processing, rather than what the visitor actually sees in VR. After completing the game, the visitor receives a print-out and needs to attach the new map so that it is continuous with the originally attached map on the exhibition wall. In this way, the map

62 on the wall expands according to this single rule. Each playthrough resulted in a new representation of the terrain that did not overlap with the previous play data. This variation in play data was due to differences in players' VR experience levels, variations in the shape of the tracked hands, and the players' own intentions, creating a unique and contingent world. The work aims to embody an asynchronous online network of distinct worlds interconnected through a map that is collaboratively created based on the rules of a simple cooperative game.

Meanwhile, in the basement of exhibition space, data from the ground-level exhibits and game space flowed downward as if drawn by gravity. As a result, the terrain data lost its individuality and merged to form a single, massive terrain. By eliminating the influence of individual players and presenting an algorithmically generated map, I aimed to highlight both the unique characteristics and the overall trends within the gameplay data. I envisioned a VR format where visitors don't just play in VR but generate data through their interactions, which accumulates within the exhibition to create something new. I wanted to allow visitors to explore each piece in the exhibition and understand the overall context, much like assembling a puzzle. To achieve this, I have created a framework where all tasks are interconnected as a unified local network.

Virtual experiences have a unique sense of melancholy because they are ephemeral, disappearing as soon as you turn off your device. *Worlding...* went further by presenting the data of behaviors possible in the virtual space in various ways within the exhibition space. By leaving traces of gameplay in the exhibition space, the realm of VR extends into the physical reality of the exhibition hall, and the solitary act of burying a giant gains new significance. The traces of visitors' body and hand movements continue to accumulate in the exhibition space, creating an extensive map. In this way, my intention was to recreate the body of the virtual world, superimposed on the VR player, in several phases.

So there you have it: my approach to addressing the first two questions I mentioned. Both *Oneroom-Babel* and *Worlding...* are works that present a specific space through the medium of VR, but my intention was not for the VR space to visually resemble the physical space. Instead, the space is recreated in a way that allows players to experience how emotion is

always simultaneously intertwined with the body, time, and memories of space. This recreation is made possible by the characteristics of VR as a medium, which is often dismissed as a technical limitation. VR as a “trans-spatial” emerges from actively referencing, rather than transcending, the internal constraints of the medium.