Occupying Temporal Imagination

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Abstract: Imagination is immaterial and intangible - it cannot be held as a solid object in your hands, or be put into a space like a piece of furniture or a picture. Imagination is also temporary and cannot be recorded as an event like a speech or performance. However, imagination exists in space and time; it exists within the realm of interiority. The boundary between the privacy of imagination and the occupation of a space by a group or community has the potential to be blurred. This is comparable to the process of a writer or painter's imagination becoming accessible – visible, readable or tangible - to a reader or audience through the artist's act of creation.

As with the creative process of writing or painting, interior design requires a method of bringing out or revealing the designer's imagination to the senses of occupants of a physical space, and to make the temporal imagination occupyable in real-time. This paper is a practice-based research project, which discusses design methodology through the review of an installation. This installation is a part of an exhibition that uses the design technique of digital modeling and visualisation as an approach to producing a virtual material that operates with physical materials in a gallery interior in order to express the author's imagined vision for the space to the visitors. The visitors to the exhibition embody physical occupation of insubstantial and temporal imagination.

Key words: Virtual, temporal, imagination, digital

Background

There's always something left over in the sound of water falling: falling water sounds like final chords that will never end. (Chazal, 2002, p. 33).

I admire water. It is beautiful and poetic. The unfixed and formless fluidity of water makes it appear to have temporal, changeable, personal and emotive qualities akin to our imagination. Horn tells us that water has life; water is always an intimate experience, so that we cannot separate ourselves from it. (2000, Notes 119-120)

In the corner of the show room of fifty2 Gallery in Wellington, a stream of spraying water comes out from an old water tap. The water spray is crystalline, brilliant and shining. It falls down to the floor and bounces up off the floor then finally disappears. However, when viewers come closer and touch the rusty, cold brass water tap, they cannot feel the wetness and coldness of the spraying water. The water tap is there, but the spray is just a stream of virtual water from a projector suspended from the ceiling.

This installation, *Spray Water*, from an exhibition entitled *Filmic Space: Reverie and Matter*[1] [i] was an attempt at visualising my imaginations and emotions in this gallery space and to share these intangible personal experiences with others in a physical condition and in real-time. In this exhibition, virtual water in four installations becomes visual language for me to characterize interior space.

Filmic's work is a small-scale investigation which attempts to test the boundary between virtual and physical within the full-bodied experience of visitors. These four installations modelled digital virtualities around a number of different physical architectural elements within the gallery space. *Filmic*'s works were designed specifically for the interior space of fifty2 gallery rather than as stand-alone installation designs. In other words, they were site-specific.

This paper emphasizes one of the four installations, *Spray water*, to discuss physical embodied occupation of temporal imagination. The interior space of the fifty2 gallery is physical. The existing materials of the interior are weathering and aging every second of every day, including the rusting brass water tap in the corner. It is an abandoned water tap and the normal function of the water tap is a link to the prior use of the space. The mechanism of this old water tap is jammed with rust and there is no sink or sewer under the water tap. What was the space? What was the water tap for? The empty show room is like an abstract painting giving its visitors space to imagine.

Writing Imagination

Imagination happens inside of our mind; it cannot be held, modified or seen by others. Llewelyn discusses Kant's definition of the word 'imagination' in his book entitled *Hypocritical Imagination: Kant and Levinas* that imagination is the junction of concept and sensibility, so it is ambiguous, as between "sensibility and understanding, and between feeling and reason"[2] (Llewelyn, 1999, p. 7). These four words, 'sensibility, understanding, feeling and reason', indicate that imagination is someone's intangible and immaterial process of making thoughts.

Imagination of a physical interior space requires individual memory, emotion and mood. Therefore, the imagination as the process of making thoughts is privileged, personal and emotional. However, the personal experience of making imagination is based on an externality which is drawn from what you experience in the outside world. Llewelyn argues that the imagined picture of something inside the mind could epitomise something outside it (1999, p. 3).

I know the function of a water tap as it is an everyday thing. However, the past of the abandoned water tap is not visible to me. I documented my imagination of the water tap in writing firstly:

… The water tap is not used any more – it has been forgotten. It is useless, silent and neglected in the 'lived' space. I sit watching the water tap. More and more, little by little, the water tap seems as if it sprays water out. Abruptly, the memory of the water tap becomes the imagination as though it is my memory. The water tap is silent. If it can talk, it probably desires to tell its memory of water.

This text documented an internal image of my imagination. Elizabeth Grosz thinks that text is not the repository of truth or just the storage of information, but is like concepts of doing and making things (1995, p. 125). She also suggests that though we might read text in real space, to the extent that we understand it, it also exists in a state of virtuality (Grosz, 2001, p. 79).
The virtuality of reading is changeable. Imagination is internal activity, but outside activity is influential on it, as with reading. When we read a poem or a novel, we often find that we can create a picture or hear a sound inside of our mind though reading the words.

First silence
and then
almost like a sigh
the gentle
harp note plink
of a raindrop
that fell from so high
we can barely imagine
its sparkling journey
down
from
the
sky. (Rothenberg, 2002, p.39 – 40)

This poem, entitled *Rain*, by Joseph Bruchac, gives us a good example of what is imaginable and what is unimaginable through reading activity. When we read the poem, the "silence", the "sigh" and the "harp note" fires our imagination, helping us to see the silent image of rain dropping into a pond and to 'hear' the sound of the "sigh" and "harp note" inside of our mind. These words are not words any more but expression from the meaning of these words. Moreover, we can 'hear' the "sigh" and "harp note" through our inner ear because we know what silence is, what a sigh and a harp note sounds like from our life experiences. On the contrary, it is hard to imagine rain's journey travelled from the sky to the pond because we do not experience the act of free-falling from so high. Consequently, something being imaginable depends on individual experience and the observation of reality.

Imagination is also a matter of individual difference. Downey suggests that we might all know the sound of nature but the imagined sound heard by the inner ear is different in different people's minds[3] (1999, p. 12). The "sigh" from the rain drop could be gentle and soft like spring wind in one person's mind, but also could be deep and wavering like an old lady's moan in another's mind. We imagine from reading the same words but fabricate different mental images; hence, imagination is temporary and flexible. Moreover, as Downey argues, an image from one's inner world upon something is hard to describe; "even more so is our inner world of movement" (Downey, 1999, p. 13). Subsequently, it might be problematic to attempt to transfer imagination from one to other.

The spraying water in the text is virtual - the imagined image of the spraying water is unique to whoever reads the description. How do I transfer my imagination of the water tap to others?

Drawing Imagination

It is intractable to capture and document imagination. However, imagination is representable. Artists use images and sculptures to visualise imaginings; musicians employ notes and rhythm to translate their inner voices into music and to enable others to hear their imagination; film-makers and photographers use film and digital technologies to liberate their imaginations on screen and printed images. Furlong thinks that the work of art is a product of imagination because "art is essentially imagination" (2004, p. 85).

Sketching was used to visualise my imagined spraying water. The imagined spraying water became clearer in its shape and colour through this process. Furlong indicates that a work of art is an expression which is not only able to deliver or say its creator's internal picture or sound like a piece of language, but is also able to symbolise the creator's emotions and feelings (Furlong, 2004, p. 87). The sketching process does not simply visualise the spraying water, but also adds my feeling of the spraying water into the image. The shining light refracted from the spray and the shape of the water become lines and colours on paper. Sketching, however, can only produce still images, which are limited in their ability to represent the movement of the imagined water of my internal image. Water should be translucent and should refract and scatter light, which is also difficult to represent in sketches. Sketching on paper also provides limited area for visualising my imagination.

Different from the art of creating a poem, painting or taking photographic images, imaginary creation in interior space is more complicated. When we look at a picture or painting, we enter the space behind the paper, print or canvas in our mind virtually. Interior space is physical; it requires physical inhabitation within it. We can write about imagined objects in a poem, paint an imagined window with beautiful light on canvas or collage an imagined street with photographic images, but how can we place an imagined table or chair into physical interior space? How can I put my imagined spraying water into this gallery interior?

Modelling Imagination

In the last couple of decades, digital technology has been employed in representing imaginations for architects, film-makers, computer game animators and interactive designers. It becomes a powerful tool for creators to enable their imagination to be seen, heard and to be inhabited by others. Grosz thinks that the digital virtual reality of computer space is essentially similar to the virtual reality of writing, reading, drawing and thinking because the virtual is the space of regenerating of the new, the unthought-of, the unrealised (Grosz, 2001, p.78). In modern interior and architectural practice, digital technology allows the making or designing process to more than simply represent a physical space in graphic images. For example, many projects of dECOi Architects such as the *Pallas House*, the *Gateway to South Bank* and the *Aegis Hyposurface* applied digital technology to visualise the possibility of architecture (figure 1). The computer generated images represent dECOi's architects and designers' imagination of the future and potential of architectural form (Goulthorpe, 2008, p. 109).

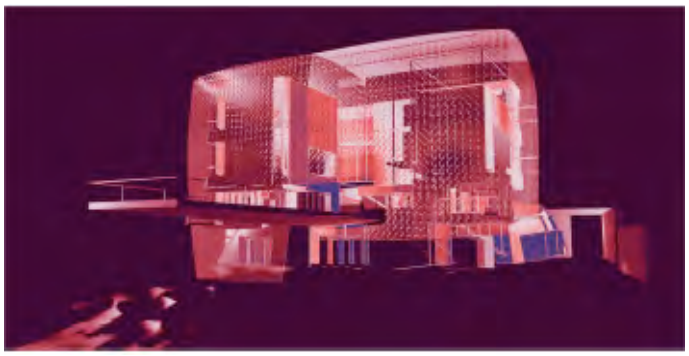

Figure 1: Digital visualisation *Pallas House*
(Image from UME, issue 9, p. 28, 1999)
URL: http://www.umemagazine.com/issues.aspx (accessed April 4, 2009)

Digital modelling became a necessary progression for visualising the spraying water. Digital space is theoretically unlimited virtual three-dimensional space. Unlike the sketching process, I can zoom in, zoom out and rotate my view to see wherever I want to observe the digitally modeled spraying water – I can even look into a water drop through the digital camera view within digital space. Virtual reality gives me the opportunity to inhabit my imagined spraying water digitally. Virtual space can be generated, manipulated and controlled in ways unheard of for everyday space (Grosz, 2001, p. 76).

The digitally modelled water spray was placed in a dark virtual room with a digital down-light only. The digitally modelled water spray is shining and reflects the digital lighting along with its movement. This digital spray is generated in AutoDesk 3Ds Max. It is modelled from a digital object which adds the water form and spray movement from the software's water feature function. The digital water spray in here can only be partially controlled by the act of creation as it is also controlled by the digital programme. The movement of the digital water is related to the 3d modelling programme as well as related to my thinking and creating process. The temporality of the inner image of the imagined water spray has changed during the digital modelling process. The imagined water spray becomes controllable and repeatable.

The representation of the imagined water spray is more accessible to others in this design process than in the writing and sketching processes. The digital camera view within the modeling programme enables others to zoom in, zoom out and rotate the view while looking at the digitally modelled spray on the computer screen. At this stage, the digital water spray becomes more inhabitable spatially through changing the angle and distance between the water spray and digital camera tool. However, virtual inhabitation in digital space is different to physical inhabitation in interior space. Grosz also indicates that there is no need to move about in a body in cyberspace like the one you possess in physical reality (Grosz, 2001, p.77). The digital water spray is different from its formless natural phenomenon. It has no physical surroundings to interact with.

Occupying Imagination

The difference between virtual reality in writing or drawing and in digital space is that digital space can evoke immersion. Contemporary film-makers have more control than ever in the use of digital technology to produce imagined spaces. Actors and audiences represent two kinds of occupations of the virtual reality of film. Film using digital technology, such as a blue screen, can put 'real' actors' actions into digitally modelled spaces. The actor needs to act in a studio and act with imagined objects, characters or within imagined spaces such us jumping from a roof or running through a doorway; then, the recorded action is put into the digitally modelled space with precise angles, perspectives and sizes to create an illusion. When audiences watch a film, they look into the virtual space through the screen. Their views though are controlled by film-makers. These two kinds of occupations both relate to physical-body-engagement; however, they are both lacking interaction between physical and virtual.

Some other digital technologies made physical inhabitation of imagined spaces even more intimate, such as spatially immersive environment technology and Spatially Augmented Reality (SAR) technology. These two technologies present two different kinds of relationship between virtual and physical inhabitation in space. The immaterial imagination in both conditions can potentially become inhabitable in physical space and real time. Also, these two

technologies both represent the real-time and physical involvement with/within a virtual condition.

Char Davies' immersive virtual environment installation, *Osmose* (figure 2), requires wearing a stereoscopic head-mounted display and a motion capture vest to inhabit a virtual space which is generated in real-time by the immersant's physical body movement such as breathing and balancing (Davies, p. 101-102). Frank Popper in his book, *From Technological to Virtual Art,* quotes a letter from an immersant of *Osmose* to the artist: "[The work] heightened an awareness of my body as a site of consciousness and of the experience and sensation of consciousness occupying space" (Frank, 2007, pp. 190-197). Davies' immersive virtual space evokes embodied perception. The physical occupation of the visitor is influenced by the design of the virtual space while the physical movement impacts the virtual inhabitation within the digital environment. Physical and virtual are clearly linked in Davies' creation.

Figure 2: Char Davies, *Subterranean Earth,* from *Osmose*, 1995

Virtual reality also involves simulation. Davies' immersive virtual space in *Ephémère* (1998) simulates tree, rocks and streams which are extended to include body organs, arteries and bones (figure 3). These symbolic images suggest the correspondence between body and earth (Frank, 2007, pp. 190-197). The realistic colour, shape and movement within the virtual space provoke the immersants' feeling and emotion.

Figure 3: Char Davies, *Forest Stream*, from *Ephémère*, 1998

In comparison, SAR technology creates objects digitally and renders the virtual objects directly within the user's physical space, thereby creating the illusion of the virtual objects' existence in the real world [4]. Spatial immersive environment technology allows a physical body's movement to impact on the virtual space, while SAR allows the experience of virtual objects in a physical space but does not allow physical body-engagement with the virtual objects.

The animation of the digital water spray was tested in the gallery interior space with the old water tap. Several physical conditions of this interior space became critical for the re-design and re-modelling process. Firstly, the natural lighting conditions influenced the digital water spray's visibility - the interior was too bright for the digital water spray to be clearly visible. Then, when the digital image of the spraying water was projected on to the real water tap it seemed odd because it did not respond to the physical surroundings. If the spraying water came from this water tap, it should respond to the floor below the water tap.

The digital water spray was subsequently re-designed in order to add a virtual response to the physical surroundings of the real water tap. To make the digital spraying water more visible in the gallery interior, the window of the gallery space was filtered. A digital light of the scene was modified to be more intense in order the make the water spray contrast more with the dark background. In order to add the response to the physical surroundings, an invisible digital floor was added into the digital water spray model. The distance between the virtual spray and the invisible digital floor is the same as the real distance between the physical water tap and the floor in the gallery space. The material on the digital floor was not specified but data added into the motion of the digital water spray suggested the digital floor had a reasonably hard surface. With the animation feature of the digital programme, the interaction between the digital water spray and the invisible digital floor was calculated. When the digital water spray is higher, the bounce from the digital floor is higher too; when the digital water spray is lower, the bounce from the digital floor is weaker. The virtual response of the water's bounce from the digital floor is logical and realistic as the digital calculation is designed to relate to the physical laws of the real world. The re-modelling process was tested in the gallery space and adapted in the computer several times in order to create a believable scene. During this re-modelling and re-testing process, the boundary between the digital

water spray and the physical space is less substantial while the engagement with physical space is greater (figure 4 and figure 5).

Figure 4: *Spray Water*, from *Filmic Space: Reverie and Matter*, 2005

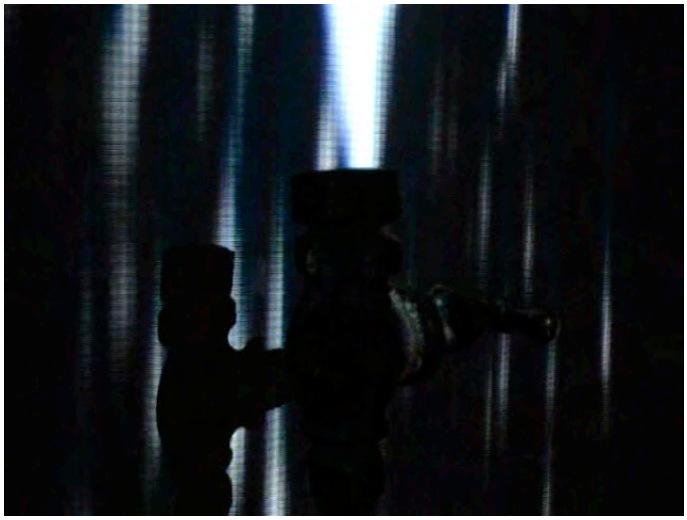

Figure 5: *Spray Water*, from *Filmic Space: Reverie and Matter*, 2005

In this experiment, the inner image of an imagined water spray becomes digital material, which changes the physical interior space. Digital images enabled me to express my feelings and evoke/enlarge emotive qualities within a physical interior space. The imagination of the water tap becomes repeatable in a physical condition and inhabitable by others.
The final design of the *Spray Water* installation is a combined image of the virtual spray, the physical water tap and the water tap's physical surroundings. While the visitors look at the virtual spray, the physical water tap is not only an architectural element of the interior space, but also is an essential part of the digital creation. Under dim lighting conditions, the virtual spray, the physical water tap and floor are fused. They create an illusion for the visitors.

When visitors look at the virtual water spray, they are occupying my initial imagination of the water tap and also opening up their imagination. Is this spraying water cold? Is it wet? When the spraying water falls down, where has the water gone? Very few visitors walked close to

the spray and 'touched' it. When they tried to touch the virtual water, the water spray becomes pixelation on their skin (figure 6). The illusion disappears. One visitor wrote in the comment book: "Real becomes actual; actual becomes virtual; virtual seems real… The wonder world has been a revelation to inhabit."

Figure 6: *Spray Water*, from *Filmic Space: Reverie and Matter*, 2005

When the opening of this exhibition was finished, it was near midnight. The projector was turned off and the light was turned on in this gallery space. The function of the virtual water spray became clear in this sudden on-and-off moment. Digital technology transferred my imagination to evocative digital material. Interior space and its occupation can be altered by the digital creation of imagination. The boundary between insubstantial imagination and physical space is blurred during the act of creation. The design process of an inner imagined image also is the process of making the imagined image more logical, accessible and imaginable to others. I believe that the process of designing a digital material in order to bring inhabitable imagination into a habitable physical condition can be applied to interior design practice more and more extensively as digital technology becomes more and more advanced. The digital material can be used and will be used more commonly as a design material like other physical materials; the colour of paint, the pattern of wallpaper or the texture of a piece of timber.

Endnotes

[1] The installation designed by the author was open to the public from 29th March to 6th April 2005 at fifty2 Gallery, Wellington, New Zealand.

[2] *So the imagination is ambiguous, like the French word 'conscience', but it is doubly ambiguous. It is ambiguously ambiguous as between, on the one hand, perceptual consciousness, which is already ambiguous as between sensibility and understanding, and, on the other hand, moral conscience, which is ambiguous as between feeling and reason.* (Llewelyn, 1999, p. 7)

[3] *Consider for a moment the inner ear. The sounds of nature may return to us in the hours of outer silence ; the sound of rushing water, of the wind sighing in the pines or rustling the aspens, of bird-notes falling earthward. And your friends whom perhaps you cannot see in your mind's eye you may hear instead-the whisper of a silken gown, the clacking of a nut-*

cracker voice, the intonations of musical laughter. But even those who hear with the mind's ear do not all hear alike. (Downey, p. 12)

[4] *In SAR, a real object can occlude the virtual object. Thus, for example, bringing your hand in front of your face will occlude the virtual object behind it, thereby maintaining the illusion that the virtual object exists in the real world. On the other hand, a virtual object cannot obstruct the view of a real object even if it is intended to float in front of that object.* (Behringer, R., G. Klinker, 1999)[1]
URL:
http://library.books24x7.com/book/id_15564/viewer.asp?bookid=15564&chunkid=314140514
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