TOWARDS A SLOW ARCHITECTURE

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00 INTRODUCTION

Abstract

Setting against the current norm of fastened pace of production, consumption, transporting, living and experiencing resulted from the fascination of speed in industrialization age, this thesis considers the notion of slow architecture as a spatial implement that encourages people to appreciate genuine spatial experience and perceive space differently by inserting distractions, surprised and concentrations into the design of space that represents an alternation of normalcy. Examining such slowness by exploring the precisions on the physicality of space that caters a sensory journey of its occupants.

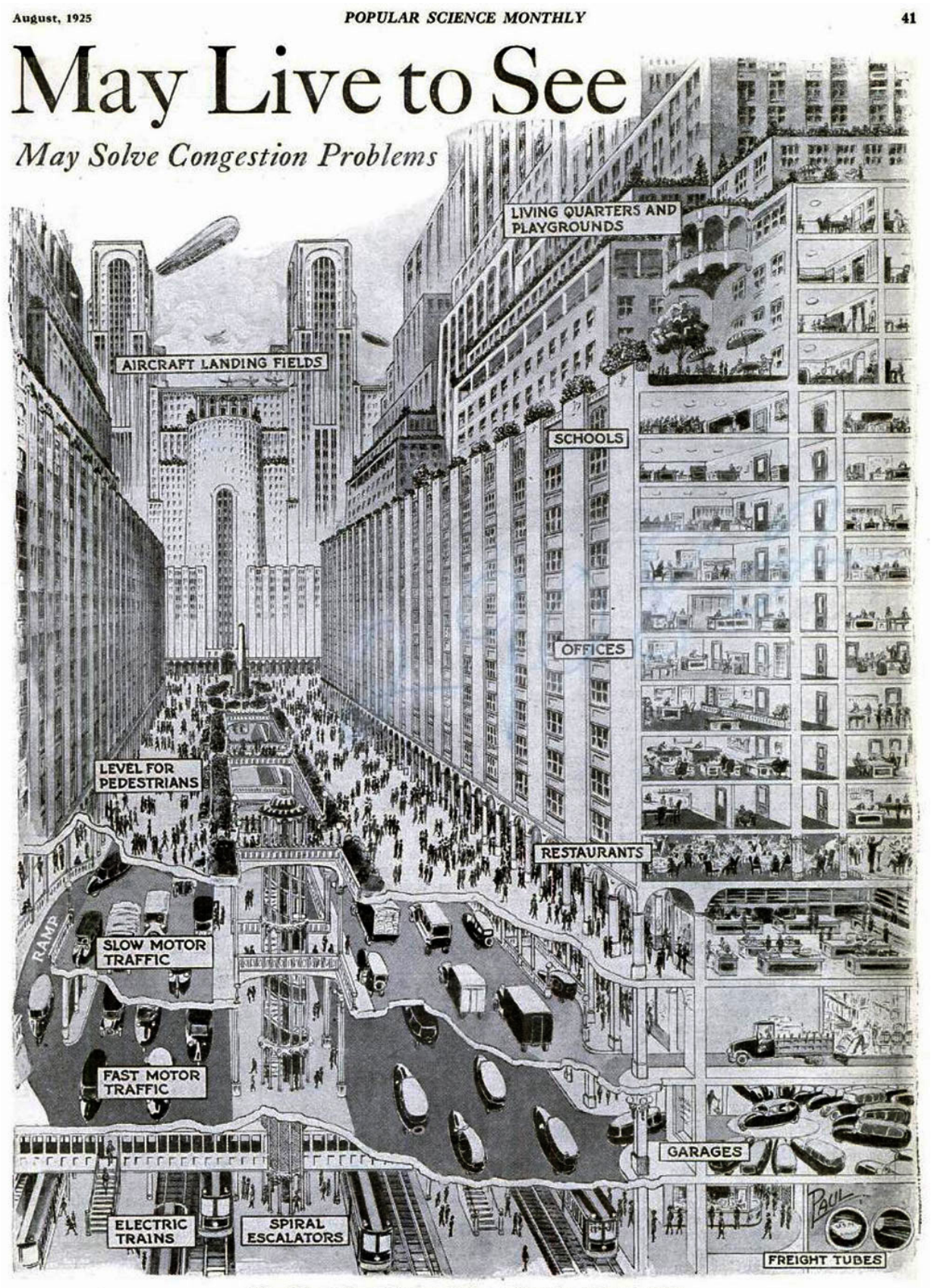

Fig. 01 Harvey Wiley Corbett Style Cities of Tomorrow

" We stand on the last promontory of the centuries! Why should we look back, when what we want is to break down the mysterious doors of the Impossible? Time and Space died yesterday. We already live in the absolute, because we have created eternal, omnipresent speed. " [1] (Marinetti, 1983)

- Marinetti, MANIFESTO OF FUTURISM No.8

In 1909, Marinetti the founder of Futuristic Movement expressed his fascination of a future longing for the accelerated pace of development. 100 years later, people living at present feel themselves involved and revolved in this world of immense momentum yet no one knows how to get it under control. The accumulation of urge has pushed us to the edge of the time when we almost became pieces of laundry in a washing machine- we could probably recall when it starts but we have no clue when it would come to an end; the only thing we know is that it is accelerating and so it will be.

This thesis started with a background study that investigates and analyzed the existing slow culture, art and space, in which the value of slowness is discussed. Having this as a theoretical foundation, I then proposed the ethos of slow architecture as a philosophy that focuses on the sensory experience through space. It emphases the experiential aspects of architecture, which is considered as a journey instead of a destination. Then by conducting three experiments with designed testing devices on people's ocular and hearing cognition, I applied the results of these exercises to the corresponding details of the space in terms of dimension, material and weight; as well as examining the proposed hypothesis on slow architecture. By doing so, I tend to suggest a design approach towards a slow architecture, which starts with an imagined slow experience to tested precisions and then forms a series of speculative space containing experiential slow scenarios.

In this way, the thesis becomes a research vehicle that allows me to validate the physicality of the slow scenarios in my design project and enhances my understanding of slowness in relation to experiential spatial qualities.

01 LITERATURE SURVEY

"*There is a secret bond between slowness and memory, between speed and forgetting. Consider this utterly commonplace situation: A man is walking down the street. At a certain moment, he tries to recall something, but the recollection escapes him. Automatically, he slows down. Meanwhile, a person who wants to forget a disagreeable incident he has just lived through starts unconsciously to speed up his pace, as if he were trying to distance himself from a thing still too close to him in time. In existential mathematics, that experience takes the form of two basic equations: the degree of slowness is directly proportional to the intensity of memory; the degree of speed is directly proportional to the intensity of forgetting.*" [2] (Kundera, 1996, P.34)

—Milan Kundera

1.0 **Value of Slow**

Have you ever had a day following an ambitious to-do list packed with tasks from eight to eight; by the end of it, you might manage to cross them all out but feel hollow inside? When people ask you the question 'what did you do today?' thousands of words explode like a firework in your brain and you, the one expected to speak now, just sit in silence and sigh.

People are getting faster and faster; we have created illusions of gaining more from speeding up but the truth is that we have become so addicted to rush and as a result, we forget what we are pursuing.

Slow, fast and still, they can be the same thing, which is the vocabulary we use to describe velocity. Therefore, 'slow' is about relativity. In this era of speed, advocating 'slowness' is based on the common ground where we start to lose the balance between quality and time, process and outcome, experience and destination. We see the value of slow as we see an appreciation of quality, process and experience.

This chapter intends to find tangible realizations of 'slowness' through investigating the basic notion of slowness in three disciplinary frameworks, culture, art and space. These aspects provide ways in which contextualize 'slow' with various examples depicting a spectrum of thoughts and activities on slowness. Therefore, the value of slow can be analyzed by discussing the representation of slow in existing theories and practices.

1.1 Slow in Culture

1.1.1 **Slow Food**

Over the past decades, this discourse around slow food becomes increasingly crucial while there is a strengthened tendency of overproduction and fast consumption of food. Food as a rich cultural heritage of Italy has been long valued and praised by the local. There are associations on non-profit vernacular food enhancing their tradition and expand its international impact.

Under this circumstance, Slow Food, an organization promoting local food and traditional cooking, was considered as one of the first national slow movements, which took place in 1986 at Bra, Italy. It is established upon a campaign against the global fast food trend in the early 80s, when McDonald's first set foot at Spanish Steps in Rome.[3] (Slow Food International, 2018)

The Manifesto of Slow Food points out that 'in the name of productivity, the 'fast life' has changed our lifestyle and threatens our environment and landscapes. '[4] (Parkins and Craig, 2006, p.141) Based on this current situation, the organization emphases an awaken sense towards gourmandised pleasure and prolonged enjoyment from rediscover the rich verities and aromas of local cuisines. It advocates a joint effect from the producers, the consumers and the governments by first preserving the variety of traditional food products and its preparation; second acknowledging the drawbacks of commercial agribusiness and factory farms; third, make use of the government policies to protect family farms and encourage ethical market.

In this case, the essence of Slow Food is producing food and consuming food with locality and sustainability in mind. It raises a social awareness and appreciation of tasting experience through genuine food products, in the context of industrialized food production trend, which might worth the public to question about.

1.1.2 **Slow City**

"We are looking for towns where people are still curious about times past, towns rich in theatres, squares, cafes, workshops, restaurants and spiritual places; towns with untouched landscapes and fascinating craftsmen, where people are still aware of the slow passing of the seasons…"[5] (Sohn, 2016, p.44)

-Original Cittaslow Manifesto

Inspired by Slow Food, Cittaslow (also known as Slow City) was founded in Italy in 1999 by the mayor a town called Orvieto. It aims to protect the local tradition and lifestyle from the threat of globalization and cultural standardization; and thereby, protect the uniqueness of traditional lifestyle, individual cities and cultural diversity.

The word 'slow city' contains a sense of contradictory since the formation of a city is based on the advanced productivity and the developed transportation. Also, as a place of gathering and mixing, cities are potentially where people coming from difference backgrounds clash and hug. In a way, one of the key characters of a city is 'being fast and chaotic'. However, 'slow city' as a term stimulates people's thoughts and questions towards the speed or pace that we are taking in cities, as well as the cause and effect around this issue. The establishment of 'Slow City' is a reflection on people's awakened sense to against the information explosion and accelerated life pace in cities.

1.1.3 **Conclusion: What are We Appreciating when We Appreciate Slow?**

Slow has gone from a word that describes speed to a value that sets us against the current trend of rush, which might be starting from industrialization and globalization when the boost of productive has once powered and excited us by giving more in quantity within less time; Such quantity has benefited us when human beings suffer from scarcity of food, products, housing, etc. due to the wars. While there left an unstoppable momentum of fast producing, which flooded our world with junk food and junk space more than we needed; and quality has become a luxury. As Kundera wrote 'there is a secret bond between slowness and memory' (Kundera, 1996, P.34), there is also a secret bond between quality and time, efficiency. We are familiar with this word, but we tend to forget that it only comes by practice, meaning more time invested.

Slow is honesty. Only when we acknowledge there is a certain limit in the amount we are able to see, understand, remember, produce, experience…to do in a given period of time, we learn that 'amount' as an ultimate value to pursue is not valid. We are allowed to slow down and let time clears us some voids in mind where feelings are able to grow freely. Only when we feel ourselves in relation to the surroundings, we become mindful and sensitive to our perceptions. Thus, we become capable of differentiating, appreciating and creating the genuine.

Slow is individuality. In the universe, every planet orbits in its own velocity, so as every one of us. We live in the time when people, objects, information and ideas transport faster than ever; when individuals get easily referenced and interfered with one another, it is hard to be steady with ones own pace. Standardized goods, food and cities are produced to settle people down in standardized life; but we are not standardized human beings. To be slow is not to be anti-current but to be oneself.

Slow is diversity. We are familiar with the notion of racing, which in most of the case is a challenge of being the fastest. It is never the other way around because 'slowest' is relatively unachievable. There is an infinity in getting slower. Therefore, archiving slowness on its own is not legible. When we advocate slowness, we are essentially discussing other values as by-products that come with slowness, which make our appreciation multidisciplinary.

Being slow is being generous with time when we believe the time is not what matters the most. The cultural value we appreciated about slow is not about doing things slowly, but perceiving differently with an emphasis on honesty, individuality and diversity.

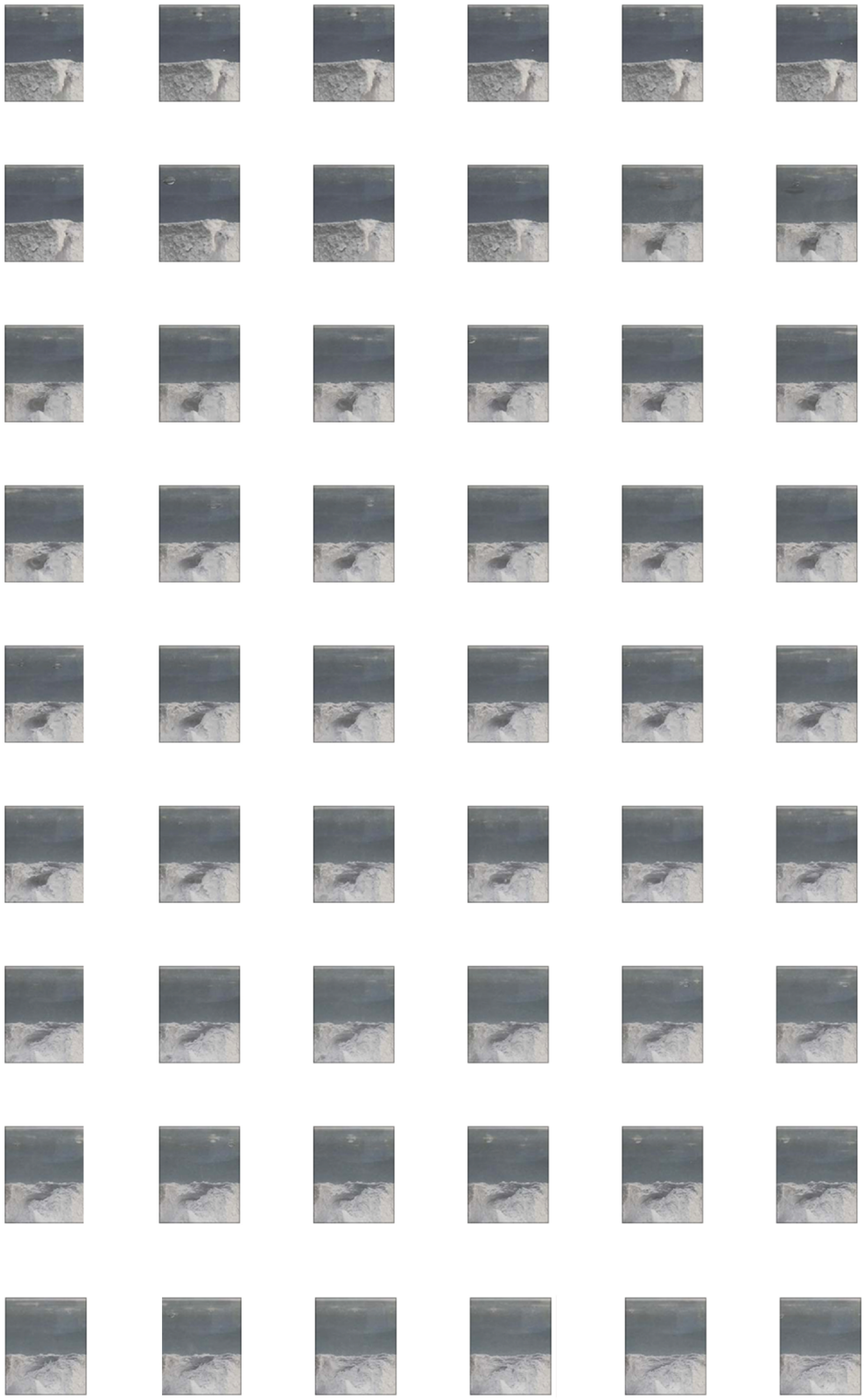

Fig. 02 Dissolving Clay Exercise in Small-Multiple Form

1.2 Slow in Art Representation

1.2.0 **What does slow look like?**

"Small multiples, whether tabular or pictorial, move to the heart of visual reasoning – to see, distinguish, choose. Their multiplied smallness enforces local comparisons within our eye span, relying on an active eye to select and make contrasts rather than on bygone memories of images scattered over pages and pages."[6] (Morphocode, 2018)

- E. Tufte

Slow implies motions. As an adjective, it is used to describe certain dynamics. It is hard to capture slow with a frozen image and justify slow without a range of comparisons. Therefore, I found 'small multiples' (Fig.02), a method of documentation with a series of sequential images, rather effective in terms of providing that spectrum of samples to reveal certain nuances. By introducing 'small multiples' as a way of representation, we can see the tendency of motion in a more explicit form.

In this chapter, I selected three artworks, which represents slow in an experiential manner. The common character among the works is that they managed to reveal the sense of time with framed and magnified slow phenomenon. Slow is not purely created but found.

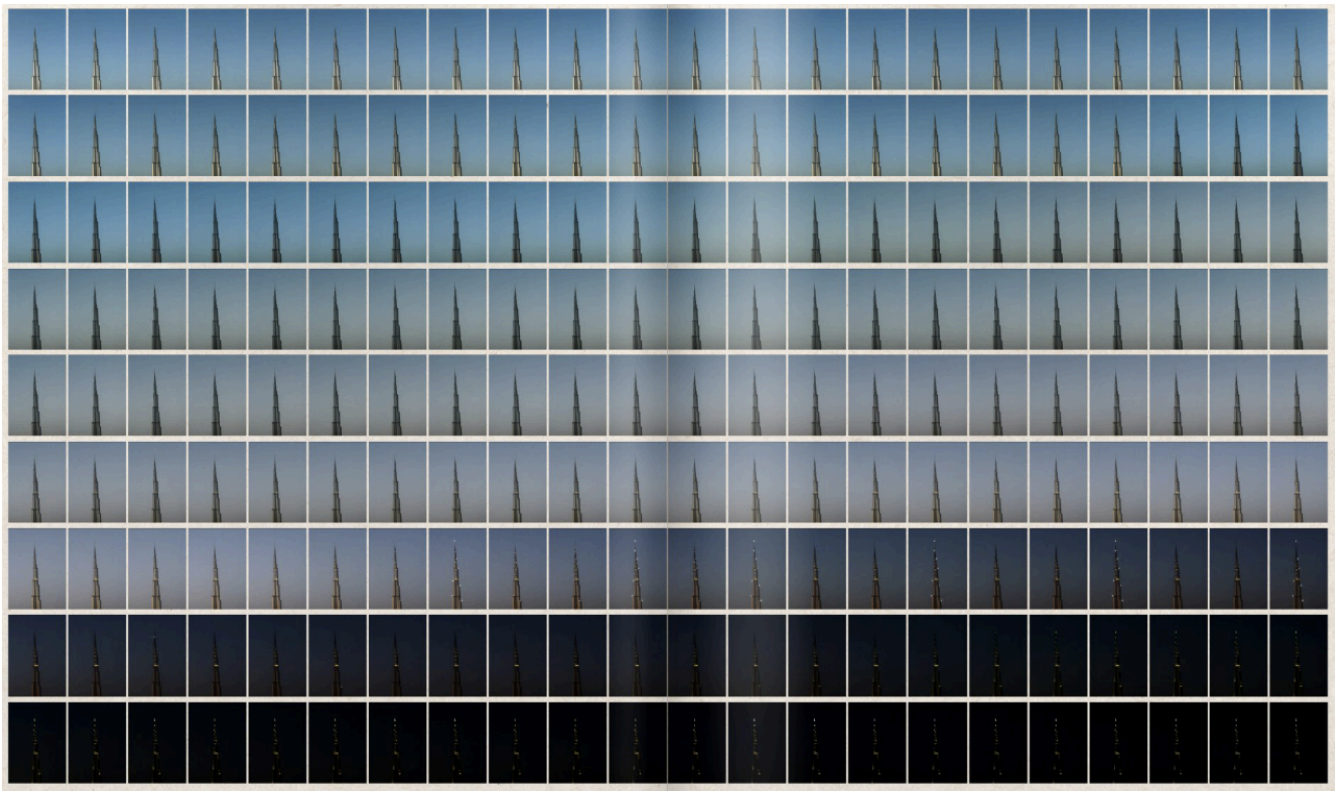

Fig. 03 Empire

1.2.1 **Empire**

Empire is a 485-minute film made by Andy Warhol in 1964. He tried to take this film as a test to justify the dictum 'anything becomes interesting if you look at it long enough.' by Gustave Flaubert.[7] (Reed, 2018, p.20) This exercise proves that time is the factor that makes a norm into a scene. It is worth mention that, Warhol used sixteen frames per second instead of the normal twenty-four frames in order to exaggerate the slowness in this film.[8] (Reed, 2018, p.246) The matrix of single-frame view of the Empire State Building from day to night reveals the notion of slow exists in subtle nuances. A sense of the homogenous passing of time is sealed in the gaps between the frames.

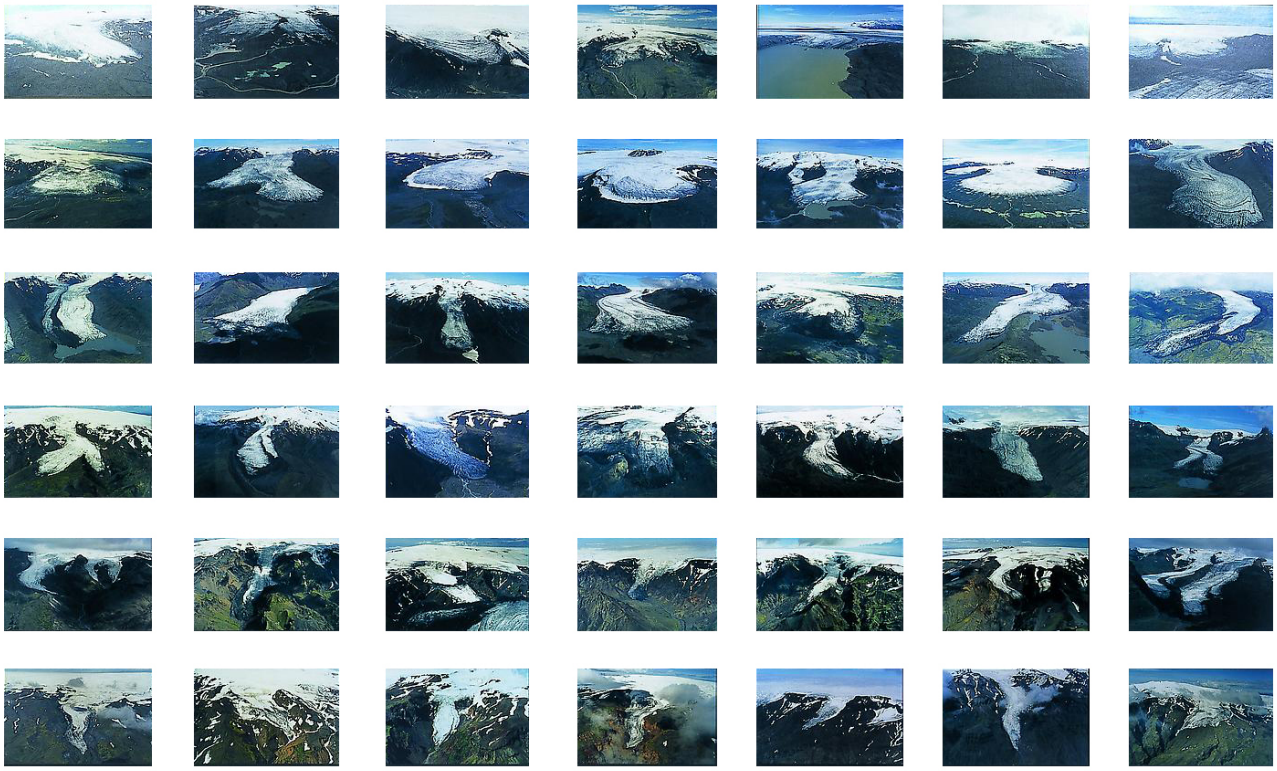

Fig. 04 The Glacier Series

1.2.2 **The Glacier Series**

'We see nature with our cultivated eyes. Again, there is no truthful nature; there is only your and my construction of such. '[9] (Eliasson, Virilio and Woltmann, 2004, p.92)

- Olafur Eliasson

In The Glacier Series, which is a set of aerial photographs capturing the overt or hidden timetables of the natural world as they become visible to observers who are themselves in motion.[10] (Koepnick, 2014, p.82) As an exhibited photography, this glacier matrix took a wall space of ninety by one hundred and fifty inches.[11] (Koepnick, 2014, p.83)

This aerial view takes us to an unusual perspective to look at the glacier, which makes us as observers diminished. The shift in time and space within each image is unknown to us, yet we can sense such landscape is running on its own timescale and geological span, which is utterly different from ours. Therefore, this series of images as a media bridges the observers and nature at one single moment, when we can sense and compare the scale of existence. In a way, we can feel the 'slow relativity' in the stretched time of nature in relation to the compressed lifetime of us as humans.

What's more, this image palette of glacier calms the observers down through both inviting ones to engage with the framed natural scenery, as well as disrupting ones' logical tendency of routing themselves through these collective images. With the flow of the glacier, we can sense there is a narrative, yet there is no departure, passage or arrival. [12] (Koepnick, 2014, p.85) In this way, we as customary thinkers can no longer make sense of spaces by defining them as 'sequential' or 'functional'. As pure and random as these spots can be, our minds are allowed to be concentrated on the presence of the glacier and the glacier, only.

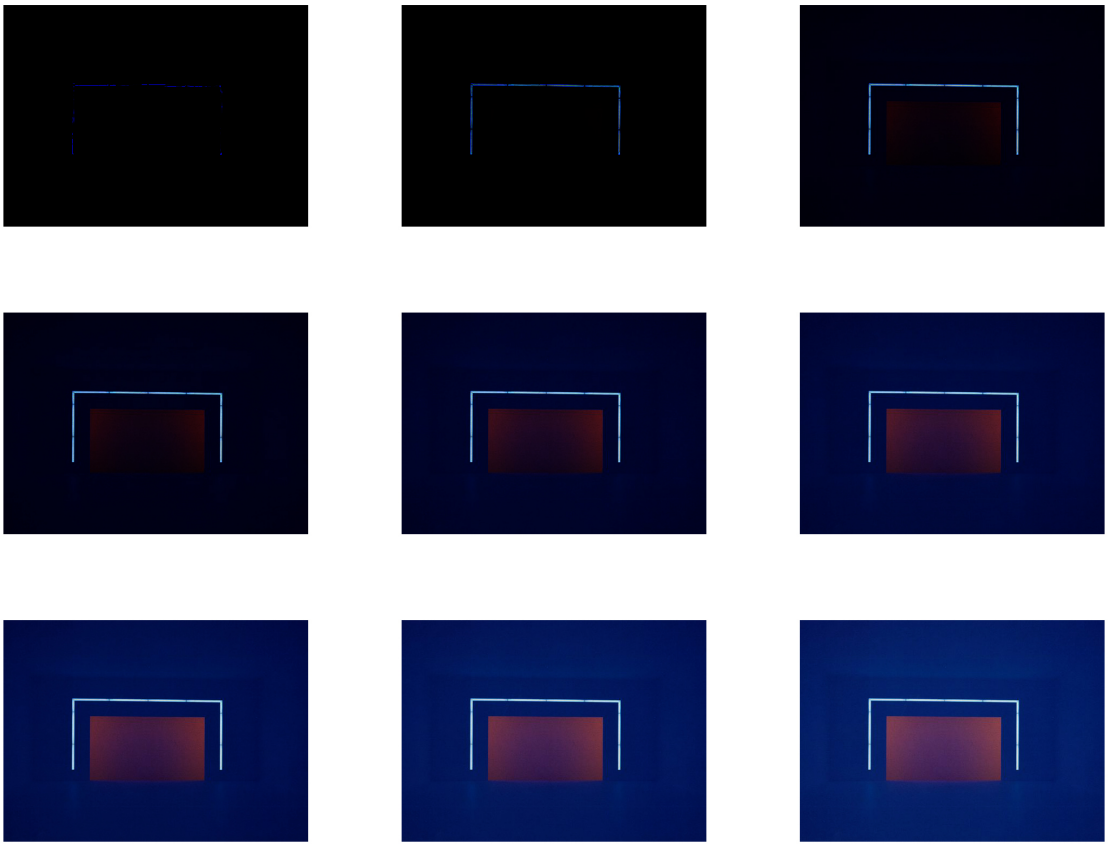

Fig. 05 Back Side of the Moon

1.2.3 **Back Side of the Moon**

James Turrell's installation *Back Side of the Moon* is known as an exploration of light and space that talks to people without words. The experience of viewing is often described as sitting in silent darkness with disturbed perception; gradually a luminous gate reveals itself in front of you. However, the actual feelings in the space and the slow process of an awakened ocular sense remains unforgettable to the visitors.

Darkness influences our time cognition. During my visit, it felt like a half-an-hour process, while actually, it took only five minutes on my watch. In the second when we became temporarily blind, I had no clue how long it would last or what would happen next. Such uncertainty dominated my mind and pushed me to be concentrated on the present moment. Then the subtle appearing of a hint of light made me doubt if it was real or if it was imagined, till my eyes fully adjusted themselves to the darkness.

Turrell managed to uplift people's sensitivity and then slow people down by manipulated 'unexpectedness'.

1.2.4 **Conclusion: Experiential Slowness**

These artworks were not created based on an intention of expressing slowness, but it managed to engage and slow the viewers by simply depicting the scenes from the existing. Why so? By framing and recording the norm, it builds a direct relation between the viewers and the phenomenon, such unusual adjacency stimulates people's concentration; and as a result, it challenges and refreshes our original understanding towards the norm. In a way, such concentration comes from an alternation in the presentation of normalcy.

Slowness can be interpreted and visualized through nuance on light, material and nature through time. These nuances exist with or without people looking at them. However, only when a pair of eyes staring at them, they are discovered, felt, compared and then, claimed to be slow. Therefore, slowness does not exist as a fact; it exists in our experience of being distracted, surprised and concentrated.

Fig. 06 Dissolving Clay Exercise

1.3 Slow in Space

1.3.0 **Distraction. Surprise. Concentration.**

Our recognition of slowness is subjective due to time perception is a manipulable and distortable construction of human brains. It has been a field of study within psychology, cognitive linguistics and neurosciences.[13] (Wikipedia.org, 2018) In the scope of this thesis, I'd like to take one of the principles:

> *"The faster one perceives sensory information, the slower time passes."* [14] (Zogby,2017)

as a starting point of my investigation of slow space. Therefore, my approach toward slow spaces is through 'fasten one's speed of perceiving sensory information'.

When people are concentrated, they make faster responses. Therefore, the construction of slow space should be able to trigger people's concentration. Also, from the last chapter, it mentioned that concentration could result from distraction and surprise, which is essentially a series of alternation of normalcy that invites people to be curious and step out from the homogenized rhythm of time.

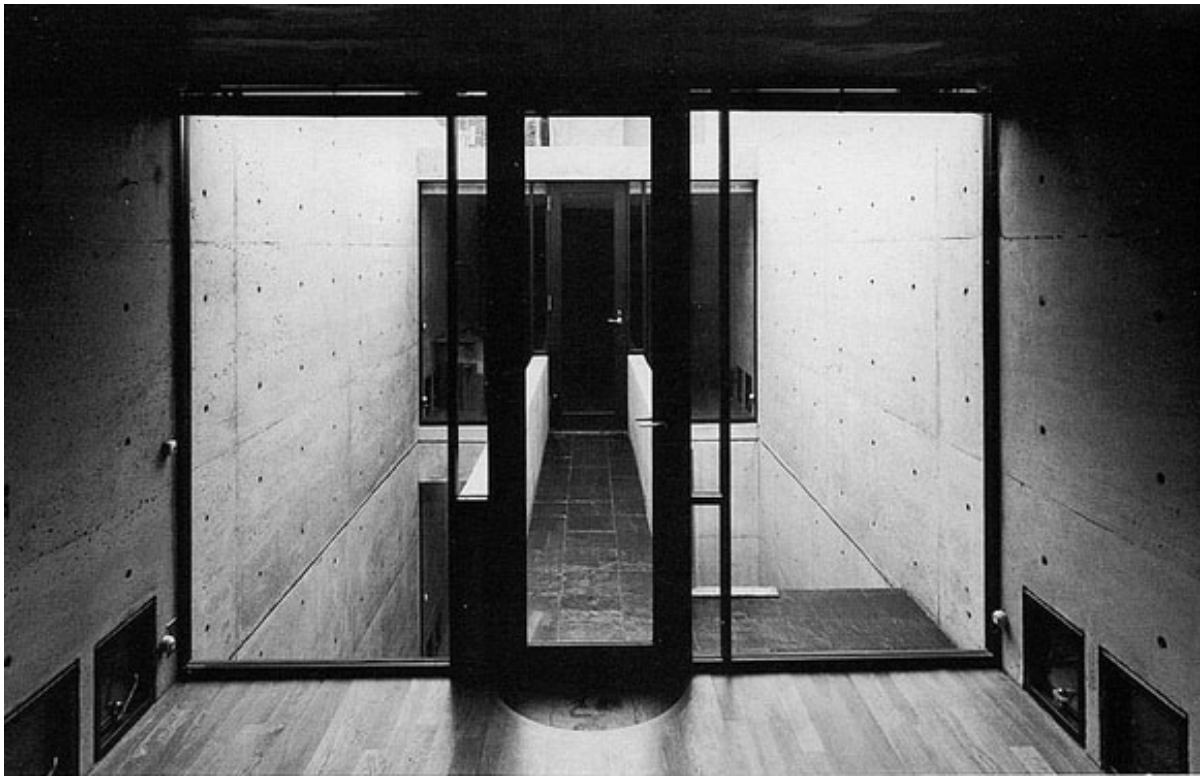

Fig. 07 Azuma House

1.3.1 **Distractive Space**

"Spiritual space is lost in gaining convenience."[15] (Baek and Ando, 2009)

- Tadao Ando

In Azuma House, the living area and the sleeping area are separated by an uncovered void in-between. This void can be regarded as a courtyard that softens the concrete constructions with natural light, rain, and wind breeze. However, the reality might be less poetic. The clients have complained about the trouble of going to the restroom on rainy nights. Ando explained that people could be overprotected by housing where they lose the chance of noticing what goes on with the natural part of the world.

The interstitials space in Raw House is intended to enhance the occupant's relation with nature. Such inconvenience becomes a desirable distraction, which pushes the way we experience a space beyond normalcy. It challenged the rule of designing space with standard functions, logic and convenience; and as a result, it threw us a question in terms of design philosophy- is space designed for people to just experience convenience? Can there be more to it and why?

Convenient and efficient space, or in another word fast space, might make people autopilot; The spatial occupants become workers on a production line and tend not to think because they are preoccupied with a destination. On the contrary, slow space intents to enhance ones' journey as an experiential process during which, people discover and receive things other than a destination. Slow space is not designed for the sake of creating inconvenience, yet it argues that the ethos of space is offering an experiential journey rather than simply bring people from A to B. Perhaps, space should be allowed to be less convenient or efficient, and be more 'distractive'.

Fig. 08 Whispering Gallery, St. Paul Cathedral

1.3.2 **Surprising Space**

Space talks to us. We receive information on our surroundings from our eyes, as well as ears, noses, hands and skins, which together make our spatial experience multi-sensory.

Unlike eyes that can be closed, ears are at our service the whole time, which makes listening a substantial contribution to our understanding of the overall atmosphere. One who sits alone at the Whispering Gallery in St. Paul Cathedral, is able to overhear people on the other side chatting. For a second, he probably would wonder where that unexpected conversation comes from and whose voice that is; he wonders where he is.

We question the existing only when it surprises or confuses us. Starting with a question, we interrogate the places and the present moment that we are being at. When space throws surprises to us, we respond to it by carefully observing it and think about it in detail. There is a dialogue between the space and us as its occupants. In the interval of that dialogue, space and its occupants slow each other down.

Fig. 09 Serpentine Pavilion 2011

1.3.3 **Concentrative Space**

When we concentrate, we feel the world is getting quieter. Concentration brings us into a zone where the unnecessary substance is filtered and our senses are enhanced.

The central space in the Serpentine Pavilion 2011 was a rectangular garden, which was framed three-dimensionally with walkways on the ground, black walls on the sides and black roof tip at the top. It brought out a tranquil and meditative atmosphere that made people talk quieter and breathe slower. The blackness served as a backdrop that absorbed strong waves of light and sound, and cleared the threads of random thoughts in mind.

In a way, the uniform and dark setting dematerialized what was presented to the visitors. The controlled lights softened the shadow of the occupants in the space. Since shadow is an indication of three-dimensional presence, such setting makes people subconsciously forget their own presence as well as the presence of others in space, and become more concentrated on the artifacts in the space, which is the central garden.

When there is less information for us to perceive per gaze, the faster we are likely to understand, and the slower time passes. Thus, slow can be realized through purifying or minimizing the contents in a space where the ocular information is filtered for people to focus on, examine and think about what they are seeing. In a way, concentrative space encourages the visitors to spend longer and discover more.

02 SLOW ARCHITECTURE RECIPES

2.0 Slow Architecture is not ...

[Where people moving slowly]
Pace is not a criteria of a slow architecture, but the experience. The way in which people move through the space is determined by how they intend to perceive the space. For instance, there might be pockets of phenomenon, which cannot be noticed unless people move slow enough.

[Slowly built architecture]
One interpretation of 'Slow Architecture' can be an architecture being constructed slowly. However, the rate of construction is not relevant to this discourse.

[A typology of form]
Slow experience could potentially take place in spaces of any form that allows people to perceive differently.

[An unoccupied architecture]
Slow architecture does not exist as architectural artifacts. It exists as a cradle implementing a journey of slow experience for the occupants.

2.1 Define Slow Architecture

"A human eye scans panoramically, and then suddenly focuses down on a tiny point. You see the ocean, and then you see a grain of oddly colored sand. The boundaries of what one chooses to perceive are constantly expanding and contracting. And of course, there is the myriad of stray thoughts, memories, and images that are called up by what you see in the color and shade of an actual space. There are the distractions (and perhaps one can also see them as positive additions) of sound, smell, shifting light, and the conversations of passers-by."[16] (Williams and Tsien, 1999)

- Tod Williams and Billie Tsien

Slow architecture encourages people to perceive space differently in a multi-sensory way. It is a collection of distractive, surprising and concentrative space that can be regarded as an alternation of normalcy, which triggers people's curiosity, thoughts and feelings.

It emphasis a design intention of offering the occupants an experiential journey in which they notice the way they move through the spaces; instead of simply building a diagrammatic link directing people to their the destinations. Similar to the slow cultural movements discussed earlier, it is about the process, not the outcome. Space itself can be ambiguous, fragmental or metaphoric because when space is not sequential or logical; when it does not make complete sense; when it has gaps; People will then try using their imaginations or memories to fill up the gaps and making sense of the space in their own way.

Slow architecture is activated and completed by its occupants who use and experience the space. In this sense, the slowness is not planted in the architectural physicality as the stage, but in the occupants' experiential journey as the performance.

2.2 Ingredients of Slow Architecture

To initiate a multi-sensory journey through the space, we have the following words as perspectives:

Sense	Alternation of Normalcy
Sight	
	Distraction
Sound	
	Surprise
Smell	
	Concentration
Touch	

Combining two or more words from each side to set up an experiential structure that allows me to construct a sensational slow scenario.

03 INVESTIGATION METHOD

3.1 Forming Slow Scenarios based on the Ingredients [what]

Take moments from design project as a context to speculate their potential in becoming a slow architecture following the principle of inserting spatial distractions, surprises and concentration that alternates the normalcy.

3.2 Validating Slow Scenarios [why]

As this thesis sees slow architecture as an experiential journey through space, the slowness happens when people perceive space differently with their senses. Such experience can be subjective. To validate slow scenarios is to test the people's response and tailor the spatial physicality based on the feedbacks.

3.3 Constructing Slow Scenarios with Tested Precisions [how]

I Extract specific spaces from the design project as a context;
II Control and Study aspects of light and sound, and look at the setting of spaces [the stage] in relation to people's experience through spaces [the performance];
III Validate the way to create experiential slowness and test the 'rate' [precision] in doing so.

04 Experiments on Experiential Slowness

4.1 Experiment I_ Nuances on Light

4.1.1 Dark Room Precision Test

Sense	Alternation of Normalcy
Sight	Distraction
Sound	Surprise
Smell	Concentration
Touch	

4.1.1.0 Purpose of Test

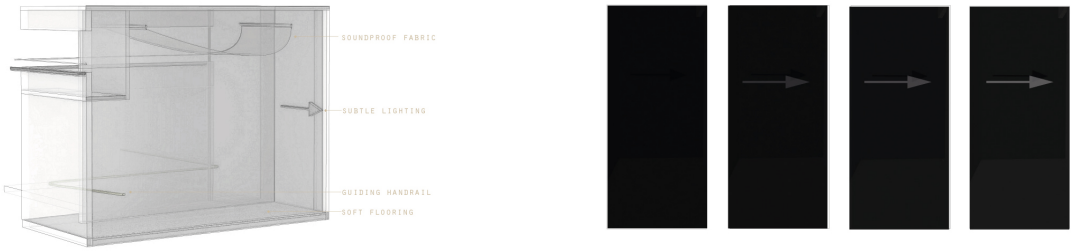

Fig. 10 Proposed Slow Scenario_ Dark Room

Take the notion of 'slow architecture' as a spatial tool that slows people down, my design intends to insert a series of distractions and surprises in the space.

Inspired by 'Back Side of the Moon' by James Turrell, the first slow scenario is about manipulating the brightness in a space as a distraction that slows people down. I proposed the space imagining people walking through a dark corridor before they reach the dark room, where their ocular sense is disabled temporarily; as their eyes gradually adjust to the darkness in the room, they will start to see an arrow on the wall, which guides them to the next space.

The precision I'm testing and controlling here is the time needed to see that arrow in relation to the length of that dark corridor. Since this exercise aims to test out an average time for people to see things in a dark room after walking through a dark corridor, it is important to control the underlined environmental variables in the following way:

- Things, which is a fixed pair of arrows;
- A dark corridor, which is a fixed corridor with no light source on;
- A dark room, which is a fixed room with no light source on.

4.1.1.1 Simplified Variables

Simplified variables are needed in order to create an achievable condition for experimental purpose. In this case, 'a dark corridor' and 'a dark room' are simplified.

Taking '1.4m/s', the preferred walking speed from the Design Guideline, the length of a dark corridor can be represented as the *time spent in darkness* before entering that darkroom with an arrow.

The arrows on the wall of a dark room will be represented by a pair of light-tight goggles with a fixed view, which is a pair of arrows*[1] on a black sheet.

Fig. 11 Slow Precision Device 1

These time precisions will then help me justify the dimension and sequence of the spaces people walk through in this slow scenario.

However, in the process of setting up this test, I realised that having people walk through a dark corridor would shorten the time needed for them to see in darkness since their ocular sense already started to adjust to the darkness along the corridor. Therefore, in order to 'slow their ocular sense down'; a bright corridor is needed instead of a dark corridor, which means, the time spent in brightness.

What's more, to achieve an ideal feasibility in darkness, I printed three black sheets with arrows of three different levels of brightness. Before the experiment, I did a pre-test of the three sheets on myself on site and chose the best (among three) sheet for the participants. As a result, the black sheet with a pair of arrows with CMYK value of 0%, 0%, 0%, 80% are chosen.

4.1.1.2 Test Plan

20 Participants are brought into a fully-enclosed room with no light source on, and informed with the following instruction:

* Instead of one single arrow, a pair of arrows are used here to fit human sight through the goggles.

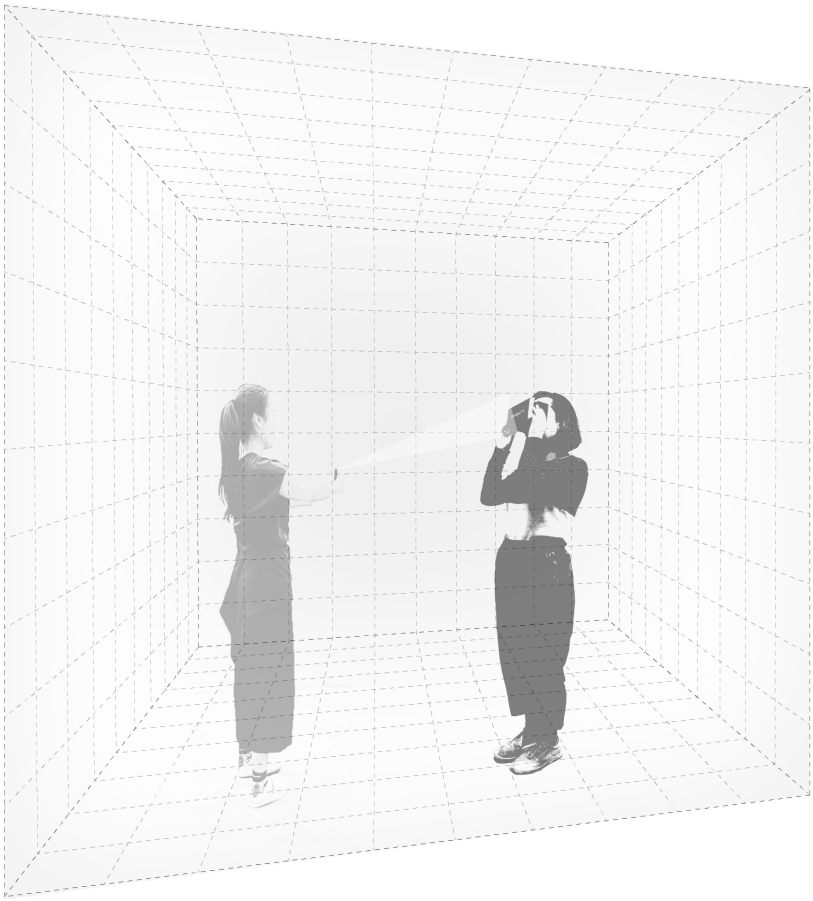

Fig. 12 Dark Test Illustration

[Darkness Test Instruction]

In this enclosed room with no environmental light, you will be asked to look at one bright light source for 5 seconds, and as the light goes off, please look into the goggles; let me know when you are able to see and what you have seen.

After a short rest, you will be invited to repeat this process by looking at the bright light source for 10 seconds; and again, let me know when you are able to see and what you have seen.

Timing starts as the light goes off and the participants look down into the goggles and ends when they are able to identify the arrow in the darkness.

4.1.1.3 Test Observation

The test results are recorded in the following chart. (Fig. Test Results)

VOLUNTEER	5-SEC BRIGHTNESS	10-SEC BRIGHTNESS
01	0’48”	1’48”
02	0’07”	1’15”
03	1’29”	-
04	0’40”	1’43”
05	1’06”	-
06	1’17”	3’02”
07	0’58”	2’26”
08	1’22”	3’12”
09	0’19”	1’39”
10	1’35”	2’04”
11	0’21”	0’58”
12	0’38”	1’52”
13	1’54”	4’00”
14	0’35”	2’10”
15	2’39”	-
16	1’23”	2’12”
17	1’30”	-
18	0’47”	1’54”
19	0’52”	-
20	0’09”	0’31”
AVG.	1’01”	2’03”

Fig. 13 Dark Test Results

The time taken varies from 7 seconds to 2 minutes 39 seconds, while in average; the participants were able to see the arrow at around one minute.

As a variable to the test, participants were asked to look at the light source for 10 seconds, which effectively lengthened the time needed for them to see the arrow (from 31 seconds to 4 minutes with five of them giving up.) Therefore, 10 seconds might be too challenging, which can result in losing concentration and patience.

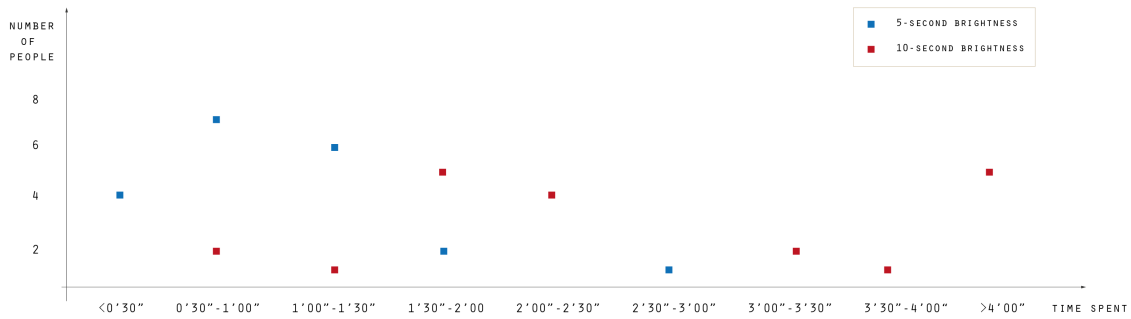

Fig. 14 Dark Test Analysis

This chart shows the distribution of the results. It is clear that the time spent varies significantly on individual sight conditions, which are not possible to be controlled in reality. However, we can still see that the shorter time in brightness, the less challenging to see in darkness, the smaller variance on the results, and the less unpredictable impact from individual sight condition.

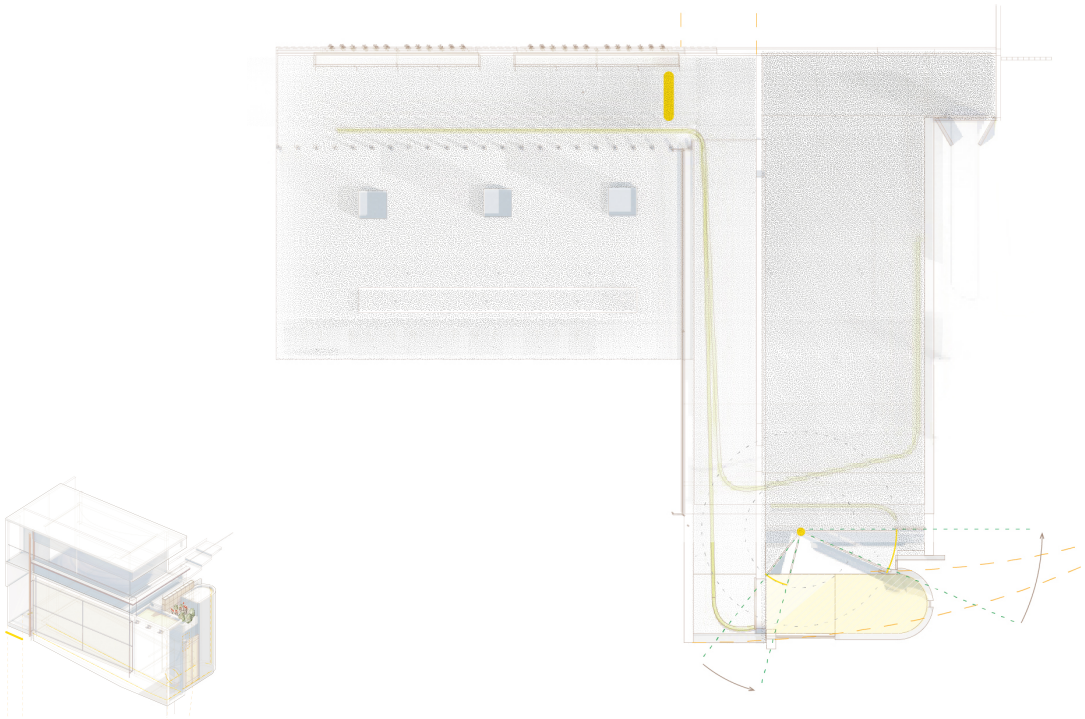

Fig. 15 Dark Test Application

4.1.1.4 Test Feedback

5 seconds is more likely to be the sweet spot in this slow experiment. Again, take 1.4 m/s as a reference value; to generate such experience spatially, it requires a 7-metre bright corridor, which takes around 5 seconds to walk through before suddenly entering a dark void.

4.1 Experiment I_ Nuances on Light

4.1.2 Perspective Precision Test

Sense	Alternation of Normalcy
Sight	Distraction
Sound	Surprise
Smell	Concentration
Touch	

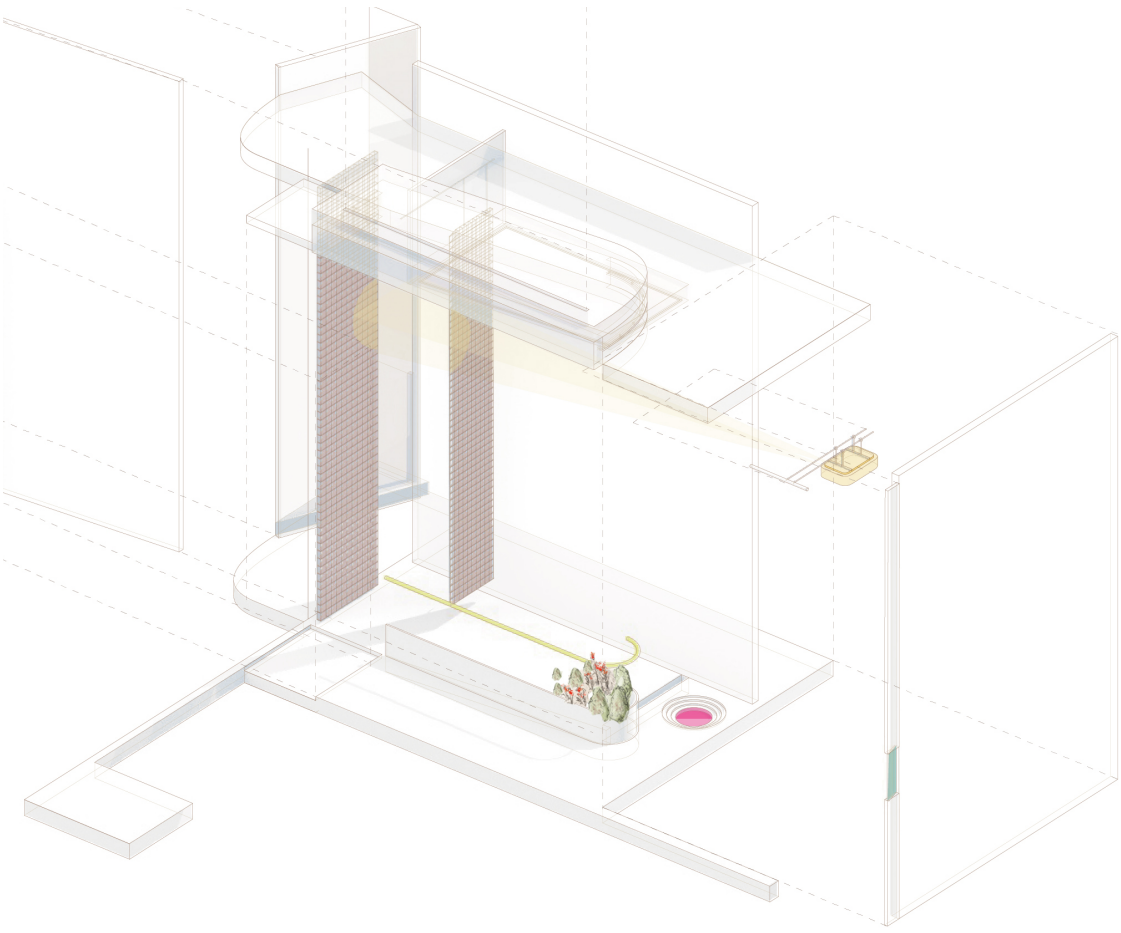

Fig. 16 Proposed Slow Scenario_ Double Wall

Fig. 17 Effect of Double Wall

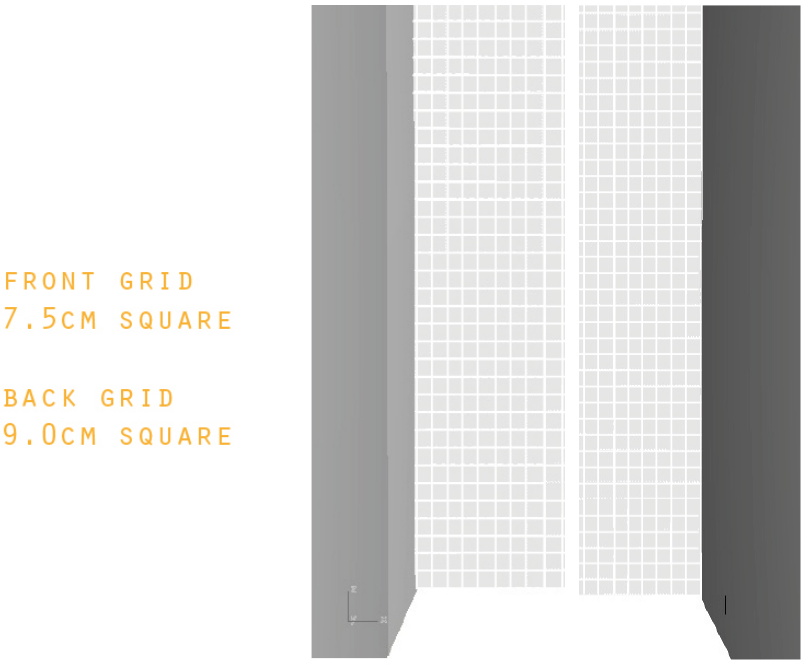

Fig. 18 Dimension of Double Wall Grids

4.1.2.0 Purpose of Test

The second slow scenario is designed for people to have an experience of

"You will not see the entrance to the next space till you've spent 2 minutes here."

Based on this concept, I proposed a void inserting a divided wall with a minimal 80 cm gap in between for people to pass through. *(Fig.17)* Each wall has grids drawn on it; the front wall is 75 cm wide with a grid dimension of 7.5 cm and the one at the back is 100 cm wide, while the width of this void is 165 cm with a grid dimension of 9 cm. *(Fig.18)* Thus, it allows 10 cm overlap between the surfaces. When a person enters this void and stands at one fixed spot. S/he will see a complete vertical surface in front of him, where two walls merge into one visually.

As he stands on that spot, a light projector hanged behind him will be triggered to start its horizontal motion from the right side of the room to the left. It will project a scope of light on the front vertical surface, which is seen as a full circle. This dynamic will create a gradual movement of that circle and reveal the uniform vertical surface as two when the projector moves beyond a certain point. This journey of horizontal movement should take approximately 2 minutes.

It is crucial to achieve this "double wall" to a visual extend that they look like one uniform piece in the space. Therefore, the precision I'm examining and controlling here is:

1 *The position and dimension of the double walls* in relation to the void and the spot of standing
2 *The speed of the horizontal movement of the projector* [*]

To test and calculate these factors above, there are variables that need to be controlled in the following way:

- One fixed spot of standing;
- Uniform environmental lighting.

[*] The speed of the projector can be calculated from the position and dimension of the front walls.

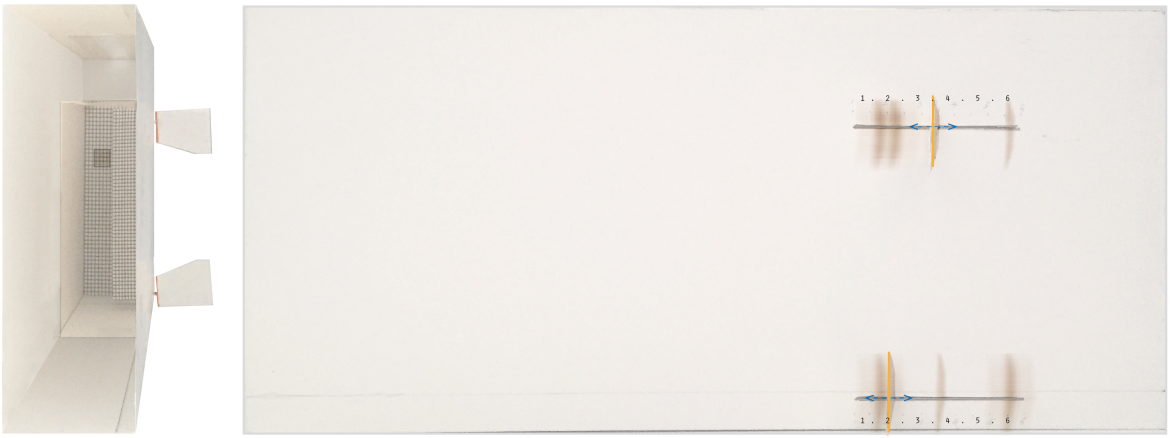

Fig. 19 Slow Precision Device 2

4.1.2.1 Scaled Variables

Scaled variables are needed in order to create an achievable condition for experimental purpose. In this case, this designed space will be modeled physically in 1:100 in order to test the perspective and the physicality of the double walls.

4.1.2.2 Test Plan

I started with using a physical model of this designed room in 1:100 with a fixed size of the grid and an adjustable distance between the walls to test the alignment of the walls and the size of the grids on the walls. This model of the space is then placed in a bigger and enclosed white box with a hole for people to look though. The physical dimension between the hole and the double walls are in proportion to that of the fixed spot of standing and the double walls in the design.

Inside this white box, the back wall is fixed, while the front wall is adjustable with the sliders on the right side. Using two sliders to change both the position and the angle of the front wall so that the grid can be aligned better. Measurements in centimeter are marked along the sliding opening so that the results of this test will be reflected numerically and fed back to the dimension of the space in the design.

To introduce light factor to the model, this physical model will be placed in a box with a translucent top surface in an artificially lightened room with a fixed level of brightness, acting as a controlled environmental lighting.

Fig. 20 Perspective Test Illustration

20 Participants are brought into a fully-enclosed room with fixed light source on, and informed with the following instruction:

[Perspective Test Instruction]

In this enclosed room with fixed environmental light, you will be asked to look through this hole on the box and please adjust the position and angle of the slider to the point when all the grids are perfectly aligned.

VOLUNTEER	TOP MEASUREMENT(CM)	BOTTOM MEASUREMENT(CM)
01	2.0	3.0
02	1.9	3.0
03	3.4	2.2
04	3.2	1.9
05	2.0	3.1
06	3.3	2.8
07	1.9	3.2
08	2.4	2.4
09	2.7	3.4
10	2.3	3.3
11	1.8	1.5
12	3.1	2.5
13	2.2	2.4
14	3.5	2.6
15	2.1	3.5
16	2.0	3.0
17	3.1	2.4
18	3.0	2.4
19	1.9	2.1
20	3.0	3.2
AVG.	2.5	2.7

VOLUNTEER	TOP MEASUREMENT(CM)	BOTTOM MEASUREMENT(CM)
01	2.0	3.0
02	1.9	3.0
03	3.4	2.2
04	3.2	1.9
05	2.0	3.1
06	3.3	2.8
07	1.9	3.2
08	2.4	2.4
09	2.4	3.4
10	2.3	3.3
11	1.8	1.5
12	3.1	2.5
13	2.2	2.9
14	3.5	2.6
15	2.1	3.5
16	2.0	3.0
17	3.1	2.4
18	3.0	2.4
19	1.9	3.1
20	3.0	3.2
AVG. 1	2.1	3.2
AVG. 2	3.0	2.4

Fig. 21 Perspective Test Result Chart

4.1.2.3 Test Observation

The test results are recorded in the following chart.

I realized that the average value from on the left side did not reflect the actual value of these two measurements since the relation between the top and bottom measurements was neglected; As we can see, only one out of twenty results had the same value for both top and bottom distance, so for the majority, the front wall was tilted. Therefore, the result should be analyzed separately based on the direction of tilt, which means to group the results into (1/red) the top measurement is smaller than the bottom measurement, which means 10 leaning-forwards ones; (2/blue) the top measurement is bigger than the bottom measurement, which means 9 leaning-backward ones.

As a result, in the red group, the top measures vary from 1.9 cm to 2.4 cm, while the bottom measures vary from 2.9cm to 3.4cm; In the blue group, the top measures vary from 1.8 cm to 3.5 cm, while the bottom measures vary from 1.5cm to 3.2cm.

The following diagram represents the results in dots, which give a clear comparison of the two groups and the relation between the measurements.

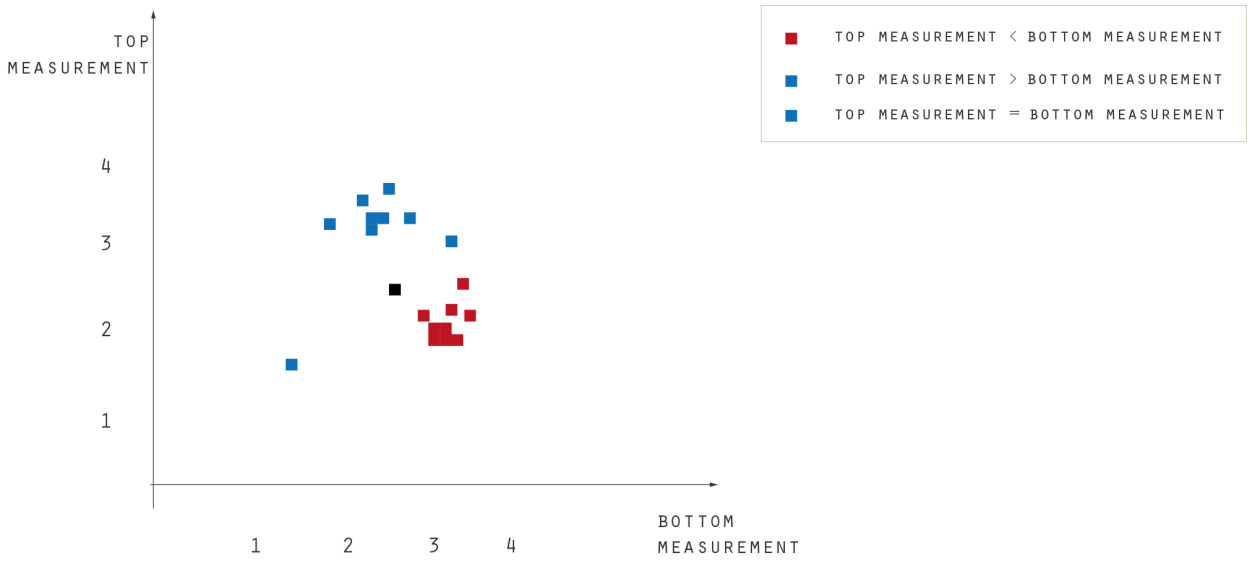

Fig. 22 Perspective Test Result Diagram

From this diagram, we can see that the red group has more agreement relatively, while the blue group can be rather spontaneous. Therefore, the average result from the red group is chosen as the final outcome, which is 2.1cm (top) and 3.2 cm (bottom).

Since the difference on the measurements indicates the front wall need to be installed tilted instead of being perpendicular to the ground. Knowing the vertical distance between the two variables is 8cm; the angle of tilt θ can be calculated with Pythagorean Theorem, which is $\theta = \tan^{-1}(\text{Opposite} / \text{Adjacent}) = \tan^{-1}(1.1 / 8) = \tan^{-1}(0.1375) = 7.8°$.

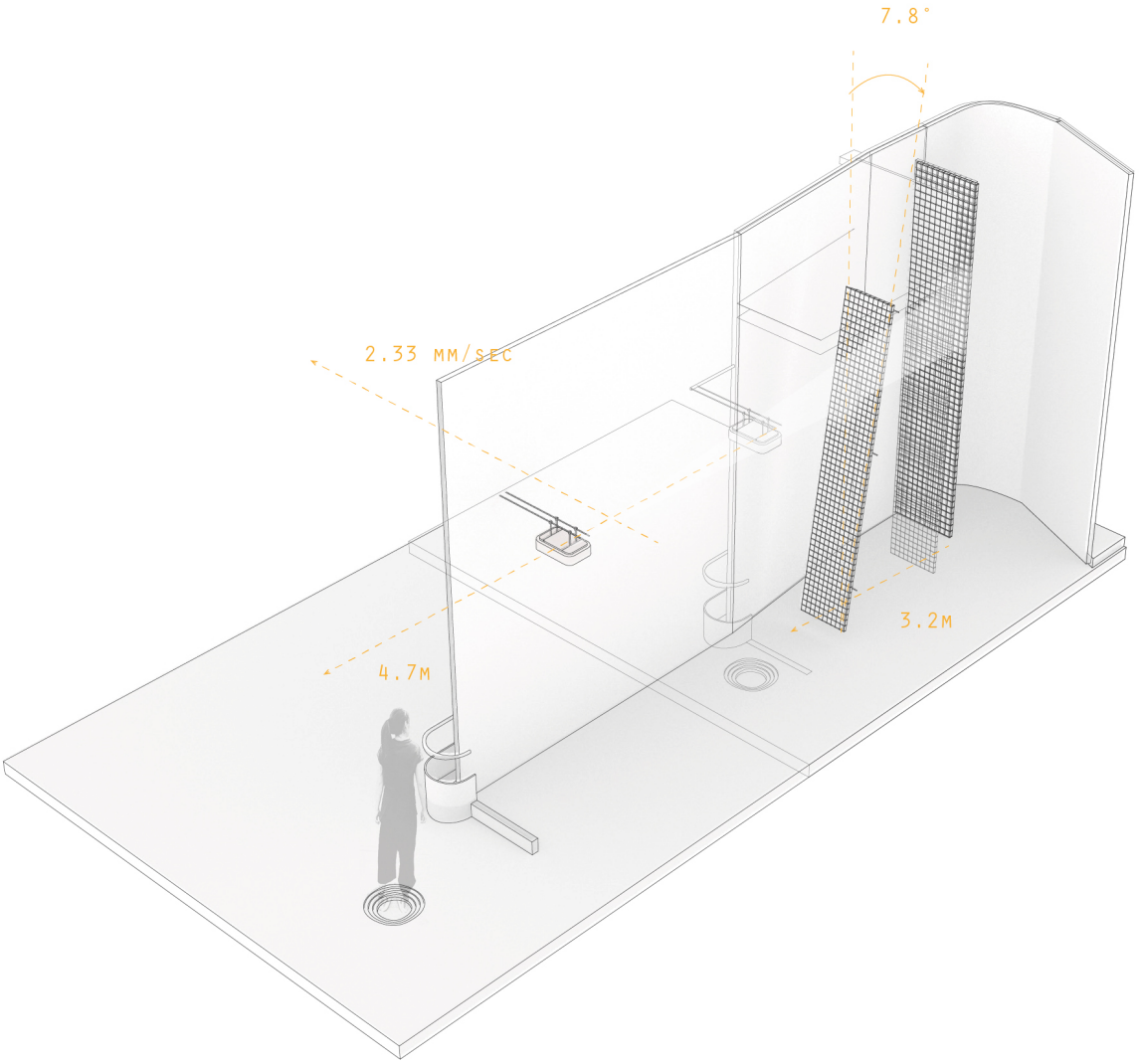

Fig. 24 Perspective Test Precisions

4.1.2.3 Test Feedback

The proposed dimensions of the double wall are proved to work with a distance of 3.2 meters between them (measured from ground) and an tilted angle (clockwise) of 7.8° the front wall. Assuming the distance from the fixed back wall to the projector is 8 meters, the distance between the front wall and the project will be 4.7 meters with 10 cm wall thickness.

Besides, the speed of the projector travelling on a horizontal direction can be calculated based on the following conditions:

1 The front wall is 75 cm wide located 4.7 meter from the projector;
2 The projector projects a full circle with a radius of 5 cm to a surface at 1 meter away;
3 It takes a 2-minute observation, which is the time for the projected circle to travel on the front wall before it starts splitting.

Therefore, the radius of the circle falls on the front wall is:

$$4.7 \text{ m} \times 5 \text{ cm} / 1 \text{ m} = 23.5 \text{ cm};$$

The distance to travel in 2 minutes is:

$$75\text{cm} - 23.5\text{cm} \times 2 = 28 \text{ cm}$$

The speed of the projector is:

$$28 \text{ cm} / 2 \text{ min} = 280 \text{ mm} / 120 \text{ sec} = 2.33 \text{ mm/sec}.$$

4.2 Experiment I_ Nuances on Sound

4.2.1 Material Test

Sense	Alternation of Normalcy
Sight	
	Distraction
Sound	
	Surprise
Smell	
	Concentration
Touch	

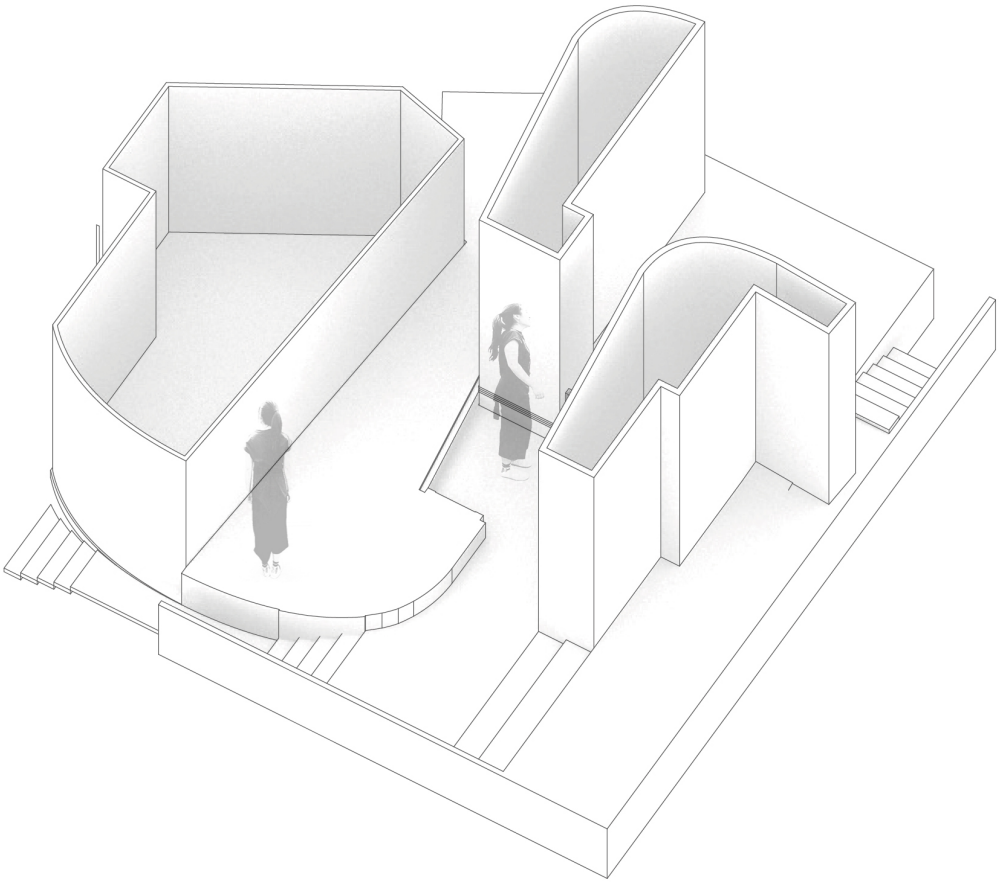

Fig. 25 Proposed Overhearing Test

Fig. 26 Material Test Device

4.2.1.0 Purpose of Test

Some of us might have an experience of walking along a quiet corridor and suddenly overhearing a conversation by the door and slowing down. The third slow scenario recreates such experience of overhearing and slowing down in a controlled way by selecting and arranging specific wall materials.

Based on this concept, I proposed a conference room with walkways around, which allows the overhearing experience to happen. When people walk down the walkways, they are intended to hear some noise, which is neither loud nor clear; as they lean against the wall, that noise becomes clearer and they will recognize it as a conversation clearly.

Different materials conduct sound differently. Assume people start their journey walking along the wall with the same distance (50 cm), to the wall. The experience of overhearing depends on individual hearing ability, the character and the size of the material, as well as the environmental sound. Since the precision I'm examining and controlling here is the material of the overhearing wall, the following variables need to be controlled:

- The location of the sound source
- The size of the material
- The environmental sound

4.2.1.1 Scaled Variables

Scaled variables are needed in order to create an achievable condition for experimental purpose. In this case, the designed conference room will be simplified as a sound box (10cm *10cm *25cm) with one side open that allows the samples of different materials to be inserted in for testing. Also, to mimic a conference meeting going on, a source of sound like a phone will be placed inside of the box to play certain audio record of a certain volume.

4.2.1.2 Test Plan

I prepared three different materials of the same size, which were 3cm thick plaster-mixed concrete, plywood and soundproofing rubber blocks; and placed a phone playing a conference meeting recording in 40 dB inside the sound box. The three materials will be inserted into the sound box one by one.

Fig. 27 Material Test Illustration

10 Participants are brought into a fully-enclosed quiet room and informed with the following instruction:

[Material-Sound Test Instruction]

In this enclosed room with fixed environmental sound, you will be asked to stand 100cm, 50cm and 0cm (by holding the box and put your ear against the testing material) away from a sound box and listen for 5 seconds, respectively; then tell me what you hear.

4.2.1.3 Test Observation

The results are analyzed into 4 types, from 'no sound' to ' quiet sound', 'loud sound' to 'able to hear a clear conversation', which are represented as symbols drawn as following:

The aim is to create an acoustic surprise of hearing no sound or quiet sound at/beyond 100cm, quiet sound or loud sound at 50cm and a clear conversation at 0cm, therefore, this desirable situation can be illustrated with the key as following:

The test results of each material group with different distances and the desirable experience are noted as following:

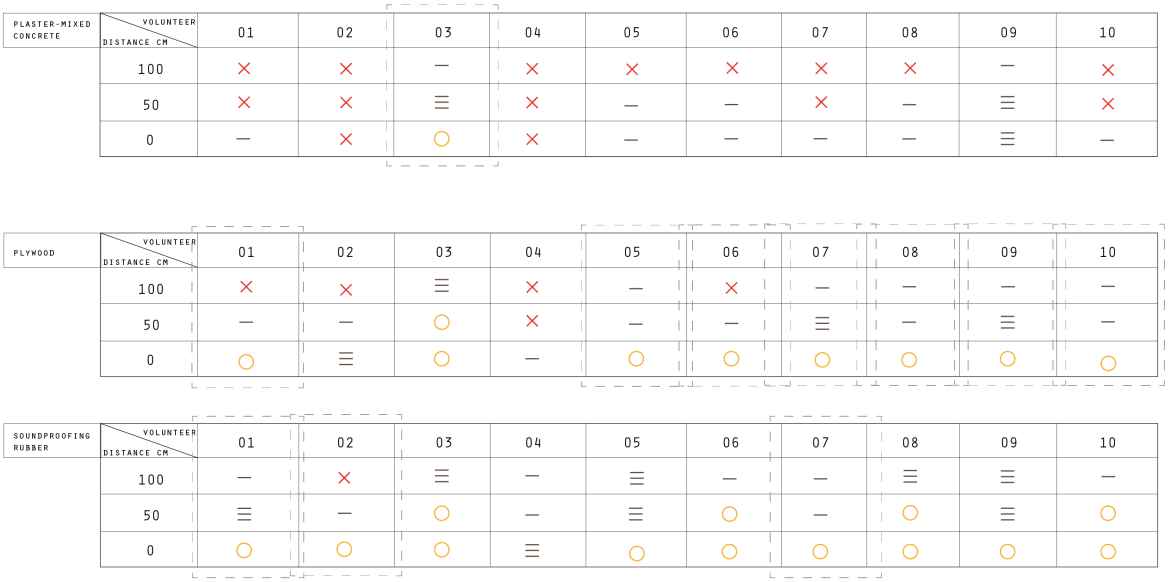

Fig. 28 Material Test Result Chart

As a result, one out of ten people were able to hear the conversation by pressing the ear against the plaster-mixed concrete testing block; while eight out of ten were able to hear it from plywood testing block and nine out of ten were able to hear it from soundproofing rubber material. When there was a 50cm distance between, no one could hear it from the plaster-mixed concrete testing block; while one person could hear it from the plywood testing block and four people could hear it from the soundproofing rubber testing block. Therefore, the plastet-mixed concrete turned out to be the most soundproofing material while the soundproofing rubber was the most sound-conductive material.

The dotted lines select the results that can be regarded as desirable in the way which reflects the overhearing experience from hearing ‘little to quiet sound’ to ‘quiet to loud’ to ‘a clear conversation’. To represent these desirables in a bar diagram, we can see the plywood option is most likely to provide the acoustic surprise that slows people down gradually.

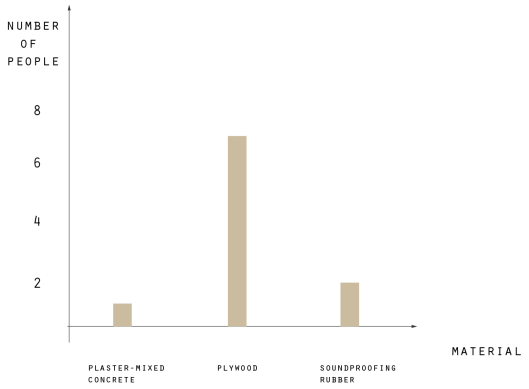

Fig. 29 Material Test Result Diagram

4.2.1.4 Test Feedback

Among plaster-mixed concrete, plywood and soundproofing rubber, plywood gives the most desirable effect of overhearing. Therefore, the wall material of the proposed conference room is plywood.

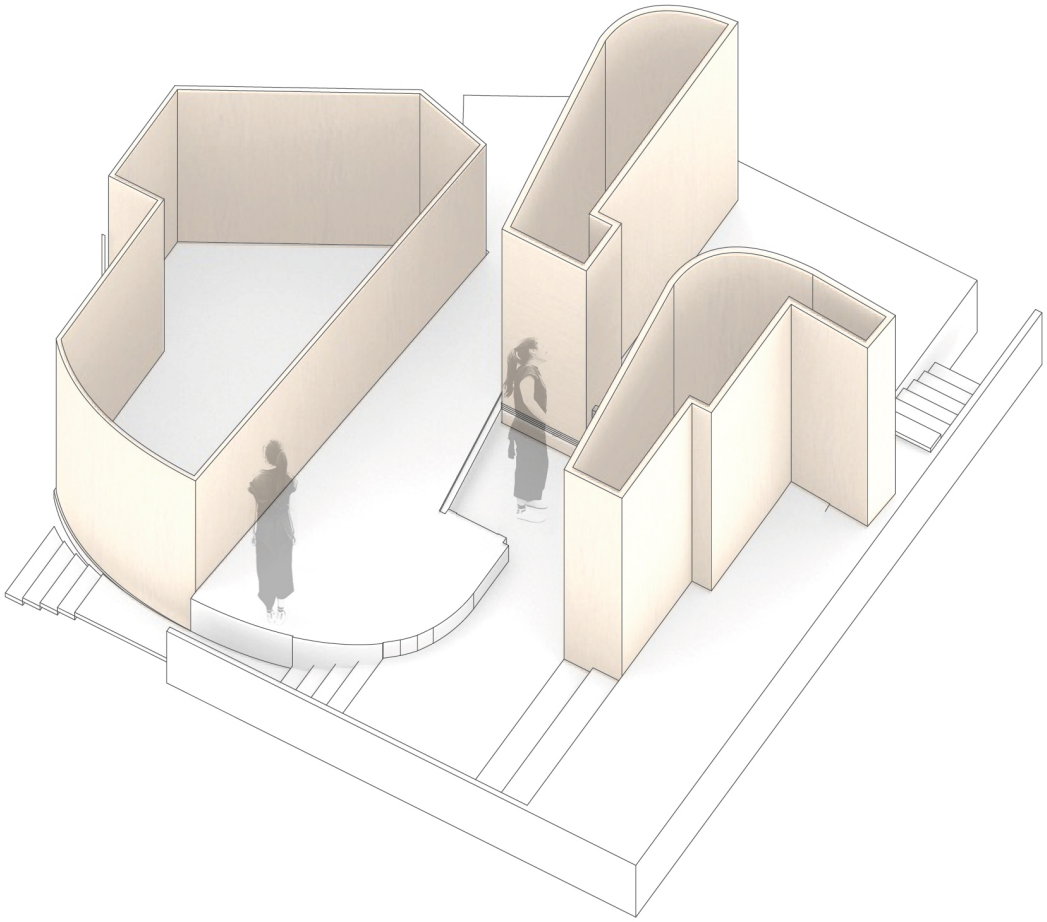

Fig. 30 Material Test Feedback Illustration

4.2.2 Thickness Test

Sense	Alternation of Normalcy
Sight	
	Distraction
Sound	
	Surprise
Smell	
	Concentration
Touch	

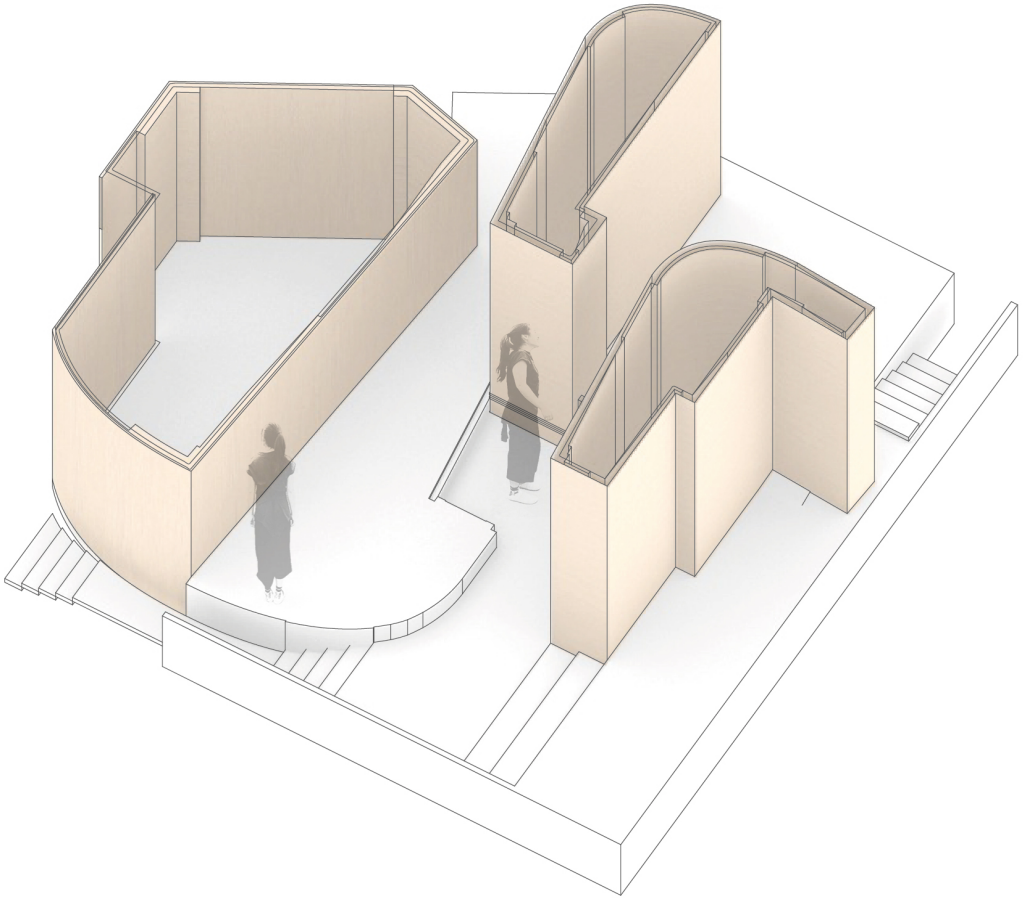

Fig. 31 Proposed Overhearing Space

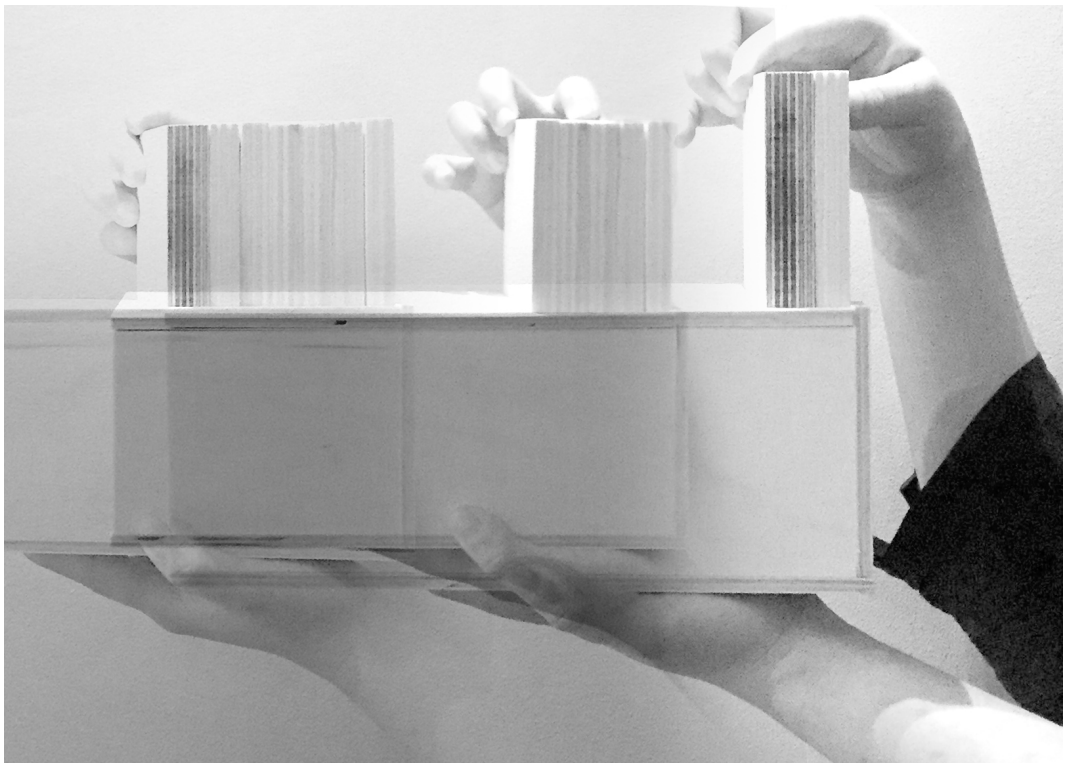

Fig. 32 Thickness Test Device

4.2.2.0 Purpose of Test

Following the previous test result, plywood is chosen as the wall material for the conference rooms. This test on thickness is one step further from the material test. The aim is to make the overhearing experience more engaging by providing variable wall thickness. In this way, the volume of the sound can be more unpredictable, which requires more concentration in listening.

Concentration is an abstract term that needs to be quantified. When people are focused actively, they spend more time, so in this test, the concentration will be represented by the time required to hear a clear conversation. The precision to test here is the thickness of the wall; while the controlled variables are:

- The location of the sound source
- The material
- The initial standing spot of the testees
- The environmental sound

4.2.2.1 Scaled Variables

Scaled variables are needed in order to create an achievable condition for experimental purpose. In this case, the thickness to test is 3cm, 6cm and 9cm. Since 3cm plywood block and sound box are already made for the previous experiment, I made another two plywood blocks with 6cm and 9cm thickness, as well as two sound boxes for inserting these sound blocks, respectively. Starting from standing at 50cm away, the time taken for one to hear a clear conversation will be measured as a quantified result that represents the level of concentration required.

Fig. 33 Thickness Test Illustration

4.2.2.2 Test Plan

Place a phone playing a recording that mimics a conference meeting at 40 dB inside one of the sound box and close the box with its corresponding plywood block. Then hold the sound box at one fixed point.

10 Participants are brought into a fully-enclosed quiet room and informed with the following instruction:

[Thickness-Sound Test Instruction]

In this enclosed room with fixed environmental sound, you will be asked to stand 50cm away from a sound box. As the timing starts, feel free to move closer to the source of sound (you are allowed to put your ear to it). Raise your hand up when you can hear a clear conversation, and the timing stops.

4.2.2.3 Test Observation

The time taken is noted as following:

RESULTS SEC / THICKNESS CM	01	02	03	04	05	06	07	08	09	10	AVG
3	27	28	10	-	18	21	25	29	14	23	21
6	53	-	13	-	27	41	31	-	21	44	33
9	-	-	-	-	-	-	-	-	73	-	73

Fig. 34 Thickness Test Result Chart

When the plywood wall was 3cm thick, it took 21 seconds in average for nine testees to be able to hear a clear conversation, while one of the testees wasn't able to hear it. As the plywood got thicker, it took longer. When it was 6cm thick, it took 33 seconds in average for seven of them to be able to hear clearly, while three of them weren't able to hear it. When it was 9cm thick, only one out of ten was able to hear it clearly and it took 73 seconds. Therefore, 9cm plywood wall might be too thick in this case.

The following chart reflects the distribution of the results. We can see that as the wall thickness increases, the results tend to be more diverse, which means this condition is harder to be designed in a controlled manner.

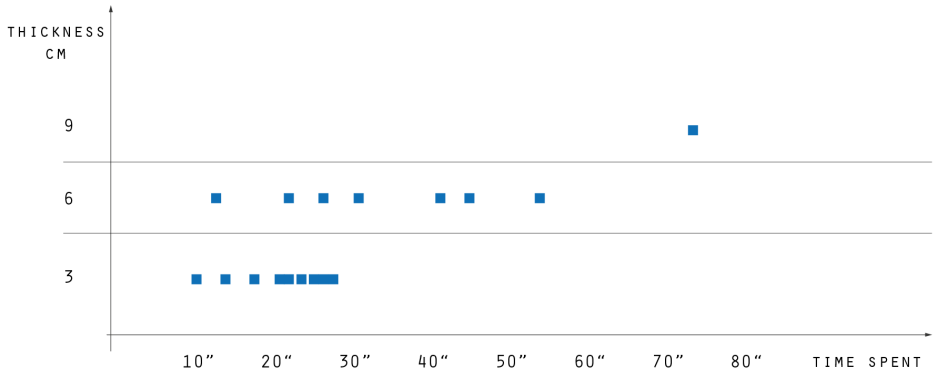

Fig. 35 Thickness Test Result Diagram

During this exercise, I found that unlike the first experiment with sight, people were more likely to give up with acoustic-related tests because it was easier to experience a gradual adjustment with ocular sense than hearing sense. Some testees expressed that they focused more with their ocular sense than hearing sense. Therefore, the experiments with sounds are relatively more biased on individual sensibility.

4.2.2.4 Test Feedback

The suggested plywood wall thickness should be varied from 3cm to 6cm. However, this result might not be perfectly applicable in reality due to the scale of the test. Several variables like the size of the room, the variations in the volume and the location of the sound source (the actual volume of sound from a conference meeting is not constant.) are not taken into consideration in this test. Also, in this test, the testing surface of the sound box is small and the testees know where exactly the sound source is, but in reality, when people are walking along a wall, they might not be sure about the exact sound source to listen to. Besides, the time spent (concentration) will also depend on the content of the conversation that they overhear.

05 DISCUSSIONS

Since I see this thesis as a research vehicle that allows me to speculate and examine the physicality of a slow architecture, this chapter focuses on reviewing the proposed slow scenarios in relation to the experiential spatial qualities based on the feedbacks of the experiments.

5.1 Review Slow Scenarios

5.1.1 Overview

The Dark Room Scenario targeting on the ocular sense is designed to refresh people's sights and make them mindful of what they perceive with their eyes. It is proved to be positive by some volunteers who have admitted that they underestimated the capacity of their eyes and felt more attentive with their sight; While a couple of them mentioned it was a slightly challenging experience for them. The design of this dark room is amended and developed by taking the precision of 'walking through a 7-meter corridor' from the experiment.

The Double Wall Scenario targeting the ocular sense is designed to surprise people by revealing a dead end as two layered walls with a route in-between. It is proved to be positive by some volunteers who have admitted that they were tricked by the perspective and felt more attentive with their sight afterward; While a couple of them mentioned it was not visually convincing enough since they had spotted the grid unaligned at the two ends. The design of this double room is amended and developed by taking the precision of '3.2 meters between the layered walls with the front wall tilted clockwise at 7.8° and a circular projection moving horizontally at a speed of 2.3mm per second' from the experiment.

The Overhearing Scenario targeting on the hearing sense is designed to slow people down by allowing them to overhear conversations and make them more concentrated by providing variations in volume. It is proved to be a controversial experience as a couple volunteers were not able to hear clearly from the sound boxes and some mentioned that they were not so interested and found it hard to engage. The design of this overhearing conference zone is developed by taking the precision of 'using plywood as the wall material with 3cm to 6cm thickness' from the experiment to amend the physicality of the space. However, there were several uncontrolled variables like the size of the room and the feedbacks on the experience from the testees were not very ideal. Therefore, this slow scenario did not work effective as expected and it indicates that experiential slowness might be harder to achieve through the sense of hearing,

5.1.2 Dark Room Scenario

Fig. 36 Modified Dark Room Scenario (please unfold)

5.1.3 Double Wall Scenario

Fig. 37 Modified Double Wall Scenario (please unfold)

Fig. 38 Experiential Slow Architecture

5.2 Evaluation

This thesis suggests that slow architecture exists in the experience and feelings of its occupants as a layered sensational journey through specific spaces. Such experience is designed and activated with distractions, surprises and concentration, which might not suit everyone's comfort or expectation. Some may regard such spatial journey as a hash experience, which merely disorientates people.

It is true people are so used to orientations and orders because they provide us convenience, but what we are used to might set us a comfort zone where we stop ponder. We seek for architecture that implements the best spatial solution, which is, in most of the cases, the most efficient one; but architecture should also be able to offer us possibilities and diversity. Perhaps the boundary of architecture comes from its intention of being efficient, convenient and thereby fast, which is deemed to be important when our minds are preoccupied with a destination, rather than a process. Allow people to slow down, invite people to be disoriented, encourage people to perceive differently so that they could ponder with curiosity, surprise, confusion, emotion and memory. We all swim cross a river where our mind and body are drowned in fast current, but there are moments in time when we need to feel our existence beyond that norm; And that is the positive value of experiential slow architecture.

As for the methodology, I found carrying out experiments to test the experience and the physical precisions on archiving that useful. The spatial experience might be abstract and personal; the architectural constructions need to be precise. Thus, it is effective to examine an intangible notion of experiential slow architecture with certain specifications on dimensions, positions and materials that form a tangible space. Such tests developed from proposed experience to spatial precisions are helpful to contextualize the concept of slow architecture. Also through tests, it shows the ocular sense is a more suitable subject for designed slow experience, compared to the acoustic sense, since the sight is able to adjust to brightness in a visible manner relatively quickly but hearing might not be able to adjust to the volume of a space at the same rate.

Besides, the targeted experiments offer several useful spatial precisions but since senses and perceptions are quite subjective and each individual would respond differently based on their sight and hearing capability, the suggested result might not be perfectly applicable to everyone in reality. Also, the scaled space might have an impact on the outcomes. Despite these limitations, one thing that might need to be proved with the experiments is the age group of the testees. The volunteers I had in the experiments are mainly in their 20s. A more diverse age group might be desirable for these tests relied on senses.

06 CONCLUSION

This thesis starts as an exploration of slow culture, art and space upon the fastened pace of living resulted from post-industrial urbanization and globalization. By analyzing existed representations on the notion of slow, I intend to specify 'slowness', in the scope of this thesis, as a philosophy of taking time to sense and appreciating genuine quality of objects and spaces that stage our daily life; as a value against the current tendency of simply pursuing quantity, efficiency and convenience. Thereby, slowness takes place in the emphasis of journeys, rather than destinations. Slow architecture holds the role of implementing multi-sensory spatial experience and help people perceive differently by allowing the insertion of distractions, surprises and concentrations into spaces, which might appear to be an alternation of normalcy.

To validate such role, three experiments on spatial precisions in terms of dimension, position and material of a space are carried out. I tried to speculate the relation between the experiential aspect and the physical aspect of slowness within a constructed spatial framework. Through these exercises, I found that the slow architecture was completed and activated by its occupants who through the provision of the space became able to sense slow and acknowledge their being as a slow status. Despite such slowness is subjective meaning individuals may have different feedbacks under the same setting, the nature of a slow architectural scenario is able to be determined by its physical form, which should be precisely tailored towards test results with more agreements; besides, on achieving a slow sensory experience, designed elements based on the ocular sense is more effective than acoustic sense.

The essence of a slow architecture is in the experience of perceiving slow scenarios in the architecture, as well as in the process of designing and constructing the space that caters slow experience as such. Therefore, a slow architecture should be designed with functions and circulations, but more importantly with the experience. For instance, a door is a threshold that situates on the boundary of one void and another, but it is also what people might push, pull or slide to get through. When we design by imagining and visualizing the occupants experiencing the space, we are getting closer towards a genuine quality of space and thereby towards a slow architecture.

07 BIBLIOGRAPHY

NOTES

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