

## DESIGN EXPLORATION OF INCEPTION SPACE FOR DEMENTIA WITH MEMORY AND VISUOSPATIAL DEFICIT

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### ABSTRACT

The concept of inception space, perception, memory, scenario, layer, and labyrinth, is expected to affect the target (mark) as architectural space user by planting the idea 'secretly' in which the target is unaware of the intervention. Target who will undergo a process of inception is the person with dementia, people who have a progressive decline in cognitive function and behavior. The design methods are the nursing home case studies, the development of "slayer oranye", and Qibla direction. The development of this method is done through the series model House of Ariadne and intervened in the old East sector of Universitas Syiah Kuala lecturer housing context, Banda Aceh. Results obtained is a concept of inception space as wayfinding for dementia with memory and visuospatial deficit.

**KEY WORDS:** inception, dementia, wayfinding

### INTRODUCTION

Inception space is an architectural space which, through settings and scenarios in each layer, can indirectly influence a person's mindset or subjects who experience space. This definition is obtained from the results of exploration and literature study on the film *Inception* directed by Christopher Nolan in 2010. Dementia describes a collection of symptoms that are caused by disorders affecting the brain. It is not one specific disease. Dementia affects thinking, behaviour and the ability to perform everyday tasks. (Alzheimer's Australia, 2005).

Space exploration of inception space for dementia who experience decline in memory and visuospatial abilities is the concept exploration of architectural space that instills the wayfinding idea. Hopefully, the idea helps dementia to improve the quality of life through independence finds a way. The study of this design exploration is an inception space on the journey between a dementia sufferer house as a base to meunasah as the center labyrinth.

### LITERATURE REVIEW

#### **Inception as Architectural Concept**

The next discussion is the development of the architectural spaces concept. In general terms, the inception space consists of layers in which each layer has a special scenario and setting. These scenario and setting involve the translation of perceptual and memory experiences of target. Because of that, the initial stage of inception process is the initial approach of the target (mark) as an object to be idea planted. Target is approached by the target's everyday life in doing

activities and making space. The design of architectural space consists of layers of labyrinth and or maze to speed up the inception and to gain time. Each layer will perform special programming according to the trigger that has to be achieved as one of the inception process.

#### **Dementia with Memory and Visuospatial Deficit**

The most dominant diseases that cause dementia are Alzheimer's (AD), Vascular Dementia (VaD), and Lewy Body Disease (LB). Therefore, the symptoms caused depend on which part of the brain is attacked by the disease. All three diseases cause a gradual decline in memory, cognitive, and / or behavioral abilities.

The inception space design exploration is only limited to dementia who experience a decrease in memory ability (memory deficit) and visuospatial deficit. Decreasing memory in people with dementia occur worse gradually. Patients experience a setback in remembering short-term memory. Therefore they require the repetition of a memory generator (mnemonic) to recall. Whereas visuospatial deficit is a decrease in the ability to visualize space related to other objects or relate to visual perception of spatial relationships between objects. One of them is visualizing space from a map. The initiation process for dementia sufferers was also carried out in a case study of several nursing home designs, *slayer oranye*, and Qibla direction.

#### **A. Nursing House**

Based on the case study of the three designs and programs of the nursing home namely Southwood Nursing Home, Australia; Akasaki-cho Day Care (Kikuta), Japan; and De Hogeweyk, the Netherlands, increasing memory and independence of dementia sufferers are the main focus. Decreased ability to

remember memory is enhanced through the appearance of mnemonic elements. Long-term memory is aided by designs related to their past and short-term memory by selecting specific characters from occupants through the memory box or door colors.

### B. Slayer Oranye

*Slayer Oranye* is a small, orange-sized triangular cloth used by Umrah pilgrims to show the identity of fellow groups. This observation was carried out on April 25 to May 7, 2015 throughout the journey from the homeland to Saudi Arabia, namely from Medan, Jakarta, Colombo, Jedah, Madinah, and Mecca. This observation was devoted to the group from Kuala Simpang, Aceh because it consisted of 42 worshipers who were on average 60 years and over. Participants from this group cannot be said to have dementia because it must require clinical action. However, some behavioral disorders can be categorized as symptoms of the disorder of dementia sufferers.

Based on these observations, the color strongly supports a person with dementia at wayfinding. According to Wijk et al, the ability to distinguish color affects Alzheimer's patients, most errors in areas are blue and green while less confusing in yellow and red areas (Marquardt, 2011). This *slayer oranye*'s potential can be developed as a reference point that helps direct dementia sufferers as targets according to programming.

### C. Qibla Direction

In addition to the use of striking colors on the *slayer*, the mechanism that helps Umrah pilgrims in orientation is the Qibla direction. This perception goes well at the Nabawi Mosque in the city of Medina which has only one Qibla orientation. However, the direction of the Qibla at the Great Mosque of Mecca has a rotating orientation towards Ka'bah. Therefore, the determination of orientation in and out of the Grand Mosque is based on other reference points such as the corners of Ka'bah.

## DESIGN EXPLORATION

### 1. House of Ariadne Exploration

The next design method is done by modeling to find mechanisms incorporate the principles of inception space design and requirements that have to be met for people with dementia. These architectural models are named *House of Ariadne* which is numbered one to four, namely *House of Ariadne I*, *House of Ariadne II*, *House of Ariadne III*, and *House of Ariadne IV*.

Firstly, *House of Ariadne I* is a model that applies the mechanisms of repetition or repetition of movements only in two directions, namely front and back or forward and backward from the labyrinth. Second, *House of Ariadne II* is a model that applies the mechanisms obtained from typical house exploration from housing in the East sector lecturers' houses. In the beginning, this model explored to find the mechanisms that can be done to develop the concept of the base, the starting point for

the target before experiencing the inception space. *House of Ariadne III* is a model that applies a slayer oranye that produces a scenario mechanism for color perception through color coding. It can be the same or different reference point and will form a path from base to the center of labyrinth. It also helps to close the section that visually distract targets. Last, *House of Ariadne IV* represents mechanism of the center of labyrinth character. It shown by exploration of different angles and one plane. In addition, this model translates the method from the Qibla direction where every corner of the center of labyrinth and one other plane have different characters to make it easier for sufferers to find an orientation according to programming. The purpose of this model is distinctiveness.

### 2. Context

The design of this Inception space will be explored and intervened through the development of the area and interior space in the East sector of lecturer housing, Syiah Kuala University, Kopelma Darussalam, Banda Aceh. The lecturer housing that will be intervened is the old lecturer housing has some site potential. First, the typical houses arranged in grid is producing an impression of sameness that can make people with dementia to experience orientation errors. Second, there is a small mosque (*meunasah*) which is the center of daily activities of the elderly. Third, there are several elderly groups who live in the East sector lecturer housing and regularly praying at the meunasah every day.

### 3. Design Development



Diagram 1. Typical house exploration as base

The next discussion is the design development that will be explained through diagram of mechanism explorations. The initial stage of design development is to uncover site potential. Diagram 1 explains the exploration of a typical home as a base. Exploration is looking for detailed elements that have the potential to be mnemonic and developed to manipulate memory.



Diagram 2. Space experience from base to the center of labyrinth

Diagram 2 explains the journey of a person with dementia as a target between the base (house) to the *meunasah* as the center of labyrinth. Consists of 18 parts where one part captures images from four sides, namely left (l), front (c), right (r), and back (b). Between one part and the other part taken as far as 20 steps assuming architectural elements are quite transformed from the previous section.

Furthermore, Diagram 3 shows exploration to determine the reference point potential so that the labyrinth mechanism which has only one direction is achieved. The reference point also helps to blur the sameness of a typical home. Some elements that can become reference points are personal items in front of the house, exotic vegetation relative to the surroundings, road elements such as rumble strips, and building material.

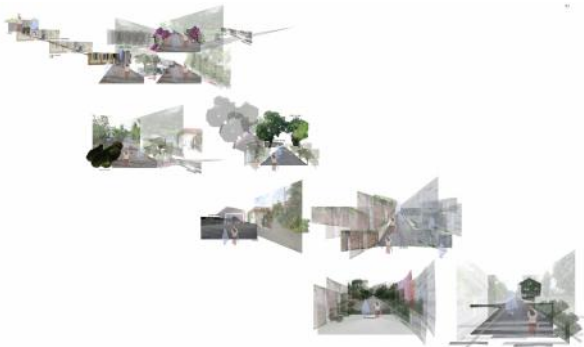


Diagram 3. Reference point potential exploration from base to the center of labyrinth



Diagram 4. *Meunasah* facade exploration

Diagram 4 explains the exploration of *meunasah* facade to find characters of each corner. This exploration is done by collage method between the corner of the

musala with architectural elements in each corner. This method is completed to diagram 5 which explains exploration to see the detailed elements. The elements have character of the *meunasah* potential. This stage is also combined with a finding of the surrounding architectural features to find its identity. This identity also helps manipulate memory for escape purposes.



Diagram 5. Detail of *Meunasah* facade exploration

Next stage is to do programming or how the results of this exploration will work. Diagram 6 is a simple diagram that explains how the visual target will be passed from base through finding characters of the center of labyrinth. This diagram explains five scenarios that will be carried out on the target as inception process.



Diagram 6. Target (mark) visual programming diagram

Diagram 7 below explains the design process through the *House of Ariadne* intervention on the site. Existing site is explored into a labyrinth path from base to the center of labyrinth (volume in red) and added section elements (red plane) to target's path distractions. The mechanism of the *House of Ariadne I* is used at this exploration stage. The next exploration is to raise the level of the path so that the labyrinth path from the base to the center labyrinth only has trigger 'up'. Next, the base is aligned with the path without being followed by the center of labyrinth so that its position is at the highest level relative to the base. Visual access exploration is carried out at the starting points and sections so that the character of the center of labyrinth is present at this point. This point can be developed as a potential *Slayer Oranye*.

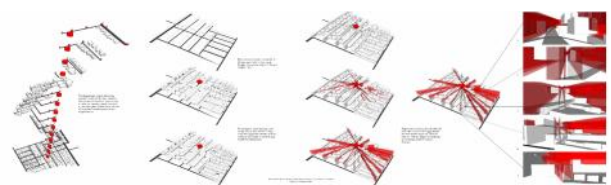


Diagram 7. Intervention of House of Ariadne on site process

Diagram 8 explores the next design process on the site. After determining the *meunasah* as the center of



labyrinth, the next stage is determining the orientation character around it, namely the North, South, and East orientations where the Qibla direction is relative to the Western orientation. Ablution is the character in the South orientation, *Balee* or gazebo is the character in the East, and the Minaret is the character in the North orientation. These characters are strengthened by signing in the South, East, and Minaret orientations so that the center of labyrinth can be 'read' from almost every section. Adding stopping points is one reference point that functions as an *slayer oranye*. The base feature is finally added according to the base area that has been determined based on the plan of the intervention zoning of *House of Ariadne I* on the site. The division of this zone is based on influence range of the center of labyrinth character development.

The process of inception from base to *meunasah* is explained by diagram 9. This process involves settings that consist of five scenarios and three layers. The scenario is based on the visual mechanism that has been explored before. This scenario relates to reference points and layers based on three triggers. These reference point elements will be captured and stored as memory to be restored in *escape* process. The first memory stored are the wooden frame installation and *bungong meuh* as characters of the base. Whereas diagram 10 explains the process of inception from *meunasah* to base. This process is also called *escape* which is to re-assemble memory elements into reference points and consists of five scenarios and three layers. The first memory series is the character of the ablution at the entrance of the *meunasah*. The development of the corridor design that resulted in two settings done to make it easier finding the center of labyrinth character in stopping points and reduce distraction section.

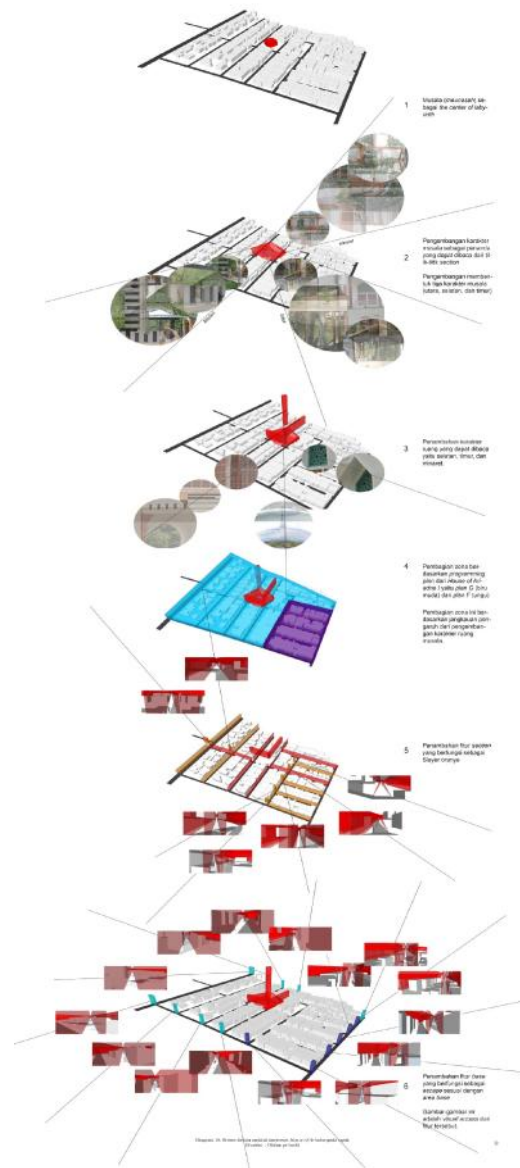


Diagram 8. Intervention of House of Ariadne on site process

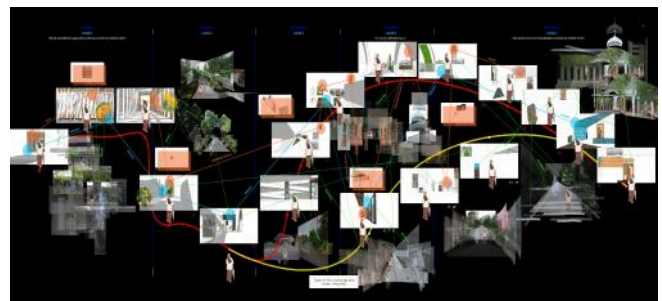


Diagram 9. Inception process from base to *meunasah*

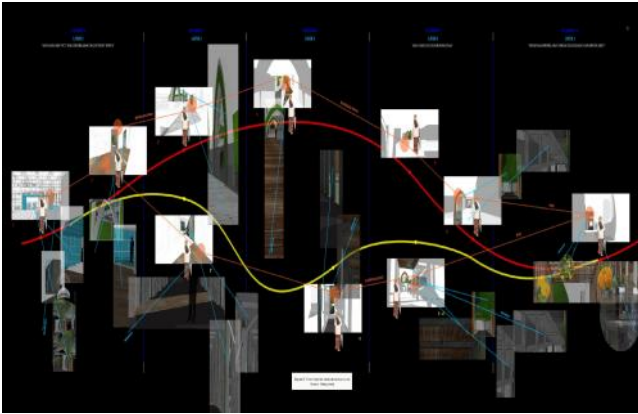


Diagram 10. Inception process from *meunasah* to base

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## CONCLUSIONS

The concept of inception space, perception, memory, scenario, layer, and labyrinth, is expected to affect the target (mark) as architectural space user by planting the idea 'secretly' in which the target is unaware of the intervention.

Through the elaboration of Inception film and literature study, inception space is an architectural space which, through settings and scenarios in each layer, can indirectly influence a person's mindset or subjects who experience space. In other words, the architectural space is the media of inception towards the user of space or target. This design exploration tries to study and develop knowledge of the inception space design method for people with dementia. Therefore, this method has the possibility to apply to different targets and contexts. The main purpose of inception process is that target (mark) will not aware of the intervention of idea in the space and consider it emerged by itself. This inception space design concept was developed to be experienced by specific targets such as dementia sufferers who experience a deficit in memory and visuospatial abilities.

This inception space designed through the initiation stage by recognizing and collecting information about dementia sufferers through previous studies and the design of nursing home. This is done to get the clinical and technical requirements of dementia disease and the recommended space design. Furthermore, next exploration is the development of the *House of Ariadne* series model as a modified labyrinth mechanism model, the patient's house as one of the bases, *slayer oranye*, and Qibla direction.

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