Healing garden implementation in rehabilitation centre at Jakarta as a concept of eco-architecture design

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Abstract. This paper presents a study of the implementation of ways to create landscapes that can provide healing effects created from the existence of the landscape itself. The background of this study is nowadays architectural development does not support ecology, people start to build something that will benefit in the market and ignore the importance of the state of the organic environment for the overall environment and landscapes only play a role in natural beauty. So, promoting and applying the elements of the garden and plants as a part of healing garden becomes an important issue and it must be borne in mind when designing landscapes in order to support eco architecture awareness. This paper provides essential benefit for humankind through healing garden. Precisely, the results of this paper indicate specific elements on plants' nature variety of place within the mentioned garden.

Keywords: healing garden, eco architecture awareness, plants, elements, landscapes

1. Introduction
This paper refers to one of significant scholar works that conveys environmental perspective, known as Ecology. It depicts relationship between plants and animals [1]. Terminology of ecology is defined as the body of knowledge about the economy of nature, the investigation of the total relationship of animals. The investigation encompasses both organic and inorganic environments, as holistic biological and human activity [2].

By placing ecology in the foreground of design, it provides specific ways of minimizing energy and material use, reducing pollution, preserving habitat, restoring ecosystems, inventing landscapes, and fostering community, health, and beauty. This paper will aim to focus on the ways to create a landscape so that the landscape can not only play a role in the beauty of nature, but also in health so that the effects of healing can be created by the existence of the preferred landscape. Healing landscapes have long been an important aspect of human life. One scholar works mentioned that when people first began erecting dwellings, healing places could be found within nature through sacred groves, special rocks, and caves [3]. Another scholar articulates his thinking through pioneer study on the significant effect of hospital windows view for recovery patient from abdominal cholecystectomy surgery. Ulrich’s mentioned study focuses on patients who could view trees, instead of a brick wall through hospital window [4]. Subsequently, the mentioned articulation study provides finding these patients required less narcotic pain medication. Ultimately, they experienced a shorter hospital stay, and had fewer negative evaluative comments in nurses' notes.
Unfortunately, the most recent architectural development does not lean its favor toward ecology. Precisely, the architect tends to build profitable market related product. This tendency triggers the ignorant of organic environment importance on modern advances in technology towards healing. This healing has largely diminished the importance of nature in process. Unfortunately, this process is considered as drawback result of the “cure over care” phenomena found within many aspects of the healthcare field.

The mentioned architectural development is deemed detrimental to society health. As the consequences, it further raises inquiry whether this process is not a major factor in the human healing [5]. The mentioned fact indicates that environmental factors play a major role in the human healing process. The mentioned major role is significantly equal to 40% within the other involved roles. Precisely, those other involved roles are referring to medical factors; genetic factors and others. Respectively, those roles contribute to merely 10%, 20%, and 30%.

This paper provides discourses on Healing Gardens and its intended stakeholders. Originally, these gardens are intended for ill and disabled users, so that they can be present physically and visually access these sites. As expanded from its original intention, the healing gardens, within healthcare setting, are often used by a larger population including staff and visitors as well as patients and/or residents. For that reason, the healing garden is implemented in the location within the designated environment setting of rehabilitation centre in Cipedak, South Jakarta.

The rehabilitation environment is intended to expedite patient recovery. Instead of directly going home posterior to surgery, patient is allocated in the mentioned work environment for the staff, a healing environment for patients and families, a business environment for the provision of healthcare, and a cultural environment for the organization to fulfill its mission and vision. In order to realize these environments, facility designs must be linked to the organization’s goals and objectives [6].

2. Research Methodology
This session of paper emphasizes on literature reviews that are significant for the research methodology in this discourse on healing garden implementation.

2.1. Healing Garden Elements Data
Based on Healing Gardens theory, healing gardens are effective if they foster the following elements, sense of control, social support, physical movement and exercise, and access to nature and other positive distraction [3].

2.2. Vegetation Data
The characteristics of healing garden elements are then adjusted to the characteristics of each plant that has been compiled in the concept of green governance, where the characteristics of spatial plants that function as recipients, social interaction, therapy, and meditation, and also contain each plant that functions as a shade, barrier, director, aesthetics, ground cover, and aromatherapy [7]. Other complementary aromatherapy plant data are also a series of plants that are categorized by color and their effect on each therapy [8].

3. Scope of study in this paper
This study uses a table of suitability between plant characteristics, both from plant function, plant characteristics, and characteristics needed in a healing garden. All data sourced from literature study. Data in the form of healing garden characteristics were obtained from literature study results, plant characteristics data were obtained from literature studies.

Furthermore, the healing garden element data will determine the type of plant used based on plant characteristics. All types of plants will be placed in certain spaces and locations in the healing garden so that these plants can support rehabilitation activities.
3.1. Healing Garden Elements

3.1.1. Sense of Control
Patients or residents must know that the park exists and can be found easily and can be accessed passively or actively. The feeling of having control can also be enhanced by involving the user in the garden design.

3.1.2. Physical Movement and Exercise
Small exercises can be encouraged by designs that allow patient accessibility to the facility for example by walking loops. For children, areas that function for stress reduction activities and play areas must be included.

3.1.3. Social Support
Space that allows socialization that can be done by users, both by designing for small and large social activities is important. But in consideration of the design of social support must not conflict with access to privacy.

3.1.4. Access to Nature and Other Positive Distraction
Designs that encourage users to use all the senses are often good choices for consideration of design plants, such as plants that encourage wildlife. According to the Garden in Healthcare Facilities the presence of birdbaths / bird feeders, water features, sculpture, wind chimes, fish ponds will build stronger user perceptions of the park [9].

3.2. Plants

3.2.1. Sense of Control
The discussion on Sense of Control’s Topic is elaborated beneath the Table 1 on next page. Briefly, this paragraph depicts the preliminary discussion. Precisely, according to the Garden Design with the Healing Garden Concept, the impression of acceptance is built with the function of aesthetic plants and barrier plants, with specific functions forming characteristics, and attractive colored flowers, and can be a pedestrian barrier with a garden area (bush) [10].

The following are plants that can be used in this aspect, Penitian (Acalipa simaea) because they can be a barrier between pedestrian and garden areas, Bougainvillea (Bougenvainvillea spectabilis) as attractive colored flower plants, Dilem (Colleus sp) as flowering plants, Drasena (Dracaena sp) as a beautifying plant, and Alamanda (Allamanda cathartica) as a pergola plant that can be a barrier. It is shown in table 1.

3.2.2. Physical Movement and Exercise
Similar to prior 3.2.1, the discussion on Physical Movement and Exercise’s Topic is elaborated beneath the Table 2 on next page. Briefly, this paragraph depicts the preliminary discussion. Physical movement and exercise are one of the therapies of healing environment. According to the Garden Design with the Healing Garden Concept [10]. Therapeutic activities can be supported by plants with aesthetic functions, aromatherapy, and horticulture plants, with specific functions giving the impression of colors by flowers, giving a refreshing fragrance, and providing therapeutic facilities for planting and caring for vegetables and fruit.

The following are aromatherapy plant colors used in the therapeutic process and types of plants in accordance with these colors in accordance with the Use of Ornamental Plants to Improve Children's Therapy Facilities [8]. It is shown in table 2.
Table 1. Preferred Plants for Sense of Control.

| Needed Characteristics          | Bougainvillea | Dilem | Drasena | Alamanda |
|---------------------------------|---------------|-------|---------|----------|
| Attractive Colored Flower Plants| Bougainvillaea spectabilis | Colleus sp | Dracaena sp | Allamanda cathartica |
| Flowering Plants                | √             |       |         |          |
| Barrier Plants                  |               |       | √       |          |
| Aesthetic Plants                |               |       |         | √        |

Table 2. Preferred Plants of Physical Movement and Exercise.

| Needed Characteristics | Carnation | Kembang Sepatu | Asoka | Geranium | Cosmos sp. | Bugenvillea | Chrysanthemum |
|------------------------|-----------|----------------|-------|----------|------------|------------|---------------|
| Blue                   | √         |                |       |          |            |            |               |
| Orange                 |           |                |       |          |            |            |               |
| Yellow                 |           |                |       |          |            |            |               |
| Pink                   | √         |                |       |          | √          |            |               |
| Red                    |           |                |       |          | √          |            |               |
| Purple                 |           |                |       |          |            | √          |               |

3.2.3. Social Support
Social support must enable social interaction in this aspect. According to the Garden Design with the Healing Garden Concept [10], social interaction can be supported by plants with aesthetic functions and shade plants, with specific functions giving the impression of color by flowers and providing shade by a combination of low and high trees.

The following are plants that can be used in this aspect, Chrysanthemum (Chrysanthemum sp) as colorful flowering plants, Jakaranda (Jacaranda filicifolia), Tabebuya (Tabebuia rosea), and Flamboyan (Delonix regia) as a shade in the area of interaction with a combination of low and high trees. It is shown in the following table:
3.3. Access to Nature and Other Positive Distraction

Positive distraction is a holistic way of meditating. According to the Garden Design with the Healing Garden Concept [10]. A quiet space that can support the process of meditation can be supported by plants with aesthetic functions and aromatherapy plants, and shade plants with specific functions give the impression of color by flowers, and shade by a combination of low and high trees.

The following are plants that can be used in this aspect, Canna Flower (Canna indica) as colorful flowering plants. Chrysanthemum (Chrysanthemum sp) as a colorful flowering plant, and Ketapang (Terminalia catappa) as a shade in the meditation area. The following is the application of plants to access to nature and other positive distractions.

Table 3. Preferred Plants for Social Support.

| Needed Characteristics | Plant Types |
|------------------------|-------------|
| Jakaranda *Jacaranda filicifolia* *(height could reach 20 m)* | ![Picture](image1) |
| Tabebuya *Tabebuia rosea* | ![Picture](image2) |
| Flamboyan *Delonix regia* *(height could reach 30 m)* | ![Picture](image3) |

| Low trees | √ | √ | √ |
| High trees | √ | | √ |

4. Conclusion

Providing a place for nature to give its essence to the good of humans, especially in the context of health is important. Providing a variety of plants in a healing garden development is a step-in accelerating healing and a step forward in advancing the effectiveness of a healthcare environment. Of course, it is undeniable that the types of plants in one area may not function well in other areas, so the use of other types of plants by adjusting the functions and main elements in healing garden is something that is allowed, even highly recommended. However, further research is needed in applying these plants so that application results can be more effective.
5. References

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