

Sensory Garden And Tactile Experiences As A Stimulation For Person With Antisocial Disabilities

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ABSTRACT: *Learning is essential for us to understand something that we don't know yet. Learning could be very hard for certain people if they did not know to do it properly. Persons with antisocial disabilities sometimes have limitations in understanding lessons because of their emotional and behavioral disorders. Research conducted that nature and viewing, like a garden or greenery, is a good reliever for mental health as a refreshment. This study aims to determine how small and large the influence of the spatial design of the sensory garden on the sensibility and movement of persons with antisocial disabilities by approaching architectural elements in the form of tactile or sense of touch. This study investigates the human need for sensitivity, emotional and behavioral control for people with antisocial disabilities, and the methods to be used are qualitative research and interviews with certain people who may be involved in this topic. The conclusion ends with a personal assessment that Sensory Arts Garden is the most suitable sensory garden amongst the case studies to support the sensor recognition process to the person with Antisocial Disabilities, and supported with an idea, suggestion, and information about how important the sensory garden and its elements for the mental health for persons with disabilities who cannot get along.*

Keywords: Sensory Garden; Antisocial Disabilities; Senses

INTRODUCTION

Humans were created as a creature who likes to seek knowledge. With this natural behavior, humans can learn things from either experience or seeking by themselves from education. Humans can learn various things through education. Education is the learning of knowledge that cannot be separated from the life of every human being. Education is also a measurement or benchmark of a country, where an advanced country is a country that has intelligent human resources, and how they deal and adapt to their resources. In general, the quality of a nation's human resources can be measured from the quality of the nation's education condition. Through education, humans can learn and try to change or improve their lives. Education is a right for everyone, regardless of their social status, ethnicity, or beliefs. Knowledge should also be felt by every human being with various physical limitations, especially for children with special needs.

Learning is a process of exploring and understanding something that people may not know yet to know something that we do not know or learn eventually. We know more about something by learning, but learning can also make them stressed if they do not correctly. Each type of disability has its uniqueness and requirements regarding fulfilling the criteria to help them understand things. Antisocial disabilities may need some environmental adjustment to help them understand their surroundings more clearly. It can be from the surface texture and color, the lighting, ambiance, etc. But most importantly, the thing that is very important for a person with antisocial disabilities.

Getting in nature or watching nature's scenes decreases frustration, anxiety, and tension and raises good feelings. Not only does exposure to nature make you feel physically healthier, but it also contributes to your physical well-being, reducing blood pressure, heart rate, muscle pain, and stress hormone output. Gardening is one practice that consistently has significant emotional and physical effects, including declines in depression, anxiety, stress, and a reduction in blood pressure, all related to daily garden activity.

A sensory garden is a garden environment that autonomous and encourages visitors to enjoy a wide variety of sensory stimuli. Sensory gardens provide opportunities to activate the senses in ways that users do not usually experience, both individually and in combination. Sensory gardens have a wide variety of uses for education and leisure. It can be used in the education of children with special needs, including individuals with autism.

Shoemaker (2002:195) stated that sensory gardens could not be build without considering the human aspect. Sensory gardens draw the visitor into contact, smell, and consciously experience the garden with all senses, unlike conventional show gardens intended to be a view from a distance. It is possible to plan sensory gardens openly and enjoyably for both disabled and non-disabled users. For example, a sensory garden can include characteristics accessible to the disabled person, depending on the individual, such as scented and edible plants, sculptures and sculpted handrails, water features designed to create sound and play over the hands, textured touchpads, and many more.

Hope that this research and study results can provide benefits for Education fields to fulfill education standard for people with special needs, especially for antisocial disabilities. Concerning how the optimal design considerations and criteria of the sensory garden are, and what design criteria need to be avoided, better mental health results for better Indonesia education quality.

LITERATURE REVIEW

1. Mental Health And Architecture

The research conducted by the author is entitled "Stressed Spaces: Mental Health and Architecture." The study reviewed some literature discussing the intersection of mental health care and architecture contribute to positive mental health outcomes, provides an updated overview of health and architecture literature.

By collecting and studying the other literature about the intersection between mental health and architecture is by the commonalities of the impact of mental health outcomes, the result is to state the effect of nature on mental health outcomes and stimulation through views from windows and the form of artwork.

With these significant themes, further research will result in design criteria for the sensibility and movement of persons with antisocial disabilities by approaching architectural elements in the form of visuals, spaces, and tactile.

2. Typology Of Garden

2.1. Landscape Garden

In response to the continental aristocracy's hyper-manicured gardens, the British invented the "landscape garden" in the 18th century, which idealized a wilder beauty, more naturalistic and in tune with the topography of the given location, but ultimately just as calculated as its predecessors.

2.2. Formal Garden

A formal garden has a specified structure, geometric shapes, and symmetrical layout in most cases, and builds massive axes and geometrical plans with parterres of pirouetting broderies, miles of hedges, and endless avenues of trees. Its origins can be traced back to the desert gardens of Western Asia, which are surrounded by walls.

2.3. Rock Garden

A rock garden is a small field or plot of land where a variety of rocks, stones, and boulders are displayed and highlighted. A rock garden's standard layout is a pile of aesthetically arranged rocks of various sizes with small gaps between them in which plants are rooted.

2.4. Islamic Garden

An Islamic garden is a land estate with water and shade themes. Islamic gardens aim to provide a place for rest, reflection, and contemplation. The use of water and medicinal plants was a big part of the Islamic gardens' sensory experience. Architectural elements such as water features, arcades, and kiosks (a term originating from the Persian and Turkish for "pavilion") offer shade and relief from the sun in the Islamic garden.

In which the typology of garden mentioned, a sensory garden can be identified as an Islamic Garden of typology, since the sensory garden provides a sensory experience, which was achieved by incorporating water and aromatic plants.

3. Healing Through Tactile Experience And Sensory Garden

2.1. Sensory Design

Exercise in a natural environment can stimulate concentrated attention and social interaction. Which may impact exercise intentions positively (Hansen, Blakely, Dolata, Raulston, & Machalicek (2014); (2016)) Rogerson, Gladwell, Gallagher & Barton. Autistic children spent more time in environments where sensory are applied rather than the aesthetic illustration view. The development of outdoor play and the connection between children and nature would provide fun and relief from the strict classroom. Designers need to design outdoor spaces. Create open play areas, nature-based, enjoyable places for all kids to enjoy.

2.2. Sensory Garden Approach

2.2.1. Features

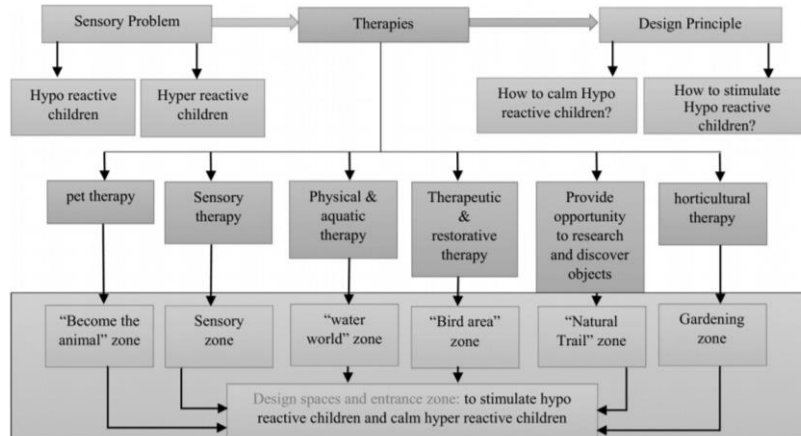


Figure 1. Design Spaces Diagram

Source: "Nature as a healer for autistic children" article.

Referred from the article "Nature as a healer for autistic children," therapy in the sensory garden can be lead to several types. Such as; pet therapy, sensory therapy, physical and aquatic therapy, therapeutic and restorative therapy, 'research and discover object' therapy, and cultivation of garden or agriculture therapy. Each of the treatments can be transformed into design spaces that can be felt directly for the visitor and disabled person.

Though in this research, the design spaces may be referred to for the sensory therapy, natural trail garden, and gardening zone because all of these spaces can be felt by the touch sensor of the human body as a stimulation of the tactile experiences.

2.3.2. Elements

Referred to the journal of "Sensory Garden in Special Schools," there are several elements of a sensory needs to be designed so it can achieve satisfaction from the variety of users.

- (i). Water is an important trait that can offer users the ability to respond to it in terms of hearing and touching, so the functionality is not a real benefit to users.
- (ii). Loose objects, like gravel divided by the surface of wood path edges, are inaccessible to wheelchair users, so these users do not understand essential characteristics that can only be tested in this way.
- (iii). A ramp is essential for safety and the easiness of circulation. Steps were also not favored, especially by users of wheelchairs and their carers.

RESEARCH METHODOLOGY

The method used in this research is a comparative method by using a qualitative approach, including two case studies of the sensory garden, namely Magnetan Sensory Garden and Sensory Arts Garden. Any data used for this research were obtained from literature reviewing of several case studies information and correlated publication and journal with involvement in some correlating theories and literature. The analysis compares similarities and differences to search for factors and reasons for how and why a particular action is being taken from comparing case studies.

STUDY OBJECTIVE

- Analyze the use of architectural elements in the case studies of a sensory garden, referring to the human need to sense.
- Which of the sensory garden as the case studies that more fit as a proper sensory garden.

RESULTS AND DISCUSSION

CASE STUDIES

1. Magnetten Sensory Garden



Figure 2. Magnetten Sensory Garden

Source:

<https://www.masuplanning.com/project/sensory-garden-magnetten/>

Project : Magnetten Sensory Garden

Size : 3500 m²

Year : 2017

For people with physical and emotional disorders, Magnetten receives care in Copenhagen. A safe deck garden offers a selection of activities that can be used in counseling and adds peace and happiness to daily life.

2. Sensory Arts Garden



Figure 3. Sensory Arts Garden

Source:



<https://dirtworks.us/portfolio/sensory-arts-garden-els-center-excellence/>

Project : Sensory Arts Garden
 Size : 1207 m2
 Year : 2019

Through the study of nature and relaxation of the senses, the Immersive Arts Garden and Pavilion served as a therapeutic and educational destination, delivering a positive experience. Motor, emotional, sensory, and social abilities are activated by planting, hardscape, and water characteristics.

ANALYSIS – FEATURES

Table 1. Comparison Table of Sensory Zone Feature

No	Features	Magnetten Sensory Garden	Sensory Arts Garden
1.	Sensory Zones	 <p>Figure 4. Flower Garden and Sitting Area</p>	 <p>Figure 5. Flower garden with specific senses on its section.</p>

In the Magnetten Sensory Garden, the flower garden and sitting area is the most shielded and intimate place where lush plants show various smells and colors to simulate nature's perception across all the senses. In a secluded niche, users can walk between the raised flowerbeds or rest, and with the changing of seasons, the features of the flower garden shifted as well. They were accommodating with smaller private places for one-on-one sessions, more expansive spaces for group activities, and physical activities such as balancing exercises.



Figure 6. Balancing Area Exercise

Source:

<https://www.masuplanning.com/project/sensory-garden-magnetten/>

In the Sensory Arts Garden, the sensory arts garden can be both therapeutic and educational for children and adults by offering a positive experience by discovering nature. The design will allow visitors to interact in their way, on their terms, and at their rate, with nature. In every section of the garden, each area has its character to help the people doing their therapy by seeing, taste, smell, hear, touch, body awareness, balance, and socialize.

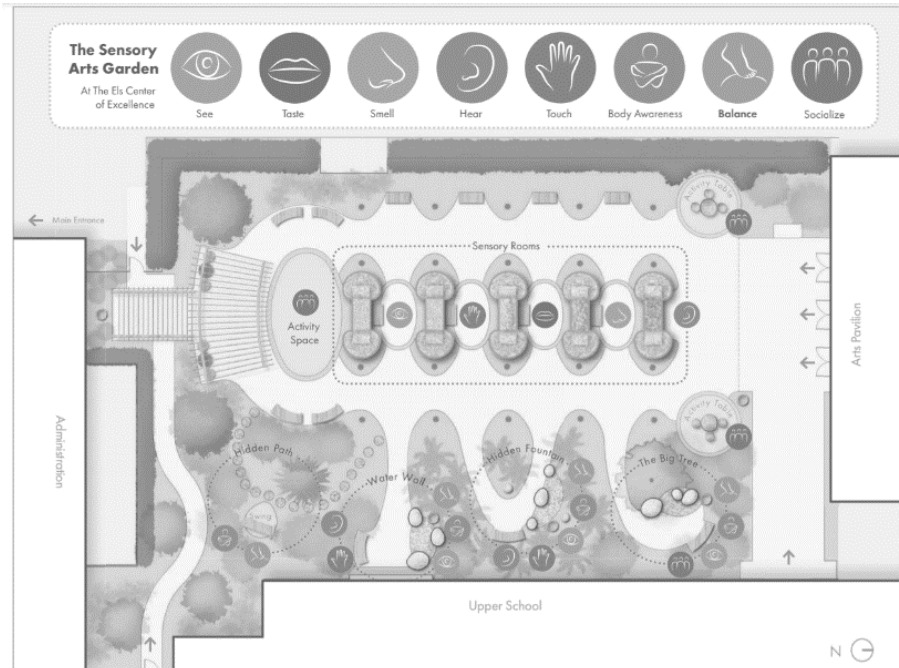



Figure 7. Sensory Senses Map in Sensory Arts Garden

Source:

<https://www.elforautism.org/the-els-center-of-excellence/sensory-arts-garden/>

Table 2. Comparison Table of Gardening Zone Feature

No	Features	Magnetan Sensory Garden	Sensory Arts Garden
2.	Gardening Zone	 <p>Figure 8. Gardening Zone and Bonfire Area</p>	

In the Magnetan Sensory Garden, the areas that related to the gardening area are the greenhouse and gardening area, which are consist of vegetable gardens and bonfire gardens. A greenhouse prolongs the vegetable garden season, for one-on-one planting sessions, weeding in groups, or just sampling the ripe tomatoes in summer. Users will

engage in conversation and suck up the warmth and scent of wood when gathering in the bonfire garden.

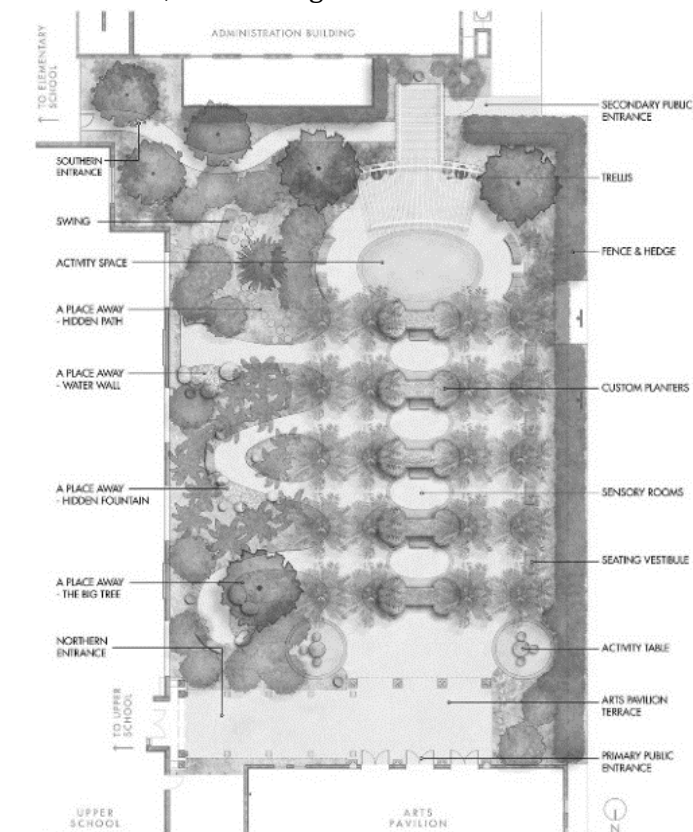


Figure 9. Bonfire Area

Source:

<https://www.masuplanning.com/project/sensory-garden-magneten/>

In the Sensory Arts Garden, there is no feature relating to the gardening activity. The garden provides places or area for the people to their activity like seating place, activity place, activity table, arts pavilion terrace, and other 'place away' area like 'hidden path', 'water wall', 'hidden fountain', and 'the big tree'.




SITE PLAN: The garden is enclosed by a verdant planted perimeter. The overall layout offers clear circulation, distinct settings and destinations, beginning with two clear arrival sequences at the north and south entrances.

Figure 10. Sensory Arts Garden's Site Plan

Source:

<https://dirtworks.us/portfolio/sensory-arts-garden-els-center-excellence/els-sensory-arts-garden-site-plan/>

Table 3. Comparison Table of 'Water World Zone' Feature

No.	Features	Magnetten Sensory Garden	Sensory Arts Garden
3.	Water World Zone		 <p data-bbox="903 685 1267 719">Figure 11. Water Wall Therapy</p>

Based on the case studies, The Magnetten Sensory Graden has no feature relating to the 'Water World Zone' For all senses. The Sensory Arts Garden provides water wall therapy and other 'water world zone' like a small water fountain. The water wall is beneficial for children's therapy because it's so serene and calming for them. And non-verbal children may express their feelings on how much they like the water wall therapy.





Figure 12. Small Water Fountain

Source:

<https://dirtworks.us/portfolio/sensory-arts-garden-els-center-excellence/>



ANALYSIS – ELEMENTS

Table 4. Comparison Table of Water Feature

No.	Elements	Magneteten Sensory Garden	The Sensory Arts Garden
1.	Water		 <p>Figure 13. Water Wall Therapy</p>  <p>Figure 14. Small Water Fountain</p>

The water element in this sensory garden is implemented on the sensory water wall and water fountain. As water is an important trait that can offer users the ability to respond to it in terms of hearing and touching, the children and the visitor may freely feel the features.

Table 5. Comparison Table of Loose Object in Pavement of Circulation

No.	Elements	Magneteten Sensory Garden	Sensory Arts Garden
2.	Loose Object	 <p>Figure 15. The pavement in Sensory Garden Magneteten</p>	 <p>Figure 16. The pavement in Sensory Arts Garden</p>

The pavement in Mageneten Sensory Garden is already at the same level and materials. They use gravel and sand, so the wheelchair user will have difficulty moving freely in the garden, though the ground level between areas is already the same. But some spaces did not support such a condition. In the balance area, the material of the grounding

using a wooden plank. This area is meant for the balancing area, so the different level and material transition of this area's pavement is essential.



Figure 17. Balancing Area

Source:

<https://www.masuplanning.com/project/sensory-garden-magneten/>

The pavement in Sensory Arts Garden is already at a similar level and materials. They use hard stone pavement for the central sensory garden because the sensory plantation is located in the garden's middle. So it will make the wheelchair user move freely in the garden. The other area that is not using the same material for the pavement is in the Swing Area because the swing is hanged in a tree with stone pavement and grass for the ground cover.





Figure 18. Swing Area

Source:

<https://dirtworks.us/portfolio/sensory-arts-garden-els-center-excellence/>

Table 6. Comparison Table of Ramp Feature

No.	Elements	Magneten Sensory Garden	Sensory Arts Garden
3.	Ramp	 <p>Figure 19. The use of ramp in Magneten Sensory Graden</p>	 <p>Figure 20. The use of ramp in Sensory Arts Garden</p>

Magneten Sensory Garden build the garden in a deck. It is a great way to use a room twice, and, in this situation, it was the solution to users' and clinicians' requests to build a garden on the deck. For the garden on the deck, then all the parking spaces may be maintained. The only access to the garden area is by stairs or steps. In this case, indeed, those steps were not favored, especially by users of wheelchairs and their carers.

The Sensory Arts Garden does not need a ramp, because there is significant differences in ground' level with the other area around the garden, like a pavilion, entrance area, etc.

CONCLUSION AND RECOMMENDATION

Sensory gardens provide opportunities to activate the senses in ways that users do not usually experience, both individually and in combination. From the sensory problem, people with antisocial and mental disabilities can act both hypo-reactive and hyperactive. The principle of the problem comes to how to calm and stimulate their hypo reactive and hyper-reactive behavior. Therapy comes in the end to soothe and stimulate their hypo and hyper behavioral action, like pet therapy, sensory therapy, physical and aquatic therapy, horticultural therapy, etc.

Sensory features that playing with senses and sense of touch proved useful for keeping their focus, like water wall therapy and texture of a water fountain. Water is an important trait that can offer users the ability to respond to it in hearing and touching. Hence, the functionality is not a real benefit to users in the sensory garden.

The plantation that takes a big part in senses is useful because the sensory plantation helps them keep focus and easily be distracted. Various activities and features like water, gardening zone, and therapy zone will keep the disabled people busy while refreshing their minds in the garden.

A sensory garden has to consider the easiness of accessibility. A ramp is significant for those in a wheelchair. And not only about the differences in existing floor height, but the pavement materials is also essential. A sensory garden must consider the proportion of the feature they are going to use. Suppose the gravel means to give sound and touch therapy when it touches the step of the visitor. It can be placed in some specific places with more features added regarding the same senses of touch and sound since it will trouble a wheelchair to move freely.

The researcher's own opinion to the most proper sensory garden from both case studies lead to Sensory Arts Garden because it fitter to the criteria stated in the literature review and Sensory Arts Garden provides a feature that quite important, which is the water therapy or Water Wall Therapy and Small Water Fountain Therapy. And as for other things that can help the reader and other researchers get to know about the importance of a proper sensory garden for a person with mental and antisocial disabilities, it is hoped that it will provide direction for design recommendations and criteria future of the sensory garden.

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- **Figure 4, 8, 15, 19**
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