Suez Canal Engineering Energy and Environmental Science Journal
Faculty of Engineering – Suez Canal University
Year 2024, Volume 2, NO. 1, pages 96–107

An Approach to Understanding Urban Green Ambiance

Sara S. Hassan[1*], Usama A. Nassar[1], Mahmoud M. Elghawaby[1], Sara M. Atwa[1]

[1] *Architectural and Urban Planning Department, Faculty of Engineering, Suez Canal University, Ismailia City, Egypt*
**Corresponding author, Email address: sara.samy17771@gmail.com*
DOI 10.21608/sceee.2024.296279.1033

Article Info:

Article History:
Received: 08\06\2024
Accepted: 22\07\2024
Published: 30\07\2024

DOI:
10.21608/sceee.2024.296279.1033

© 2024 by Author(s) and SCEEE.

Abstract

This research paper delves into the intricate notion of ambiance, which can be characterized as the inherent personality and the encompassing atmosphere of a given space, stands as a pivotal element that exerts a profound influence on human experiences and behaviors. Despite its significance, the discourse surrounding the concept of ambiance remains relatively nascent within the context of Egypt, particularly when considering green areas. This discussion underscores the necessity to delve into this new idea, examining antecedent successful case studies (Park with All Senses) and (Toa Payoh Sensory Park) to understand their approach and application of ambiance. The primary objective of this study is to unpack the various dimensions of ambiance, tracing its historical background and evolution. The research uncovers a range of factors that contribute to shaping ambiance, highlighting its consequential role in human-environment interactions. The research investigation culminates in a comprehensive discussion of the multifaceted aspects of ambiance and its main features, as well as recommendations for the design of muti-sensory parks, advocating for the integration of this concept into future scholarly inquiries and practical applications, to enhance our understanding and creation of green areas that resonate with individuals on a deeper level.

Keywords: *Ambiance, Landscape, Sensory experience*

Suez Canal Engineering, Energy and Environmental Science Journal (2024), ***2***(1), 96-107.

Copyright © 2024 Sara Samy Hassan. All rights reserved.

1. Introduction

Recently, an interest in humans and their moral and social needs has begun to increase. Some studies have discussed this concept in terms of (social sustainability), and others have studied it as an approach to achieving a quality of life or increasing happiness. There are many trends that deal with the human aspects, leading to a new concept called (atmosphere or ambiance) which is built on bringing together sensory, social, and physical elements, conscious and subconscious senses (the moral environment) work together to achieve a unique experience for users.

The research carried out in the field of ambiance covers a very wide range of works, from the physical characterization of ambient phenomena to a socio-aesthetics of situated experience, from a sensitive ecology of urban public spaces to a sensitive conception of architectural spaces, from the study of very ordinary urban situations to that of more remarkable places or architectures, from a perspective in terms of urban ethnography to experimentation in virtual reality, (Botsford, 2020).

In this context, the concept of atmosphere or ambiance in green areas is still not widely spread in Egypt. So, this manuscript aims to discuss the concept of ambiance and introduce it as an approach to be applied to green areas.

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

2. The Three Dimensions of Urban Green Ambiance

2.1. Ambiance background:

Over the past thirty years, the concept of ambiance has been developed and evaluated in a number of empirical studies, mostly conducted by French-speaking researchers in the humanities and social sciences, with a focus on architectural and urban studies. A sensitive perception of place and time is referred to as "Ambiance". When it comes to ambiance, it's more important to experience circumstances and take in the delicate context of social life rather than seeing a landscape or quantifying a setting. Ambiance is a concept that depends on a transversal approach at the intersection of the physical, social, constructed, and sensitive environment (Jean-Paul Thibaud, 2020).

Gernet Böhme (A German philosopher) defines ambiance as the intentional creation of a setting that triggers a feeling or sensory experience in his work. His remarks on the use of atmosphere in advertising, art, and landscape design show that while ambiances may be carefully crafted to trigger particular feelings in viewers, they don't necessarily happen spontaneously. This approach may be directly applied to architecture, where we intentionally create places that trigger certain emotions. As Böhme writes, "By feeling our own presence we feel the space in which we are present" It is the mood that allows us to sense where we are and to sense architecture, to fully experience architecture (Louis Chiodo Architects, 2020).

Peter Zumthor characterizes the intensity of emotion or mood evoked by a space's characteristics as the architectural ambiance. Ambiance exists at the intersection of the built and social environments. As such, it can create affective moods that even when unarticulated can influence our wellbeing and tune our being in the world. The ambiance in a particular space is dependent on both the object and subject, but subjects are also active agents in the atmosphere (Botsford, 2020).

2.2. Ambiance dimensions:

Ambiance dimensions are the aspects of the physical environment that affect the mood and feelings of the people who experience it. Ambiance dimensions can include factors such as lighting, color, sound, temperature, and smell. Different ambiance dimensions can create different effects on the human senses and emotions, such as relaxation, excitement, comfort, or anxiety. Ambiance dimensions are important to consider in this research. This part will discuss three dimensions of urban green ambiance which are the physical context, the sensory experience, and the social experience.

2.2.1. The Physical Context:

The physical context of a place is the set of tangible and perceptible elements that surround the people who use that place. These elements can affect the mood, feelings, and behavior of the users, as well as the flow and meaning of the messages they exchange (Vasilikou, 2016). The physical context of a place can include factors such as:

- The size and shape of the space, such as a small room, a large hall, or an open field.
- The objects and furniture in the space, such as chairs, tables, desks, shelves, plants, paintings, or sculptures.

The physical context of a place can vary depending on the purpose and function of the place, such as a park. Different places can have different physical contexts that create different effects on the people who communicate in them. For example:

- A park can have a physical context that is intended to promote relaxation and recreation, such as natural scenery, fresh air, pleasant sounds, and recreational facilities.

The physical context of a place can also change over time due to natural or human factors. For example:

- The physical context of a place can change due to natural factors such as weather conditions (e.g., sunny or cloudy), seasonal changes (e.g., spring or winter), or environmental changes (e.g., pollution or conservation).
- The physical context of a place can change due to human factors such as social events (e.g., parties or protests), cultural practices (e.g., festivals or rituals), or personal preferences (e.g., decoration or renovation).

The physical context of a place is an important aspect of ambiance that can influence how people perceive and interpret it. Therefore, it is essential for architects to be aware of the physical context of the place where they design and adapt their design accordingly.

2.2.2. Sensory experience:

Designing urban environments in architecture appears to be nearly entirely visually focused. However, studies have revealed that people evaluate spatial features using a combination of their senses. Research on the sense-scape of outdoor urban places has expanded beyond visual quality to include sound, olfactory sensation, taste, tactile, and temperature perception, among others (Vasilikou, 2016).

A review of the literature shows that emotions arise in everyday life through physical states and processes that are considered constitutive of affects (Abusaada, 2020). The body skin is of great importance for the creation of the impression of effect, just as the body is the first gateway to human sensations. This depends on the criteria of self-perception/self-attribution, which relate to the return to the "self" and the "sense of self". In fact, this human sensation

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

has a physical basis in the nature of the human body, but these sensations often vary from person to person. Sometimes a person can't think about anything other than what his body is feeling; this situation transcends the six senses, figure 1.

Sight: Our sense of sight serves as the interpreter of light and color in our daily experiences, providing us with valuable knowledge. However, the process of visual perception is not as straightforward as a mere projection of images onto the retina. Despite the retinal image being inverted due to the lens's refraction, we perceive the world in its correct orientation. This phenomenon is the result of a complex interplay that occurs within our visual system. The brain synthesizes visual data with stored memories and educated guesses at an astonishingly rapid pace. Consequently, we experience a version of the world that seems effortlessly coherent and tangible. Nonetheless, this perceived reality is, in essence, a sophisticated mental construct, meticulously assembled by the brain (Roehr, 2022).

Architecture is still primarily a visually oriented subject, and visual perception continues to rule the top of the sensory hierarchy. In an architectural environment, vision is one of the main channels of communication, but it may also be a weak link. Although vision appears to be deeply rooted in the surface world, it is not directly related to the individual experiences and perceptions of the user. Three elements are considered in the visual experience: space, ambiance, and space. The capacity to specify a physical space—including its volume, distance, size, and direction—based on variables like color, light, shadow, and reflection is known as space. We are able to discern both the characteristics of space and the means of navigation using this kind of spatial awareness. A space's entire character is determined by its ambiance, which can contribute to the psychological ambiance of the space (and elements) created for its users. Ultimately, visibility correlates with the ability to see things while performing a task: shape, surface/texture, color, and light (Vasilikou, 2016).

Sound: Sound in its most scientific form is a chain of molecules that vibrate in a wave that is initiated by a source of disturbance. When the wave hits the inner ear, the vibration causes the brain to process the wave as what we refer to as sound. Sound is a spatial experience; it is physical, as the vibrations provide a sensorial experience that can feel open or enclosed depending on the materiality and design of the space. For example, animals like whales and bats use echolocation to visualize their world (Roehr, 2022).

The word "soundscape" refers to a place's acoustic environment as experienced and understood by individuals within its context. It is the acoustic counterpart of "landscape" and encompasses all types of sound, both pleasing and undesired. The soundscape idea is built on a coherent theoretical framework that connects humans with their acoustic environment as experienced through the intermediary structures of landscapes, urban areas, and buildings, including wildlife (Vasilikou, 2016).

The use of sound in architecture and psychology allows for the manipulation of the acoustic environment that affects an individual's moods and behaviors, a practice known as oral architecture. Each area has its own acoustic symbolism that evokes memories of familiarity, excitement, tension, comfort, discomfort, warmth, and relaxation.

Touch: Touch is the first sense we experience and acquire. Touch connects us, physically and spatially (three-dimensionally) to the world. Pressure, temperature, light touch, vibration, pain, and other sensations are all part of the act of touching and are all attributed to different receptors in the skin. Touch is not only a functional necessity—it is important for human emotional well-being. Touch can influence our human perception, actions, and bodily awareness (Bradford, 2017). Touch is essential in design it dictates the feeling of an object, and how our bodies move and physically interact within a space (Roehr, 2022).

The sense of touch differs from other senses in that it deals with the three-dimensional world and also has the ability to change the environment as it perceives it. This is not possible for other senses such as hearing, seeing, smelling, or tasting. The advantage of touch over the other senses is that it leaves a direct physical trace, creating a strong and direct connection with the body and the built environment (Vasilikou, 2016).

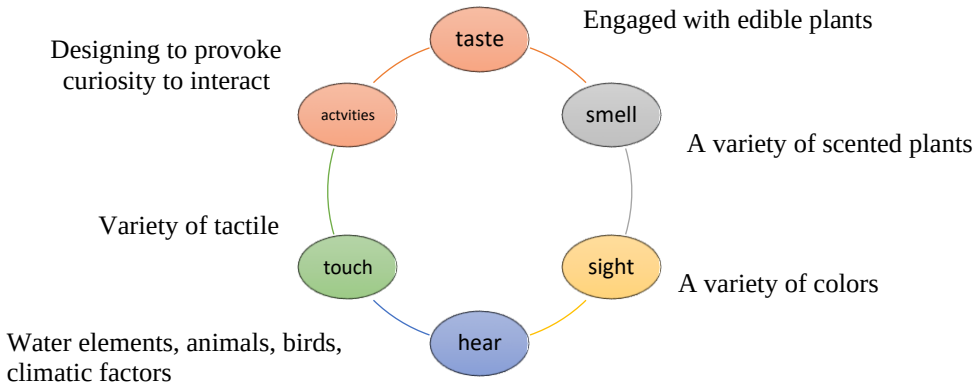
Smell: Research on smell has been minimal, but in recent years we have learned a great deal about how our noses work. New research suggests that humans can discriminate among one trillion different odors. Smell is memory. The smell is spatial. The smell is everywhere and the information it carries is important for survival and pleasure (Roehr, 2022).

The identity of an architectural area is tied to its fragrance. Smell has a significant impact on behavior, orientation, and health yet has been entirely disregarded. Smell perception and long-term memory are tightly related and frequently remain longer than visual pictures. Perfume has the power to capture and keep the memories of every place, with each area having its own distinct perfume. The power of aroma not only recalls forgotten memories but also serves as a link to hunger and consumerism, activating emotions to direct or deflect attention in the room (Vasilikou, 2016).

Taste: There are small bumps on the tongue called taste buds that help distinguish five tastes: sweet, salty, sour, bitter and umami. Our tongue can also sense temperatures, such as the spiciness of chili peppers or the cooling effect of mint. It would be wrong not to mention the predominant role of the nose in all this (the mouth plays a more minor role). When we combine smell and taste, flavor is created, and this is where things get interesting. Taste is not just the taste of food

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

on the tongue; it is a combination of smell, texture and appearance. It's a deeply personal feeling; No two people have exactly the same preferences. The perception of taste changes over time, as we grow, our taste buds lose sensitivity, and we begin to prefer the taste of coffee to sweets. Taste is like a musical composition that uses all other senses to create a



symphony of flavors that makes up the taste experience (Roehr, 2022).

Figure 1: The 6 senses and how landscape elements stimulate these senses.
Source: adapted by the researcher (Roehr,2022).

2.2.3. Social experience:

In terms of experience, ambiances create events, behaviors, sensations, and emotions. Furthermore, they have regenerated body motions, incited behaviors, produced effects, activated body memory, and reinforced sociability. It refers to the public's efforts to shape the ambiance of a location, as well as the behaviors of people and organizations in relation to the area. The activity of users is so intense that it tends to create an ambiance (Abusaada, 2020).

A social experience is an interaction or activity that involves other people and influences one's mood, feelings, and behavior. Social experiences can occur in different settings, such as at home, at work, at school, or in public places. Social experiences can also vary in their duration, frequency, intensity, and quality (Social Experience, 2023).

Social experiences are important for human development and well-being, as they help us form bonds, learn skills, express ourselves, and fulfill our needs. According to Erik Erikson's theory of psychosocial development, we face different challenges and opportunities for social growth at each stage of our lives, from infancy to old age (Kendra Cherry,2022).

Social experiences can also be influenced by various factors, such as culture, personality, mood, motivation, and context. Different people may have different preferences, expectations, and reactions to social situations. For example:

- Some people may enjoy socializing with large groups of people, while others may prefer smaller or more intimate gatherings.
- Some people may seek out new and diverse social experiences, while others may stick to familiar and routine ones.
- Some people may be more open and expressive in their social interactions, while others may be more reserved and cautious.
- Some people may be more positive and optimistic in their social outlook, while others may be more negative and pessimistic.
- Some people may be more motivated and engaged in their social activities, while others may be more bored and detached.

Social experiences can have various effects on our mental and physical health. Some of the benefits of positive social experiences are (Social Experience, 2023):

- They can boost our mood and happiness by releasing hormones such as oxytocin, dopamine, and serotonin.
- They can reduce our stress and anxiety by providing support, comfort, and coping strategies.
- They can enhance our cognition and memory by stimulating our brains and challenging our thinking.
- They can improve our self-esteem and confidence by validating our identity and abilities.
- They can increase our resilience and adaptability by exposing us to different perspectives and experiences.

Therefore, it is important to seek out social experiences that are meaningful, enjoyable, and beneficial. Finally, all the above aspects work together to help in understanding the overall ambiance, see Figure 2.

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

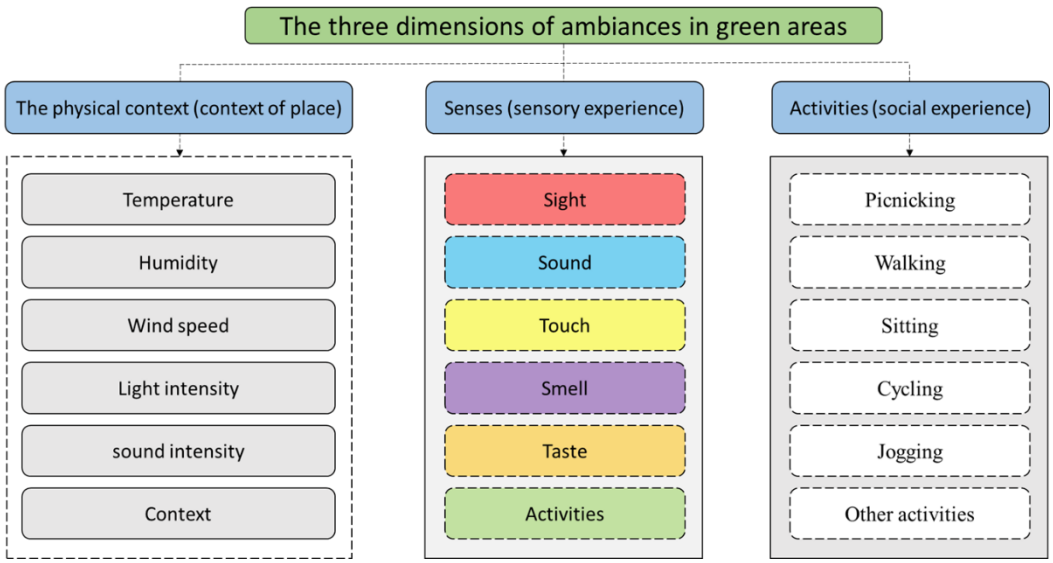


Figure 2: the three dimensions of ambiance in green areas.
Source: adapted by the researcher (Jean-Paul Thibaud, 2020, Abusaada, 2020, Roehr, 2022)

3. International Case Studies

This part discusses the international case studies which are (Park with All Senses) and (Toa Payoh Sensory Park) and how they simulate different senses to create a unique sensory experience for users. The selection of case studies involves several key reasons. These parks aim to create immersive environments that engage all five senses—sight, sound, touch, scent, and even taste. The reasons are summarized in:

- **Diversity of Sensory Experiences:** Case studies should represent a wide range of sensory stimuli. This includes visual elements (colors, patterns, lighting), auditory features (sounds, music), tactile surfaces (textures, materials), and even scents or tastes (such as aromatic gardens or food stalls).
- **User Demographics:** Consider the intended users of the park. engaging different types of users that best suit the research aims.
- **Context and Purpose:** The purpose of the park matters. Is it a recreational space, therapeutic garden, or educational environment? Each context requires specific sensory elements. For example, a therapeutic garden might prioritize soothing sounds and gentle textures.
- **Accessibility and Inclusivity:** Ensure that the case studies cater to diverse user types. Multi-sensory parks should be accessible to multi-user types.
- **Innovation and Creativity:** Look for case studies that push boundaries and introduce novel sensory experiences. Parks that blend technology (such as interactive displays) with natural elements can inspire creativity.
- **Environmental Integration:** How well does the park harmonize with its surroundings? Consider the landscape, climate, and local flora. A successful multi-sensory park seamlessly integrates sensory features into the environment.

The availability of sensory elements in their design and engaging different types of users that best suit the research aims. By examining case studies from around the world, researchers can identify the sensory landscape elements that optimize the sensory experience in green areas.

3.1. Case Study 1: Park with all senses

The park lies in the middle of an area of outstanding natural beauty and offers a perfect view of both the Gutach Valley and the famous Black Forest railway, it has an area of 44,500m^2 with a 2.1km long barefoot pathway.

The park is famous for the barefoot trail which is over 2 km long and formed from various terrain. Along the path, the visitors will come across sensory pavilions and stations for smell and touch and experience areas.

The motto of the “park with all senses” is “Here you don`t get thick, you stay healthy (Parkmitallensinnen, 2023)

3.1.1. Background on “Park with all senses”

Along the path, the visitors will come across sensory pavilions and stations for smell and touch and experience areas.

How to Cite this Article:
Hassan, S. et al. (2024) ‘An Approach to Understanding Urban Green Ambiance ’, Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

Figure 3: Case study 1 - Park with all senses
Source: Parkmitallensinnen, 2023

The Park mit allen Sinnen (Park for the Senses), see Figure 3 is a unique case study that aims to create a multi-sensory landscape for visitors to enjoy nature with their senses. The project is located in the Thuringian Forest, a low mountain range with diverse natural features such as beech and spruce trees, high moors, streams, and mountain meadows. Along the route, visitors can encounter sensory pavilions and stations for smell and touch, and experience areas, woodland, and meadows. The project also offers events such as children's birthday parties, company excursions, and multi-day activity programs (Parkmitallensinnen, 2023).

The Park mit allen Sinnen can be considered as an example of a multi-sensory garden that follows the previous dimensions. The design concept of the project reflects the specific needs and preferences of the target audience, which are mainly adults and families who seek relaxation and recreation in nature. The project also takes into account the cultural and environmental context of the site, which is a part of the Thuringian Forest Nature Park. The sensory elements of the project are selected and arranged to create a balanced and diverse sensory experience that stimulates the senses in a meaningful and enjoyable way. The project uses natural materials and plants to create a rich and diverse sensory environment. The spatial layout of the project follows a linear layout with a sequential order of sensory stations to create a sense of progression and exploration.

3.1.2. Analysis of Sensory Experience at "Park with all senses"

As mentioned before the park is a successful example of a multi-sensory park that simulates different senses and will discuss each one in this part.

Visual: Rich in different colors of flowers and a variety of greenery plants and trees, the lush vegetation in the park creates a pleasant and relaxing ambiance for visitors by showing different shapes, colors, and textures of the plants, as shown in Figure 4.

(a) **(b)**

Figure 4: Visual elements of "Park with all senses"
Source: Selvana gersy, 2016

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

Auditory: the natural sounds and animal sounds excel in the park, using vegetation that attracts animals and birds, it also has no noise from car traffic as it lies on a quiet road, as shown in Figure 5.

(a) **(b)** **(c)**

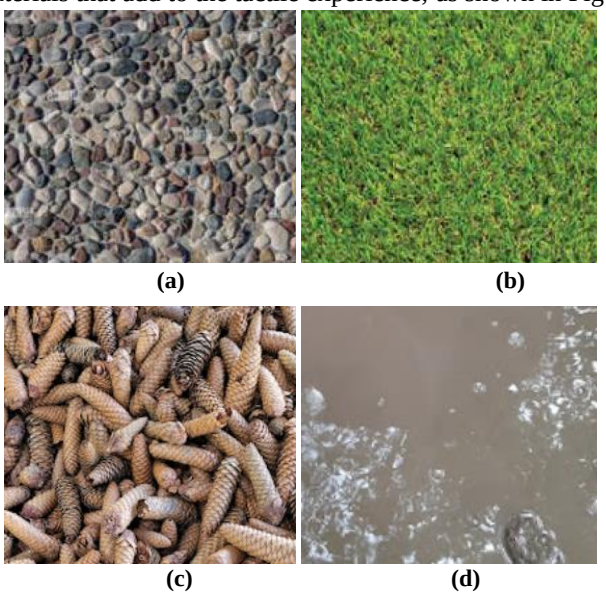
Figure 5: Auditory elements in "Park with all senses"
Source: Parkmitallensinnen (www.parkmitallensinnen.de)

Olfactory: the natural odor from the flowers and natural plants is dominant in the park, using the flower pavilion to add a colorful fragrant experience that also appeals to the eyes, as shown in Figure 6.

(a) **(b)**

Figure 6: Olfactory elements in "Park with all senses"
Source: Parkmitallensinnen (www.parkmitallensinnen.de)

Tactile: A mostly natural touch is the main texture in the barefoot pathway, adding variety in textures by using clay, stones, rocks, and different materials that add to the tactile experience, as shown in Figure 7.



(a) **(b)**

(c) **(d)**

Figure 7: Tactile elements in "Park with all senses"
Source: Selvana gersy, 2016

Taste: didn`t simulate the sense of taste in this park.

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

In conclusion, this case study shows how to use natural elements to create a coherent and accessible space that facilitates orientation, movement, interaction, and exploration among the users. The project also shows how to provide various events and activities that enhance the enjoyment and learning of the users. The project can serve as an inspiration and reference for other designers who want to create multi-sensory parks in general (Parkmitallensinnen, 2023).

3.2. Case Study 2: Toa Payoh Sensory Park

Located in a mature estate with an area of 11,000m^2, this park caters to all ages, from the very young to the very old, perfect for a little day out with the extended family. This park is designed to encourage visitors to explore the five senses of sight, smell, touch, sound, and taste. Toa Payoh Sensory Park packs in a playground, exercise corner, and a special garden zone (Selvana gersy, 2016).

Opened to the public in 2009, the sensory park in Toa Payoh is the first of its kind in Singapore. Developed at a cost of S$3.5 million, this 11,000m2 park was designed by Singapore-based architectural firm Surbana International together with Japanese landscape architect Yoshisuke Miyake, who pioneered the concept in Japan, (Selvana gersy, 2016).

3.2.1. Background on "Toa Payoh Sensory Park"

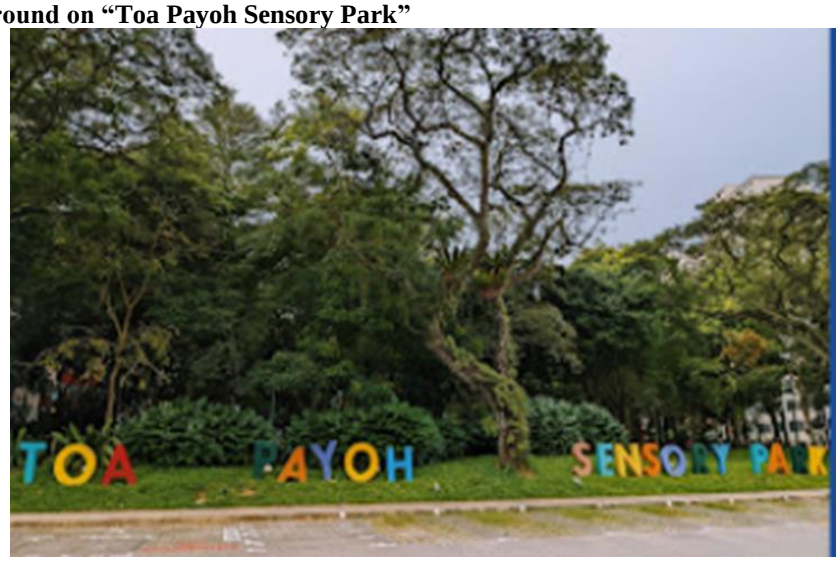


Figure 8: Case Study 2 - Toa Payoh Sensory Park
Source: Toa Payoh Sensory Park (www.sgplayfinder.com)

Toa Payoh Sensory Park is a neighborhood park that aims to create a multi-sensory landscape for visitors to enjoy nature with all their senses, see Figure 8. The project is located in the midst of a mature estate, Toa Payoh, which is one of the oldest satellite towns in Singapore. The project covers an area of 11,000m^2 and was opened to the public in 2009. The project was designed by Singapore-based architectural firm Surbana International together with Japanese landscape architect Yoshisuke Miyake, who pioneered the concept in Japan. The idea behind the Toa Payoh Sensory Park is simple – stimulate one's five senses through specific features (Toa Payoh Sensory Park, 2017).

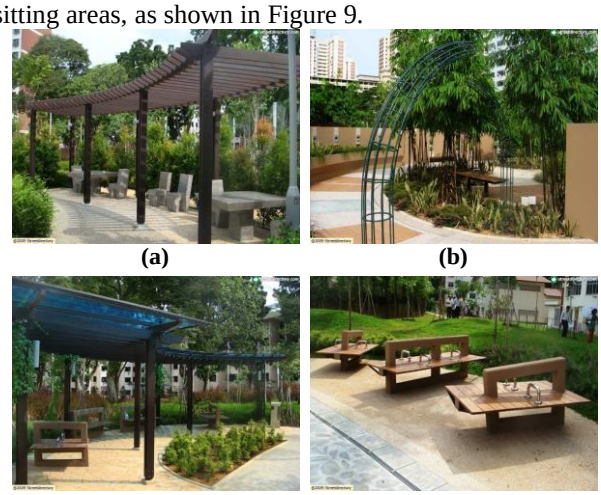
Toa Payoh Sensory Park can be considered an example of a multi-sensory park that follows the recommendations proposed before. The design concept of the project reflects the specific needs and preferences of the target audience, which are mainly adults, kids, families, and the elderly who seek relaxation and recreation in nature. The project also takes into account the cultural and environmental context of the site, which is a part of the Toa Payoh Town Park. The sensory elements of the project are selected and arranged to create a sensory experience that stimulates all five senses. The project uses natural materials and plants to create a rich and diverse sensory environment, as well as artificial materials to create a dynamic and interactive sensory environment and a playground and an exercise area for adults. The spatial layout of the project follows almost a circular layout to create a sense of orientation and harmony (Toa Payoh Sensory Park, 2009).

3.2.2. Analysis of Sensory Experience at "Toa Payoh Sensory Park"

As mentioned before the park is a multi-sensory park that aims to create a sensory experience that stimulates different senses and will discuss each one in the following part.

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

Visual: the different types of hardscapes and landscape furniture are dominant in the park, as well as the presence of rest zones with multiple types of sitting areas, as shown in Figure 9.



(a) **(b)**

(c) **(d)**

Figure 9: Visual elements in "Toa Payoh Sensory Park"
Source: Toa Payoh Sensory Park (www.sgplayfinder.com)

Auditory: the park shows an interest in simulating the senses of sound, shown in mechanical sound and natural sounds in the park, using plants producing sounds like bamboo, and also the use of interactive play parabolic dishes that reflect and focus sound, as shown in Figure 10.

(a) **(b)**

Figure 10: Auditory elements in "Toa Payoh Sensory Park"
Source: Selvana gersy, 2016

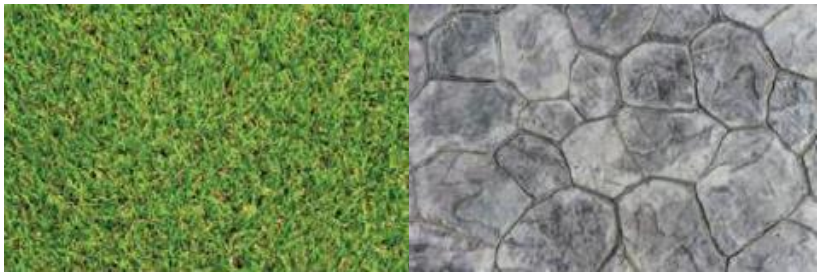
Olfactory: the excel smell is natural odor from sweet-smelling plants such as Jasmine and plants and also the smell of the food court nearby adds a unique smell experience to the park's users, as shown in Figure 11.

(a) **(b)**

Figure 11: Olfactory elements in "Toa Payoh Sensory Park"
Source: Toa Payoh Sensory Park (threebestrated.sg)

Tactile: variation between soft and hard textures that simulate the sense of touch, the grass and the pavement add variety in textures and also different acoustic experiences when walking on it, as shown in Figure 12.

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.



(a) **(b)**

Figure 12: Tactile elements in "Toa Payoh Sensory Park"
Source: Toa Payoh Sensory Park (www.sgplayfinder.com)

Taste: there is a food center and also fruit trees and cooking ingredients being grown in the park to add to the unique experience of the visitors, as shown in Figure 13.

(a) **(b)**

Figure 13: Taste elements in "Toa Payoh Sensory Park"
Source: Selvana gersy, 2016

Toa Payoh Sensory Park is a multi-sensory park that presents how to design a multi-sensory environment for many purposes and conditions. The project demonstrates how to integrate natural and artificial features to create a coherent and accessible place for users to assist with direction, movement, interaction, and discovery. The project can serve as an inspiration and reference for other designers who desire to develop multi-sensory parks (Jay, 2011).

4. Findings from Analysis of International Cases Study

The findings from the two existing case studies which are Park with All Senses in Germany and Toa Payoh Sensory Park in Singapore; that aim to create multi-sensory landscapes for different purposes and contexts, are shown as the following:

- The sensory elements of each project vary in number, type, and intensity, depending on the intended sensory experience and the available resources. For example, the Park with All Senses uses natural materials and plants to create a rich and diverse sensory environment, while Toa Payoh Sensory Park uses artificial materials with natural to create a dynamic and interactive sensory environment.
- The spatial layout of each project follows different principles and strategies to organize the sensory elements and create a coherent and accessible space. For example, Toa Payoh sensory park uses almost a circular layout with a central water feature to create a sense of orientation and harmony, while the Park with all senses uses a linear layout with a sequential order of senses. The analysis of these projects provides valuable insights and lessons for the design of multi-sensory parks in general, as well as for the specific case study of this research.
- The variation in textures between soft and hard in the pathway can add to the experience of users as it creates a variation in touch and sounds when walking on it and visual image too from its different patterns and colors.

5. Conclusions

In conclusion, ambiance dimensions are the elements of the physical environment that influence the mood and feelings of the people who interact with it. Ambiance dimensions can vary depending on the purpose and context of the setting. Ambiance dimensions can be used to create different effects on the human senses and emotions by using factors such as lighting, color, sound, temperature, and smell. Furthermore, visual senses are not the only way we commonly perceive architecture. We explore architecture through our bodies, our senses, and our moods.

How to Cite this Article:
Hassan, S. et al. (2024) 'An Approach to Understanding Urban Green Ambiance ', Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

The main features specify this multidisciplinary research field:

- To start, the idea of ambiance assumes that the senses are one. Therefore, every ambiance relies on a multisensorial experience and engages all of the senses simultaneously (hearing, seeing, smelling, touching, tasting, etc.).
- Ambiance provides access to the diverse emotional phrases and moods of urban life.
- The discipline of ambiance research tends to break out from normative methods that seek to define what is attractive, comfortable, or bothersome. It enables us to characterize the entire range of sensory experiences without having to assess what is at stake; for example, stating that an ambiance is stable or has a climax does not imply that it is positive or negative.
- Ambiance carries out an interaction between the characteristics of the constructed environment and the user's actual experiences.
- ambiance postulates the unity of the senses. Hence, any ambiance involves all the senses at once (hearing, seeing, smelling, touching, tasting, moving…) and relies on a multisensorial experience.
- ambiance implements the transaction between the properties of the built environment and the lived experience of users.
- The dimensions of ambiance to be considered should include physical, sensory, and social aspects.
- The visual sensation takes into account three factors: space, ambiance, and view.
- The sense of touch differs from other senses in that it deals with the three-dimensional world.
- Each space created has unique acoustic symbolism that triggers memories.
- Smell perception and long-term memory are closely linked and often last longer than visual images.

Based on the research, some recommendations for the design of multi-sensory parks are proposed:

- The design concept should be based on a clear understanding of the needs and preferences of the target audience, as well as the cultural and environmental context of the site.
- The sensory elements should be selected and arranged to create a balanced and diverse sensory experience that stimulates all five senses in a meaningful and enjoyable way.
- The spatial layout should be designed to create a coherent and accessible space that facilitates orientation, movement, interaction, and exploration among the users.

References

Botsford, S. “Peter Zumthor: A Study of Atmosphere in Architecture.” 2020

Jean-Paul Thibaud. Ambiance. Environmental psychology: 100 key concepts, 2022. hal-03500397

Architects, L. C. “Architectural Atmospheres: How Spaces Make Us Feel.” 2020, July 7, Retrieved March 20, 2024, from https://www.louischiodo.com.au/journalpost/atmospheres

Carolina Vasilikou. Sensory Navigation in the City Centre. Perceptual paths, sense walks and interactive atmospheres. Ambiances, tomorrow. Proceedings of 3rd International Congress on Ambiances. Septembre 2016, Volos, Greece, Sep 2016, Volos, Greece. p. 559 - 564. hal-01414151

Bradford, A. “The Five (and More) Senses.” October 24, 2017, Retrieved April 26, 2024, from https://www.livescience.com/60752-human-senses.html

Abusaada, H. “Strengthening The Affectivity Of Atmospheres In Urban Environments: The Toolkit Of Multi-Sensory Experience.” Archnet-IJAR, 14(3), 2020, 379–392. https://doi.org/10.1108/ARCH-03-2020-0039

Roehr, D. “Multisensory Landscape Design. in Multisensory Landscape Design.” Routledge. 2022, https://doi.org/10.4324/9780429504389

Social Experience - an overview | ScienceDirect Topics. 2023, Retrieved April 20, 2024, from https://www.sciencedirect.com/topics/computer-science/social-experience

Kendra Cherry, Mse.” Erikson’s stages of psychosocial development. Verywell Mind.” (2022, August 3). Retrieved April 25, 2024, from https://www.verywellmind.com/erik-eriksons-stages-of-psychosocial-development-2795740

Der Park mit Allen Sinnen in Gutach. Park mit allen Sinnen. 2023, Retrieved April 21, 2024 from https://www.parkmitallensinnen.de/willkommen

Park mit Allen Sinnen. tripadvisor. Retrivied March 20, 2024 from https://www.tripadvisor.com/Attraction_Review-g1825958-d3305544-Reviews-Park_mit_Allen_Sinnen-Gutach_im_Schwarzwald_Baden_Wurttemberg.html

How to Cite this Article:

Hassan, S. et al. (2024) ‘An Approach to Understanding Urban Green Ambiance ’, Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.

Selvana gersy. “Multi-Sensory Nature Interactive Park.” DR.M.G.R, educational and research institute, 2016.

Toa Payoh sensory park - playgrounds. sgplayfinder. 2017, February 8, Retrieved April 23, 2024, from https://www.sgplayfinder.com/browse-by-estate/toa-payoh/toa-payoh-sensory-park/

Toa Payoh sensory park - best public parks in Toa Payoh. ThreeBestRated.sg. 2023, Retrieved April 24, 2024, from https://threebestrated.sg/public-parks/toa-payoh-sensory-park-toa-payoh-192962173

Jay. “Lomography - Chill Out Moment: Sensory Park At Toa Payoh, Singapore.” Lomography. Retrivied April 25, 2024 from https://www.lomography.com/magazine/129072-chill-out-moment-sensory-park-at-toa-payoh-singapore

How to Cite this Article:

Hassan, S. et al. (2024) ‘An Approach to Understanding Urban Green Ambiance ’, Energy and Environmental Science Journal, 2(1), pp. 96–107. doi:10.21608/sceee.2024.296279.1033.