THE SYNESTHETIC ART MUSEUM

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Abstract
Exhibitions and collections of art museums mostly consists of visual art. When we talk about "contemporary art" museums, people immediately think about paintings, photographs and sculptures: visual arts. Monet's, Van Gogh's and Picasso's paintings, photographs of William Klein, sculptures by Richard Serra or Woody Allen's movie. All these artworks are experienced by observing them with your eyes. Visiting those visual artworks in museums, possibilities to reflect on the social and political situations of today, are offered. However, for a great number of people the world of experiencing visual artworks is not accessible. They do not know how paintings can provoke imagination. Non-visually handicapped people can visit any "visual" art museums, and experience artworks with all their senses. A visually handicapped person, has less museum possibilities to go to and experience contemporary art. Art museums should be more accessible for visually handicapped people but also for people with other disabilities such as hearing impairment or people living in a wheelchair. Synesthetic art is a form of art where more than one sense contributes to the experience of an art work. There are art genres using other senses than only the visual sense. Sound, smell, taste, we can include them. Take music as an example, music has just as many opportunities to provoke imagination as a visual artwork.
A second problem we are facing today is gentrification. The process of upgrading neglected urban neighborhoods, in which the current, less wealthy residents and initial small entrepreneurs and pubs, have to move out of the way for the middle class and their catering industries and companies. Through the experience of synesthetic art, the new museum aims to stimulate and include current residents, offers appropriate daily-life activities, which are accessible for everyone, and where visually handicapped people are no longer excluded. A node of multiple scales (urban and social) will be created in my design.
To respond to the lack of synesthetic art museums and the problem gentrification, the definitions and experiences of aesthetics and synaesthetics will be explained and discussed. It is fundamental to have knowledge about the relation between architecture and the human sense. The main question of this research plan therefor will be:
What architectural means are essential to provoke and reinforce our imagination while experiencing synesthetic art?
In order to answer the Research Question of this study, literature about synaesthesia, synesthetic art and gentrification are necessary. The "Van Abbe Museum" in Eindhoven has established to create a "multi-sensory museum". This museum project is used as a case study to understand what people with impairments need and miss in current contemporary art museums. During a visit to the museum called "MuZIEum" in Nijmegen, the visual sense has been taken away, an experience of being visually handicapped leads to the awareness about the kind of art that can be experienced without seeing.
The aim of my graduation project is to re-wire Tarwewijk, Rotterdam-Zuid, through an art museum. A museum that is able to contribute to an improvement of social conditions in a neighbourhood. And where current residents from the direct surroundings are stimulated and included.

Keywords
aesthetics, synaesthesia, senses, disabilities, art experience, gentrification

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Introduction

Architecture is not limited to the more representational or monumental buildings, but encompasses the total built environment (Vermeersch & Heylighen, 2012). A museum, which is a public building, has strong relationships with its context. It influences its direct surroundings and people living in the neighbourhood. Furthermore, a public building should be accessible for everyone. A neighbourhood with little chances can be re-wired through a public building, a museum.

Gentrification is a process of social, cultural and economic upgrading of a neighbourhood or district, attracting wealthy new residents or users and the accompanying expulsion of the lower classes from the district. This process spreads like an oil slick through the capital cities to urban districts that are increasingly distant from the centre (Hutak, 2020). Gentrification takes place around the whole world, and is also happening in Rotterdam-Zuid. However, criminality, low education, bad housing qualities are serious problems in Rotterdam-Zuid and is sensitive for gentrification. Fortunately, the "Nationaal Programma Rotterdam Zuid", is established to tackle these problems. In the coming twenty years the NPRZ wants to achieve better education, more job opportunities and better housing conditions. To avoid gentrification it is necessary to keep the current character of Tarwewijk and her residents. Therefor the program of a museum here should be well thought about. It should be attractive for the residents of Rotterdam-Zuid, not only for new people. As a result the museum will include and entangle with Tarwewijk.

Aesthetics and the senses

At first, the visual sense seems dominant in our perception and experience of contemporary art. But research shows that the aesthetic experience is not only based on the visual processing. Susan Buck-Morss defines 'aesthetics' in Aesthetics and Anaesthetics: Walter Bejanmin's Artwork Essay Reconsidered. The term is derived from the Greek word *"Aisthitikios"*, which means "perceptive by feeling". *"Aisthisi"* means the sensory experience of perception. Which means aesthetics arise from reality. Terry Eagleton said that aesthetics was "*born as a discourse of the body"*. That is a form of cognition achieved through taste, touch, hearing, sight, smell or the entire bodily senses (Susan Buck-Morss, 1992).

According to Bacci and Melcher, the experience of life is multilayered. Humans use discrete sense organs, the nose, eyes, mouth, hands, to gather information from their environments. This information is translated in the brains into a blur of embodied sensation. Besides, the brain remembers events from the past and stores these, which enables imagination and association. Subsequently, when the new information gathered by our senses and the series of associations from the memory are brought together, it ensures the understanding of the prelinguistic experience (Bacci & Melcher, 2011). Prelinguistic experience is obtained through our senses. It is an experience caused by sounds, facial expressions, gestures, imitations and other non-linguistic forms of communication.
The gathered information of the senses and the series of memories are translated into a thought and ultimately into the self-awareness of thoughts. Following, language is the means of converting thoughts. According to Bacci and Melcher, this leads to the statements that humans make in art history and science. Bacci and Melcher consider that, in addition to the spoken and written words, language also consists of art and symbolic systems, whereby its meaning is a property of forms that are not literally related to their references (Bacci & Melcher, 2011).

New neuroscience studies confirm a profoundly modified understanding of perception, cognition, and knowledge. Research demonstrates the brain as a creator of expectations and hypotheses of reality, which get contrasted against experience. So the brain is an active seeker of information to confirm or refute predictions. The neuroscience explains that our internal representations of reality, and thus the predictions are intrinsically multisensory (Levent & Pascual-Leone, 2017). Furthermore, it is evinced that the brain is intrinsically plastic, dynamically changing to respond to changes in environment, activity, demands, and so forth (Levent & Pascual-Leone, 2017). The moment different parts of our brain are involved in perceiving through the different senses which next involves memories to establish new concepts, is satisfying, when the sensory perceptions and intelligent conceptions are combined. For example, when *"we are able to observe the workings of our own minds, and those of the artist, in the very act of new metaphorical connection making"*, thus Bacci and Melcher (Bacci & Melcher, 2011).

As mentioned, an aesthetic experience is based on more than just the work of our visual sense. The emotions conveyed to a viewer through artistic content evoke physiological responses throughout our body (Bacci & Melcher, 2011).
According to some scientists, we have to consider the "bodily resonance" with art (Freedberg and Gallese, 2007). It emphasizes the role of secret (imagined) simulation of actions, emotions and bodily sensations depicted in artworks (Levent & Pascual-Leone, 2017).
Proust's description of a sip of tea in which had been soaked a morsel of Madeleine, has become an iconic explanation of the magical effect that taste and smell sometimes have on memory. The effect evokes an immediate and vivid 'qualic' sensation of an often un-locatable sense of time past (Bacci & Melcher, 2011).

> I raised to my lips a spoonful of the tea in which I had soaked a morsel of the cake. No sooner had the warm liquid mixed with the crumbs touched my palate than a shiver ran through me and I stopped, intent upon the extraordinary thing that was happening to me. An exquisite pleasure had invaded my senses, something isolated, detached, with no suggestion of its origin. And at once the vicissitudes of life had become indifferent to me, its disasters innocuous, its brevity illusory – this new sensation having had the effect, which love has, of filling me with a precious essence' or rather this essence was not in me, it *was* me.
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> *- Marcel Proust, In Search of Lost Time, 1993 -* (Bacci & Melcher, 2011)

Smell is in evolutionary respect a primitive sense, where its receptors transmit signals to the olfactory bulbs which lie close behind, the most direct process system of any of the senses. Next the signals arrive in the limbic system, which deals with vigilance and emotions and there also links to the hippocampus where our memory is stored. The reason for the limited vocabulary for smell of the human beings, might be caused by the fact that there is no contact between the parts of the brain responsible for language or speech and the signals. That is also why, like Proust, we often find it hard to locate the original source of a sudden smell of familiar perfume. Proust takes a couple of more sips, to find the source of his overwhelming sensation. but the initial impact is becoming reduced and the memory still elusive. While Proust attempts to track his thought back, he realizes how hard it is to focus on his own thinking processes. By distracting himself and then search again for his thoughts, Proust tries to give his mind some rest. The interesting part is that Proust uses other senses to describe the memory after one sensation (Bacci & Melcher, 2011).

> I do not yet know what it is, but I can *feel it* mounting slowly; I can measure the resistance, I can *hear the echo* of great spaces traversed. Undoubtedly what is thus *palpitating* in the depths of my being, must be the *image, the visual memory* which, being linked to that taste, is trying to follow it into my conscious mind. But its struggles are too far off, too confused and chaotic; scarcely can I perceive the neutral glow into which the elusive *whirling medley of stirred-up colours* is fused, and I cannot distinguish its form, cannot invite it, as the one possible interpreter, to translate for me the evidence of its contemporary, its inseparable paramour, the taste, cannot ask it to inform me what special circumstance is in question, from what period in my past life. [my italics]
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> And suddenly the memory revealed itself. The taste was that of the little piece of madeleine which on Sunday mornings at Combray . . . my aunt Leonie used to give me, dipping it first in her own cup of tea or tisane.
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> taste and smell alone, more fragile but more enduring, more immaterial, more persistent, more faithful, remain poised a long time, like souls, remembering, waiting, hoping, amid the ruins of all the rest; and bear unflinchingly, in the tiny and almost impalpable drop of their essence, the vast structure of recollection.
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> *- Marcel Proust, In Search of Lost Time, 1993 -* (Bacci & Melcher, 2011)

Nina Levent and Alvaro Pascual-Leone see a museum experience in the same way as Bacci and Melcher see the experience of life: a multi-layered journey. Museums are centres of learning, community centres and social hubs. They do more than only serve as repositories of ancient artefacts to be preserved for the future. The journey through a museum could be described as proprioceptive, sensory, intellectual, aesthetic, and social. Where learning, wonder, reflection and relaxation, sensory stimulation, conversation with friend, new social ties, creation of lasting memories, or recollection of past events is the end result (Levent & Pascual-Leone, 2017). The combined and complex interactions between visual, auditory,

olfactory, spatial, and other aspects of the visitors' experience should be reconsidered by museums (Levent & Pascual-Leone, 2017).

Perception, imagination and experience is for everyone different and very personal. My personal museum journey and my perception start with my eyes. Asking myself: what do I see? Do I like it? And more important: why and what do I like about it? It makes me wonder how people with an impairment are able to enjoy contemporary art. The fact is that they are limited in enjoying art. They will never be able to experience, imagine and percept art the way I do. But good artists invent new ways of seeing, sometimes making arbitrary connections, visually and conceptually, surprising us to think freshly (Bacci & Melcher, 2011). Fortunately, the experience of living in the world is multi-layered.

Synaesthesia and synesthetic art

Synaesthesia can be described as a condition in which one type of stimulation evokes the sensation of another, as when the hearing of a sound produces the visualization (*Your Dictionary).* Professor of Cognitive Neuroscience, Jamie Ward explains that people with synaesthesia, also called Synaesthetes, experience something extra, due to the joining of the senses. It is a real biological condition which runs in families, although the particular associations do not necessarily. Synaesthetes have differences in their brain, both in terms of grey matter. They have got more grey matter density in for example parts of the brain to do with seeing. So parts of the brain seeing colour, have more of this. And similarly with regards to connectivity, synaesthetes have more white matter connectivity between different regions of the brain. They might, for instance, connect the auditory parts of the brain with the visual parts of the brain, in a way that other people normally do not. There is a claim that we all had synaesthesia at one point of our life, when we were infants. A suggestion is that we're all born with synaesthesia, and most people lose it as part of the normal maturation process. But synaesthetes, due to their different genetic composition, retain these roots that link together the senses. We may not all lose synesthesia entirely, because we are all able to link our senses together. Synaesthesia reveals the rules by which we can understand the links between vision and music. Which has important implications for arts, for instance (Jamie Ward, 2016). The French-Russian painter Kandinsky, is one of the artists who gave abstract art a form and philosophical background in the first quarter of the twentieth century (Wikipedia-bijdragers, 2020). It is not known whether Kandinsky was a synaesthete. He wanted that people understand his artwork, not solely through the visual medium, but understand it more as a multi-sensory kind way that encompass all the different senses. There is a whole set of rules for linking vision and music together. And we can analyse this by looking at the experiences of synaesthetes, which means they are not purely due to the raise and education. If anything, the way that our senses interact might be influencing our culture rather than vice versa. People who do not have synaesthesia can tune into these properties that synaesthetes naturally experience (Jamie Ward, 2016).

Considering Prousts description, Becci and Melcher concluded that you do not have to be diagnosed as synesthetic to recognize how the input from different sensual stimuli quickly blur through multiple associations. They see language as second-hand to the immediate physical stimulus but it helps us to combine an intellectual and creative response. By regarding the Art and Science of the senses, the felt or imagined experience and the involved material process at the same time, our mind is not able to reconcile the ambiguity of such dual approach, but there is pleasure in blending together physical understanding and an intellectual appreciation of how it works. (Bacci & Melcher, 2011)

For me, synaesthesia symbolizes inclusivity and entanglement. During the experience of synesthetic art, sounds and tectonics are assembled. In this way, people with impairments will be included within the cultural art scene. This can be felt on multiple levels in a museum; in the exhibited art where the senses are entangled during the experience, furthermore an entanglement of people with a disability and people without disabilities. And last but not least, the people living nearby the museum and people from further-away will meet each other.

Architecture and the senses

The body plays an important role in architecture, because architecture is more than just the built form. (Vermeersch & Heylighen, 2012). In a traditional way architecture is the art of a building. Where form, function and construction are merged in a harmonious way. Harmony is achieved when all building elements are in proportion as are the parts of the human body. (Vermeersch & Heylighen, 2012) Scale, size and proportion are defined as aesthetic values that relate, directly or indirectly to the body. In the Modernist Movement, a new way of perceiving is proposed. This perceiving is based on an immaterial principle to comprehend the underlying essence, according to Van Herck and De Cauter (2004). In Modern architecture buildings are designed for visual perception, since sight is traditionally the highest, less corporeal sense. It does not mean that architecture was and is deprived of other sensory qualities. The built environment is perceived through the whole body. Not only how a space looks, but also their sound, tactile aspects and smell are essential (Vermeersch & Heylighen, 2012). During the twentieth century, spaces are defined as the most specific aspect of architecture as a discipline. (Heynen 2004) Our perception of the built environment on the conscious level is mostly focused on the visual aspects, how this influences the way buildings and how urban structures are designed. The architectural design and theory was mainly focused to a great extent on the visual aspects of the space. Even as much as this space can be perceived through the whole body and all the senses (Vermeersch & Heylighen, 2012) People with a visual impairment pay more attention to other aspects and qualities of the built environment. They remind us of rich experiences we may otherwise forget to exist. (Vermeersch & Heylighen, 2012)

<u>Case study Van Abbe Museum</u>

Accessibility in architecture has been translated into facts (or indicators and averages) by fixing maximum heights of thresholds and minimum widths of doors, which can be objectively measured by professional accessibility advisors. Frequently, an architectural design for an accessible building for everyone is based on the facts without fulfilling the needs of impaired people. (Heylighen et al., 2013) In collaboration with the Van Abbe Museum in Eindhoven, architects Peter-Willem Vermeersch and Tomas Derrix created a Multi-Sensory museum. In an interview Derrix explains that the project was about inclusion: inclusive and accessible for everyone. (Van Abbe Museum, 2018a) To achieve this, working with a team of experts as by among others Jaap Breider, Barbara Striating, Judith Vogels and Amber Bindels. They all live with a disability, such as visual impairment, hearing impairment or living in a wheelchair. It is important that buildings are not designed first, and that later the 'special requirements' of integrating usability and accessibility are merely pasted on. (Malik 2006). The expert's perception of space is crucial as starting point for the design of a space in a multi-sensory way. (Van Abbe Museum, 2018a)

The perception from hearing impairment

People with hearing problems have all personal and different struggles. Barbara Strating has to make extra effort to communicate. It is very tiring for her when surroundings are noisy. She defines accessibility, with respect to public spaces and areas, as a place she can access. Modern museums often are examples of modern architecture with beautiful, high areas with a lot of smooth walls. Which unfortunately causes a huge ear burden. Acoustically it is not pleasant being in a too tall space. Sound proofing and light sources influence crowds of people. Modernistic glass in designs of public spaces should be left out, as it resounds and hurts her ears. Barbara would like to break through the etiquette of adoring paintings in silence, to talk out loud with someone and understand the guides better. Judith Vogels also struggles with impair of hearing. She shifts between auditive and deaf feelings, between enjoying auditive things and the deaf things. A lot of noise, as announcements, at parties or in the public transport, causes difficulties. In museums it is nuisance when spaces are very hollow or if spaces are too full and there is too much noise. For people with hearing problems it is important to watch the artworks in a relaxed way. A very visual and colourful space, where there is soundproofing to understand the people clearly would be ideal argues Judith. Further suggestions are, a space where you can relax and a space that demonstrates the miscommunication that someone with a hearing impairment often experiences. Moreover, a space

where the dark moments that people with hearing problems run into and a place where you can demonstrate that you enjoy sound like the sound of birds, of nature. (Van Abbe Museum, 2017)

Perception from a wheelchair
Ambers perception gives an insight of the life of people in a wheelchair. For Amber it is important that she can enjoy art, in the way it is meant. Accessible and non-accessible spaces and all the 'grey' parts in between, play an important role in Amber's life. She is limited by her surroundings so she needs to ask other people to adapt these surroundings a bit or change their attitudes, that already helps so that her disability disappears into the background. For example, she can't stand exactly in front of the artwork, and therefore sees the artwork differently than was meant. They tell her: if you look at it with the light falling on it, you see this…" But Amber is sitting down in her wheelchair where the light is different without interesting effect. An idea of a bridge, in the Van Abbe, offering an impressive overview of the whole building, would exclude people as Amber in the first place. Because the railing would have limited their view. Peter-Willem and Tomas designed a tool to include people in a wheelchair. Amber further suggests spaces where multiple wheelchairs fit so you also do not bump into the art for example, and where the display of art is a bit lower to avoid a sore neck. (Van Abbe Museum, 2018c)

Perception from visual impairment
During my visit in "MuZIEum" in Nijmegen my visual sense was taken away, and everything was black. I had to find my way through the exhibition by touching and listening. Jaap Breider was visually impaired from the day that he was born and is blind from the age of 20. (Van Abbe Museum, 2018b) "Visually impaired" means seeing less than 30%, or having a visual field of 30 degrees or less. When seeing a maximum of 5% with your best eye, or having a visual fields of maximum 10 degrees, it's called blind. Worldwide 285 million people have a visual handicap, from whom 246 million visually impaired and 39 million blind. In the Netherlands around 300.000 people have a visual handicap. Thereof approximately 222.000 people are visually impaired and 76.000 are blind. (*Feiten en cijfers over visuele beperking*) As a blind, Breider is in need of touching things. Anything beyond his hands doesn't exist yet. Unless people tell him about things, he can get a picture with it. However, he would like to verify his imagination and record it in his own visual language. Breider wants to determine this information, the size, the lines, the interplay of lines, and the volume by himself. Because that is what gives him a real description or interpretation of an image. Or of an element of the world, from reality. Breider suggests artworks can be turned into tactile representations, so you can feel it with your hands. A painting could be transformed into a shape whereby you change the lines of the contours into tangible lines, you are not dependent on someone telling you what the painting depicts but rather that you can initially feel the representation and create your own interpretation of artwork. Beider, will be able to process and understand artworks in the most appropriate way. The regular visitor will interact with artworks in a broader way, because other senses will be stimulated. (Van Abbe Museum, 2018b)

Carlos Mourão Pereira is a Portuguese architect, and blind since 2006. His architecture has three central concepts: "inclusion, sustainability and the senses." and he works on the development of multi-sensory aspects of architecture. He created a sea bathing facility to enjoy a safe environment and the rich experience of the coastline. For Pereira, the border where water and land meets has a specific multi-sensory character. Wind and water interact with the land, which we appreciate with all our senses. A space where we can listen to the waves, smell the sea and feel the wind. He describes how placing a simple wall on the beach can shape the wind, and can change a person's experience of that same wind: *"Now the air has lost is transparency, with this wall you can make so many colours and details in the air"* (Vermeersch & Heylighen, 2012).For the person's body, the simple wall functions as a shelter once you are standing behind. But replacing the body to the front, it is completely exposed to the wind. Furthermore, the heat and a direct interaction are shaped by the wall. The simple rectangular form has become a complex entity through its interaction with the environment and the body (Vermeersch & Heylighen, 2012). Pereira describes that "the acoustic atmosphere of people talking in a bar enjoying a fantastic view, and some descriptions of his interior space, the size and position of the windows and this

view angles, really visual space memories. That is because he hasn't been blind since his birth. For Pereira an architectural space is more complex than a visual thing. For him a space that is lit by direct sunlight gives a totally different tactile warmth experience. The awareness of his body evolved from appealing to the eye towards more comfortable shape for the whole body. Shapes that cut the hand are replaced by shapes that are softer, and more pleasant to touch. He interprets the architectural space as something more complex and more fun than an empty void our eyes traverse when only seeing its boundaries. The body is very much involved in the mass of the space (Vermeersch & Heylighen, 2012). As Vermeersch and Heylighen describe, "one visual coherent space can be experienced as multiple spaces when a person inside that space focuses on tactile qualities" (Vermeersch & Heylighen, 2012).

Conclusion

To re-wire Tarwewijk, the museum needs to offer a specific program of synesthetic art, whereby a node of multiple scales (urban and social) are created. And where current residents from the direct surroundings are stimulated and included.

Neuroscience research about the perception of art works proves that the predictions we approach experience with are intrinsically multi sensory. In architecture the body is very much involved in the mass of the space. Scale, size and proportion are defined as aesthetic values that relate, directly or indirectly to the body.

Discussing the perceptions of the experts of the Van Abbe Museum, I conclude that the exhibited art in my museum should consist mainly of sounds and tectonics. Synaesthesic art follows my requirements for the exhibited art: include and entangle. It symbolizes that art should be accessible for everyone, synesthetic art is experienced with an entanglement of the senses, so not only with the visual sense for example.

In the urban design different spaces for different experiences of art can be created. There are possibilities to visit the museum building, just to walk through the building and enjoy art outside, furthermore several programs and educations can be followed: a design of spaces that are attractive for the people of the neighbourhood to make the art easily accessible for them.

For the design of the museum building, the architectural means light, soundproofing and ramps are essential. Hollow spaces, high areas with a smooth wall materials, like glass, should be reconsidered, since these are not pleasant for people with hearing problems. To include people in wheelchairs, the exhibition spaces should not be too small, and art should also be displayed and exhibited lower than only high on a wall. Furthermore, the art will lead the visitor. Touching in museums should not be forbidden. Pereira mentioned shapes that cut the hand should be replaced by softer shapes, and more pleasant to touch. Harmony in the museum will be achieved when light, soundproofing and the routing will be in proportion, as are the parts of the human body. The design should serve as a model which is adaptable on already existing museums. Thus my concept could be studied, improved and applied on museums through the Netherlands, and maybe through the world.

The journey through my synesthetic art museum is multi-layered, inclusive and entangled.

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