

The Other Sensory Approach on Exploring Urban Heritage Landscape. Case Study: Chinese Quarter of Semarang

Auliya M Alqadrie^{1,a)} & Widjaja Martokusumo^{2,b)}

¹⁾Master's Student in Architecture; School of Architecture Planning and Policy Development, Institut Teknologi Bandung (ITB), Bandung, Indonesia

²⁾School of Architecture Planning and Policy Development, Institut Teknologi Bandung (ITB), Bandung, Indonesia

Correspondent : ^{a)}auliyaalqadrie@gmail.com & ^{b)}wmart@home.ar.itb.ac.id

ABSTRACT

A new interpretation is needed to give meaning to conservation in the urban development framework and to support a sustainable cultural environment. Based on Québec Declaration (2008) and Burra Charter (2013), intangible dimensions became matter to give a richer and deeper meaning to the cultural heritage area. A shift has been seen in urban theories arguing for attention to the multi-sensory approach. This concept becomes matters as the raising critique towards the domination of visual perception in the built environment's design. The domination of audio-vision starting to reach out by the practitioners and scholars, unlike the other senses such as smell, tended to overlook and misconception. This paper outlines a pilot study's findings addressing holistic person-sensory experience in exploring the role of odor in shaping the cultural heritage area in *Pecinan* nowadays. It will discuss various scents detected, personal perception, and the link between odor and *Pecinan*'s character. All this data was collected using a smells walk, questionnaire survey, and interview. This research aims to explore the potential interface in preservation conflict between the character of existing historic town and change as smellscape is part of the intangible element and part of triangle components of a sense of place in supporting successful urban place.

Keywords : smellscape approach, intangible element, cultural significance, urban heritage landscape, Chinese Quarter of Semarang

INTRODUCTION

A new interpretation of the meaning of conservation in urban development is needed to support a sustainable cultural environment during this growing number of urban revitalization and preservation in Indonesia and other countries (Martokusumo, 2001). A shift has been seen in urban theories and policies arguing for attention to multi-sensory measurement. This concept becomes matter as the raising critique of the domination of visual perception in designing the built environment (Henshaw, 2013; Martokusumo et al., 2019; Pallasmaa, 2005; Xiao et al., 2018).

Audio-vision domination is starting to reach out to practitioners and scholars in architecture and urban design and planning. While the other sensory such as smell, still tended to be overlooked and misconceived, this sensory is considered more relevant in postmodern times by society (Bubandt, 1998; Henshaw, 2013; Xiao, 2018).

Then why does smell become a matter? Smells are a reflection of the social and cultural characteristics of the community and place. The character resulting from smell will make it different, and easier to identify and remember (McLean, 2019).

Lynch (1960), in 'The Image of The City'; mentions multi-sensory as a clue of legibility and wayfinding in the city. Pallasmaa (2005) also writes a sub-chapter on smell in his book entitled 'The Eyes of the Skin: Architecture and The Senses'; refers to the association between memory and smell and emphasizes the importance of the phenomenological dimension of human experience in architecture, which is generally still based on ocular-centrism.

The late Victoria Henshaw is one of the pioneers of the smells walk and wrote two books about the smellscape concept and how to design a smellscape (Henshaw, 2013; Henshaw et al., 2018). Henshaw (2013), describes how the sense of smell dominates how we experience space and place and how it shapes the architecture and influences urban design and planning. Kate Mclean has then continued this study in her dissertation and other project discussing how to map the smellscape (Henshaw et al., 2018; Mclean, 2019; Mclean et al., 2020; Quercia et al., 2015). Jieling Xiao also actively wrote about the smellscape concept and created a perceptual quality model of smelling using pleasantness as a measurement (Henshaw et al., 2018; Xiao, 2018; Xiao et al., 2018, Xiao et al 2020).

This research presents a holistic person-sensory experience exploring the role of smell in the cultural heritage area in *Pecinan*, Semarang. This paper will discuss the various types of smells detected, personal - perception during the smells walk, and the relationship between smells and the character of *Pecinan*. This study aims to understand how smellscape contributes to a new interpretation of the meaning of urban conservation.

Smells in Historical and City Perspective

Classen et al. (1994), in their book 'Aroma: The Cultural History of Smell'; describes various cultures that conceptualize the landscape of smells according to the geographic and meteorological characteristics of their environment. The smell is also important in spatial orientation, understanding, and experience of space.

"In the history of Western cities, smell has been mostly associated with poverty, disease, and death. This phenomenon of smell makes a place meaningless (placeless), and the bonds are detached from the past. Meanwhile, in Eastern and Arab societies, scents reflect interpersonal relationships and appreciation in many ways (Xiao et al., 2018)."

Prioritizing visuals over other senses and suppressing odors in public places to achieve odorless and monotonous areas makes undifferentiated space and takes away the richness, meaning, and diversity in our environment (Henshaw, 2013). It is a matter to dispel the notion of a past utopian urban scene where all odors should connote good to odorless. What is essential in a contemporary urban smellscape is that it can feel an odor combined with culturally acceptable (Henshaw, 2013).

Most of the existing laws and policies on environmental odors are dominated by air quality and pollution rather than highlighting the potentially positive role of odors (Henshaw, 2013). One notable exception is the Japanese Ministry of Environment's 2001 policy as they created a list of 'One Hundred Sites of Good Fragrance' throughout Japan's forty-seven prefectures, including natural and cultural sites. The results of this site identification aim to increase public awareness at the local level and lead to the rediscovery of fragrant areas and their preservation (Henshaw, 2013; The Japan Times, 2001).

Odors as Part of Cultural Significance

Smellscape is a culture that includes social and historical phenomena. Smells are created from cultural values and reflections from society as part of their interactions and experiences with the environment (Classen et al., 1994). In cultural heritage guidelines, the

smell is an aspect of cultural significance as part of the intangible dimension. These elements define value, meaning, character, and spirit of place (ICOMOS, 2008, 2013). Odor is also mentioned in the non-material qualities of the authenticity dimension released by the Hoi An Protocol (UNESCO, 2009).

Due to globalization, it is a matter to pay attention to intangible elements' contribution to defining cultural heritage areas (Bembibre & Strlič, 2017). The sense of smell defines the city's socio-economic value and cultural heritage and is at risk of being lost. Unfortunately, the background scent in this life changes over time (Quercia et al., 2015; Trevino, 2020). Therefore, it is crucial to know the role of smell in identifying cultural heritage areas' cultural significance and preserving the aroma itself, not just focusing on odors as a parameter of air quality and space.

Smell, Smellscape, and Smell Perception

'Smellscape' was popularized by Porteous (1985) to describe olfactory landscapes. Olfactory is a technical term used to refer to the sense of smell (Rodaway, 1994). Smellscape suggests smell experiences that can be understood as place-specific, referring to the source, air currents, and overall character. This approach can also be defined as a picture of the olfactory environment as a whole, although detected in a limited and particular time, still influenced by the mental image or memory contained in the human perspective (McClean, 2019).

Olfactory Performance

In the 1940s, olfactory research's scientific progress was comparable to the sight and sound system in the mid-eighteenth century. Only in these two decades has the olfactory theory dominance been accepted by the scientific community (Henshaw, 2013). Buck and Axel are researchers who won the Nobel Prize in 2004, with their paper published in 1991. The research investigated olfactory receptors and how the brain interprets odors (Dowdey, 2020; Henshaw, 2013).

When odors are inhaled and stimulate the receptor cells in the nose and detect odors, they transmit information to the olfactory bulb that processes emotions and associative learning, such as our behavior, emotions, and memory (Buck & Axel, 1991; Dowdey, 2020; Henshaw, 2013). The second, less recognizable function of the sense of smell is a smell to the transluminal nerve. When we smell something sharp like ammonia, the olfactory nerve endings in the trigeminal nerve fibers detect the sharp sting and make us respond to pain or produce bodily sensations such as tingling and feeling hot or cold, and others (Dowdey, 2020; Henshaw, 2013).

Odor Character

Smellscape has been described as subjective, active, mobile, fleeting, and multi-dimensional. Odors can be interpreted as physical and tangible when they are in other media such as air. McClean proposes a theory about the relationship between smells and time, smells and places, and smells and humans to explain the nature of this smellscape (McClean, 2019).

Given the temporary, intermittent, and varied character of smell, it is essential to appreciate the hierarchy of odor longevity in understanding the landscape (Quercia et al., 2015). The first theory is regarding odor disturbance metric development; this metric categorizes odor into four levels frequency, duration, intensity, character, and episode.

The next reference is Malnar and Vodvarka's theory, the smell of the city can be understood by comparing the combination of perfume creation, namely top notes, middle notes, and base notes. In the city, top notes are compared with scents that are short-lived (curios, ephemeral smells), middle notes with episodic (localization, time-dependent), and

base notes with background (involuntary, long-lasting ambient smells) (Henshaw, 2013; Mclean, 2019).

Smells are defined as place-related because space and smell are interrelated (Classen et al., 1994; Henshaw, 2013; Rodaway, 1994). Smells and places are reflections of both subject and object. Urban odor ranges are described as the result of a composition of odor perceptions originating from the natural environment, the human-made environment, and people and activities (Mclean, 2019). Henshaw (2013) proposes a theory of perceiving and exploring the city's smell landscape into three scales, namely the macro-level, the middle-level, and the micro-level.

Smell Perception

(Rodaway, 1994) defines perception in two connotations: the reception of information through the senses such as sight, hearing, touch, taste, and smell. Second, perception is defined as mental insight resulting from various sensory information, with memories and expectations. The connotations of both have a mutually interconnected nature as sensation or feeling and cognition or insight.

Perception involves reason and thoughts and is also influenced by a person's geographical conditions and socio-cultural norms (Henshaw & Mould, 2013; Rodaway, 1994). Then, smell perception itself has two leading roles: a sensor for self-perception and a hedonic agent (related to pleasantness) (Rodaway, 1994). The perception of place through smell can explain people's daily experiences in cities, such as human activities towards building materials and landscapes, forming an invisible world around us (Zardini, 2005). (Henshaw, 2013) summarizes factors affecting odor perception into three categories: odor characteristics, individual characteristics, and environmental characteristics.

RESEARCH METHOD

This study uses an exploratory qualitative assessment approach that examines human perceptions of urban heritage areas. An exploratory approach is essential to do considering that studies on the smellscape approach in urban conservation are still limited (Xiao et al., 2018). According to previous studies on smell ranges, the process of sensory experience data collection can be done using the smells walk method and supported by a questionnaire survey and interview (Bruce et al., 2015; Henshaw, 2013; Mclean, 2019; Xiao et al., 2018).

Case Study

Pecinan or the Chinese Quarter area was chosen to enrich the cultural values in Semarang and contribute to the understanding of urban conservation and its future smell. The condition of *Pecinan* still offers religious, historical, culinary, art, and cultural tourism, resulting in a promising and interesting study case to explore from an olfactory point of view.

This study has some limitations due to the expectation of social restrictions in the case study area in response to the Covid-19 virus pandemic outbreak from 17 March 2020 until the time this research was written. Therefore, the data taken results are based on a pilot survey conducted at the end of February, resulting in a minim cover area that only consists of several alleys and only involved five respondents.

Method of Collecting Data

This study applies solo smells walk as a method of understanding the olfactory landscape of a city (Mclean, 2019). The smells walk activity was carried out four times, on 23, 24, and 25 February 2020 (three times in the morning and once in the afternoon). In the original plan, each participant would be asked to do a smell walk two times, namely morning and evening. However, because this data collection is carried out during the rainy season,

there are limitations to the afternoon slots, which can only be done once and only half of the route. Three out of four smell walk activities were also carried out after the rain had stopped.

Smellswalk participants involved five students with visual-related study backgrounds and non-visual, such as medical school (Chart. 1). Most of the participants, namely three out of five participants, had lived in Semarang for more than three years. The age of the respondents ranged from 21 years to 26 years.

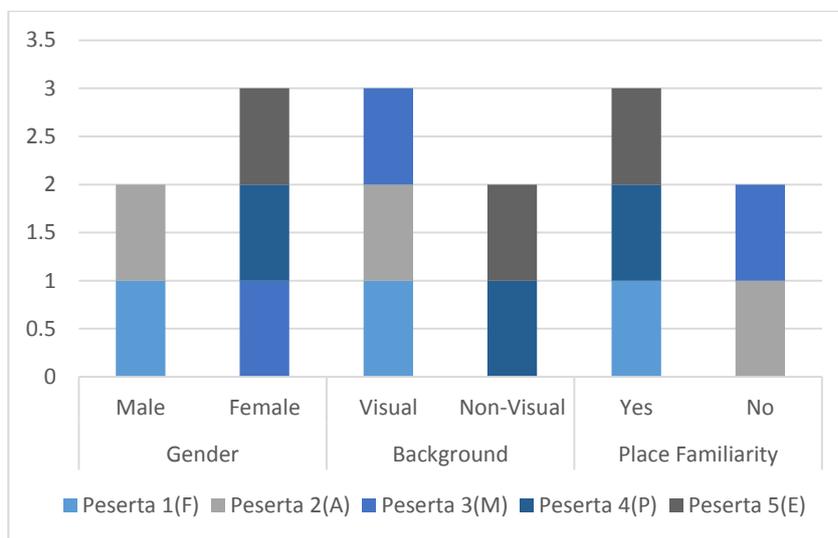


Chart 1. Participant Information

Before starting a smell walk, participants explained the route activity (Picture 1). The route normally takes about 15 minutes to run, but in the field, the total time spent on average is 45-60 minutes, with two stopping points, starting from the *Pecinan* gate and ending at the Sumber Sehat Toen Djin Tong drug store.

To record existing smell marks, each participant provided a blank map to record the scent marks. Each odor is written in the semi-structured questionnaire in the form of a smell note table referencing the smell character such as intensity, duration, pleasantness, expectations, and memory associations.

Data Analysis

Data was collected from smells walks and interviews in the form of text data and maps. The data is then analyzed through open coding and axial coding line to get insight into the participants' attitudes and experiences towards the intangible elements in the *Pecinan* area. The discussion will further explore how odors play a role in affecting the vitality of the *Pecinan* area.



Figure 1. Smellwalk route

RESEARCH ANALYSIS

Smell Marks

Various odors are detected when performing the smell walk method as a reflection of a holistic person-sensory experience. Then to make it easier to understand the results, the data is categorized based on references to the previous odor categorization model (Classen et al., 1994; Henshaw, 2013; Quercia et al., 2015).

This study found 209 scent marks, 67 smell variations and categorized them into ten groups: fishy, food, fruit and vegetables, waste, burnt, rotten, spices, industry, emissions, and people and nature (Chart 2). All this smell variation was collected from the keyword in the smell note. The fishy category consists of chicken, fish, meat, shrimp, offal, and fishy. Then food with potato/vegetable stew, cake/bakery, food, boiled fish, *soto*, *kwetiau*, culinary market, soybean, *jengkol*, smoked fish, noodles, pureed coconut milk, green beans, salted fish, fried food, and grilled chicken. For fruit and vegetables, various durian, bamboo shoots, coconut, guava, pear, orange, apple, and vegetables. The waste consists of the smell of acid, wet straw, leftover quill, leftover vegetables, leftover fruit, wet garbage found in the afternoon smell walk, and waste. Burnt is a combination of cigarettes and the smell from Temple (*Kelenteng*), such as incense, burnt paper, and burnt smoke. Rotten came from dirty groundwater as we walk after rain, then puddle, sewer, ditch, and urine (*pesing*). Spices consist of MSG (flavoring), brown sugar, seasoning, spice, soy sauce, and onion. The industry common in Gang Warung consists of textile, sawdust, cardboard, cosmetics, herbs, and medicine. The two last frequencies are represented by emission (vehicle emission, exhaust fumes, and pollution) and people and nature (wood, flower, fresh breeze, cage, and sweat).

Most of the smell name writing seems to be filled with the source of the smell itself, for example, the food category consisting of grilled chicken, fried food, and salted fish. For

exception, one respondent (MP) pinned the word 'wangi' or 'fragrant' when writing food in the odor name section. Meanwhile, in the fishy and natural categories, there are more expressions of smell; for example, when describing the smell of chicken / cut meat, seafood, and offal, they use the words fishy (*amis*), stinging (*menyengat*), pungent (*menusuk*), and in fruit, they are described as smelling sweet and fresh.

Example of respondent description:

"A row of butchers who tidy up and clean their meats, make the fishy smell even more pervade." (Respondent MP)

"This smell is so pungent and makes me want to vomit." (Respondent EP)

This situation is related to Classen's study that there is a limitation in the vocabulary of smell in the West due to the relatively insignificant role of smell. Generally, the aroma is described using the terms taste (sweet, pungent, bitter, and others) or refers to the odor's source. The description of smell that is linked to taste is not surprising since taste sensations depend on smells. However, in some areas outside Europe, the vocabulary is not always the same, and even smell vocabulary is sometimes wider (Classen et al., 1994).



Chart 2. Axial coding results in smell marks

The order of the highest odor intensity is the smell of fishy, then burnt, emissions, vegetables and fruit, garbage, people and nature, food, bad smells, spices, and industry (Chart 3). Then for the duration, there is also a fishy smell, followed by food, garbage, and people

and nature with the same frequency. Meanwhile, the most pleasant characteristics are the aroma of vegetables and fruit and industry, followed by the smell of food, people and nature, and spices. Six out of ten odor categories are related to pedestrians' expectations when experiencing smell walks, such as fishy smells, food, vegetables and fruit, industry, and people and nature.

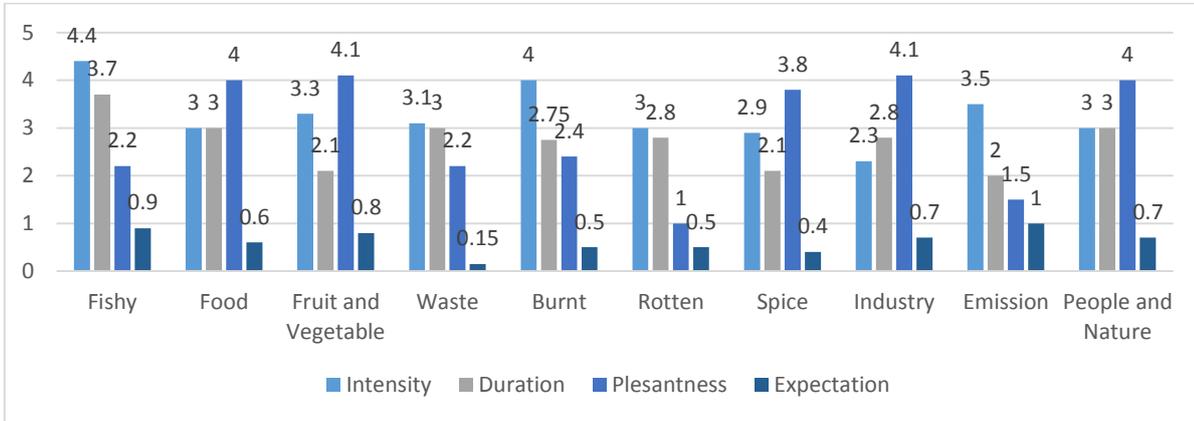


Chart 3. The character of smell marks

Smells Experience

Various In presenting scent in a place, it is recommended to show through graphic representations that facilitate the spatial understanding of things, concepts, conditions, processes, or events from people's perspectives. Smellsmapping has the potential to map social constructions based on odors into visible spaces (Mclean, 2019). Therefore, this research also proposes a smell map from the collection of smell marks noted by the participants (Picture. 1).



Figure 2. Smellmap of Pecinan

Besides the findings of smell marks, the smell map and odor character are developed into a configuration of smellscape, consisting of background smells, episodic smells, and short-lived smells. Background smells are represented by the smell of spices and food, episodic smells with fishy smells, fruit, and vegetables, burnt, waste, and industry. Short-lived smells belong to the types of emission and people and nature odors, and rotten.

The short-lived odor, which has high intensity but is changeable, disappears easily and only appears for a moment (micro-level) is represented by the smell of emission, people and nature, and rotten smell. The smell of spices and food is listed as a background smell in the aroma composition of *Pecinan*. These odors are the largest (macro-scale) layer with a less intense character but have a long-lasting duration. This configuration is expected concerning the distribution of food vendors found in almost every alley in *Pecinan*.

Then for episodic notes that are local and specific depending on time and place, they are represented by various smells such as fishy, burnt, fruit and vegetables, garbage, and industry. This smell has a character of intensity and duration that is between the two groups above. Can be seen the location pattern that appears through this fishy smell, fruit, and vegetable represents the Gang Baru market area. Then the industrial aroma described the commercial area in Gang Warung. Meanwhile, garbage and the smell of burnt only appears in certain areas. The burnt aroma is closely related to the layout of the temple because most of them are located in the nodes.

Gang Warung

This alleyway represents the first explanation; it is important to note that the alleyway area's exploration only covers approximately half of the total area. It is called a *Gang Warung* because, at the beginning of the *Pecinan* area's development, many people built stalls (warung) on the street. *Gang Warung* is one of the busiest streets in *Pecinan*, especially in the morning. Various market stands crowded the alleyway because of the extension of the *Pasar Gang Baru* area (Adrienne & Dwirahmi, 2013).

This alley has 30 scent marks, including nine out of ten smell categories (Chart. 4). The highest number is represented by the odor industry consisting of the aroma of cloth, sawdust/textile, cardboard, herbal, and medicines. The next position is the smell of food such as grilled chicken, fried food, coconut milk porridge, noodles, market culinary, kwetiau and soup. The smell of emission and rotten smell have the same total frequency, represented by vehicle and exhaust fumes and dirty groundwater, puddles, sewage, and urine. Another equal position is indicated by the smell of vegetables, onions (spices), and wood (nature). The least smell found in the *Gang Warung* is the smell of fishy and waste; each of these only has one frequency.

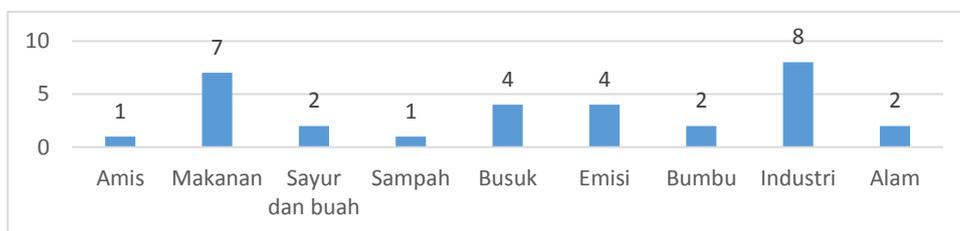


Chart 4. Smell marks found in *Gang Warung*

These findings show many variations of smells that can be found in this alley. Through smells, we can acknowledge the activity and the flexibility of space in this area. In the morning, we can smell the extension of the market area around the business district. While at noon, we have different experiences with industrial odors such as textiles, sawdust, cardboard,

and Chinese Traditional Medicine. Not to forget the aroma of various cuisine that will be more to find in the afternoon.

Unfortunately, this study did not get the opportunity to take odor samples at the *Gang Warung* during the *Waroeng Semawis* due to rain. *Semawis* market is held every Friday, Saturday, and Sunday night with booths selling various Chinese and local specialties and various other entertainment such as karaoke, fortune telling, calligraphy painters, and Chinese jewelry (Adrienne & Dwirahmi, 2013). It assumes that many promising aromas and other sensory experiences can be found in this market.

Gang Baru

The name of this alley means that this road/area is newly built. *Gang Baru* consists of markets (*pasar*) held along its street and open from dawn until around noon. The history of Pasar Gang Baru began when the Chinese prohibited leaving the *Pecinan* area by the Dutch (*Wijkenstelsel* policy). Then, Chinese people found it challenging to shop for foodstuffs, so slowly and little by little, traders from among the natives began to arrive and sell to meet the *Pecinan* residents' needs. It can be said that this market is a portrait of a blend of ethnic Chinese and local people (Adrienne & Dwirahmi, 2013).

While the UK market only has smells of fruit, vegetables, fish, and meat (Bruce et al., 2015), in *Pasar Gang Baru*, we found ten variations of smell within a total of 125 smell marks (Chart. 5). The first category with the highest frequency is the fishy smell that includes the smell from chicken, seafood, meat, and offal. The next one is the smell of sweet, fresh, to pungent fruit and vegetables such as apples, oranges, guava, coconut, bamboo shoots, durian, and vegetables that are still not recorded in detail. This market's uniqueness is the smell marks of a particular food (salted fish, smoked fish, *jengkol*, food, potato/vegetable stew) and bakery, incense, cosmetics, and people-nature odors (flowers, cage, and sweat).

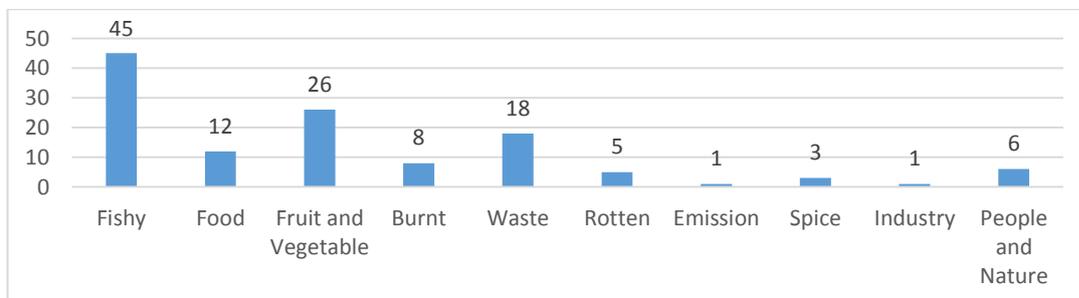


Chart 5. Smell marks found in Gang Baru

Through smell, we can find various unexpected aromas in the crowded market. Several respondents did mention that they can smell these scents but can not find the source of them. These aromas also give a better experience in the market space or even feel in a different place.

"There were no fruit traders seen, but in the middle of the fishy flesh, there was a sweet, fresh aroma that was enough to relieve fishiness." (Respondent MP)

"Like in front of the temple, even though there is no temple." (Respondent AS)

"Seasoning with a distinctive spicy aroma like cinnamon, pleasant amidst the stuffy smell of chicken. Unfortunately, this smell is only found in the spice shop area." (Respondent MP)

Although all other aroma brings a positive experience to this market, the general smell such as fishy is still considered positive like these participants' explanations:

Chicken, *"This smell reminds me of mother's opor, very delicious food."* (Respondent PP)

Fish, *"Fish smell makes me want to cover my nose, even though it makes me want to eat fish."* (Respondent EP)

Salted fish, *"This smell reminds me of when my mother and I used to shop at the fish market in the port area."* (Respondent PP)

Although all other aroma brings a positive experience to this market, the general smell such as fishy is still considered positive like these participants' explanations:

Gang Gambiran

Gambiran comes from the word 'gambir', which is a material for tanning leather. Then, the area of this road also used to be storage warehouses for gambir. At the end of *Gang Gambiran* facing *Gang Pinggir*, a pillar stands as a meeting point for posting advertisements or announcements from the Dutch Era (Adrienne & Dwirahmi, 2013). Based on the scent marks we calculated, this area has some food aromas perceived by local food stores and street vendors who stay around this pillar. The incense scent was also found due to the location right next to the *Tek Hay Bio* temple.

Unlike other alleyways, this area has less scent variation, and only consisted of 20 marks (Chart. 6). The interesting part of *Gambiran* is even if we were not around the culinary area and temple, we can still smell the aroma of food and incense, probably from the houses. Another positive experience is when doing the smells walk, the respondent felt a fresh breeze in the street area due to the greenery around the housing area and weather conditions. In conclusion, even in a small alley, the experience of *Pecinan* culture can still be felt with the aroma of food (green beans, snacks, food), incense, spices (MSG, the aroma of spices, soy sauce, sweet Javanese sugar), nature (fresh breeze).

"Like walking in the food court area in front of the mall." (Respondent FP)

"Even though the location of food shop is in front of the main road, the aroma of cooking is even smelled when entering the small alley." (Respondent MP)

"Along the way, I smell incense scent, whether it comes from the temple, only the aroma is quite strong." (Respondent MP)

"As I walked, I smelled an authentic Pecinan and reminded me of a trip to Pecinan Singapore." (Respondent MP)

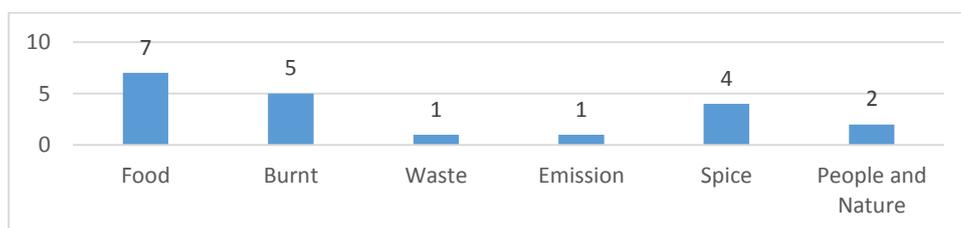


Chart 6. Smell marks found in *Gang Gambiran*

Besides the findings of smell marks in each alley, we also found other explanations of smellscape related to smell and perception, such as familiarity, legibility, air and space quality, and vitality and engagement. The association of smell with memory is found in some respondents' explanations and linked to the factor of familiarity. This factor played an essential role in smellscape pleasantness as people are often referring to smells they know and feel more pleasant when they have personal experiences and memories (Henshaw, 2013; Xiao et al., 2018).

Following are examples of explanations from respondents regarding familiarity and pleasantness levels (on a scale of 1-5):

Salted fish, *"This smell reminds me of when my mother and I used to shop at the fish market in the port area."* (Respondent PP) (4)

Orange, *"This smell reminds me of my sibling who likes citrus fruits"* (Respondent PP) (5)

Fabric, *"Reminds me of my sister who likes to invite me to fabric stores."* (Respondent PP) (4)

Fresh breeze, *"Reminiscent of the vacation by the beach with my friends."* (Respondent PP) (5)

Other than positive impact, it is often to address the function of smell to detect the air and environment quality. This study also found that many smell marks indicate this and show through two categories in waste and rotten smell. The smell of waste varies from just waste to vegetable scraps, sliced fruit scraps, wet trash, wet straws, and leftover chicken feathers. Rotten smell includes the source of dirty groundwater, puddles, sewers, and urine.

The combination of built environment design practices of ocular-centrism with a reductionist approach toward odors that produces blandness and monotone areas and spaces has significant consequences for the identity and meaning of place (Hall (1969) in Henshaw, 2013; Erwine, 2016). This issue is increasingly important considering that historical areas have a distinctive fabric that involves various senses as elements of the region (Re: Streets, 2020).

It is essential to see the potential of odor as one of the fabric characteristics through the legibility factor and maintaining it. Understanding a city is not only by thinking about the physical element but also how the city is perceived by its inhabitants (Lynch, 1960). Furthermore, the legibility factor of place can be a medium of understanding based on its role for the region to become easier to identify or read (Bentley et al., 1985).

In some of Classen's research areas, smells are used as spatial orientation and an alternative map of places (Classen et al. 1994). This issue is also referred to in the urban cognition system introduced in "The Image of the City by Lynch (1960) and the review by Xiao (2018); urban space can be defined and understood through five urban elements based on visual memory and psychological impact. This concept is promising to be applied from the smellscape perspective because the character of smell is related to emotion, evokes taste, memory, and involves cognition, and tends to last longer than other senses (Engen 1982; Porteous 1985).

"As I walked, I smelled an authentic Pecinan and reminded me of a trip to Pecinan Singapore." (Respondent MP)

Derived from the respondent's description of how smells can remind us of a place, this paper describes how smell can describe the three characters of the space studied. *Gang Warung*, where industrial smells and emissions represent the corridor space, reminds us that this alley is a highly mobile business area. The flexibility of space is also represented by various smell changes in the morning, noon, and evening. Then, *Gang Gambiran* has a fresh smell and the aroma of cooking and incense, which alternates and reflects the residential area in *Pecinan*. Last but not least, we can find a wide variety of overlapping smells, from pungent, refreshing, to pleasant smells at *Pasar Gang Baru*.

The legibility concept is also supported by the spread of incense aroma in *Pecinan*. Incense scents are often found in every corner of the area (nodes) and at several other points (Picture. 2). Based on the feng shui theory, the layout of temples is often built at the end of the road or in the "*tusuk sate*" position (nodes) (Suliyati 2011). This situation can show the Chinatown area's position even before there is any visual clue. This unique incense scent trail

becomes even more attractive to the place's legibility and supports the peculiarities that represent the local Chinese Quarter's culture and characteristics.

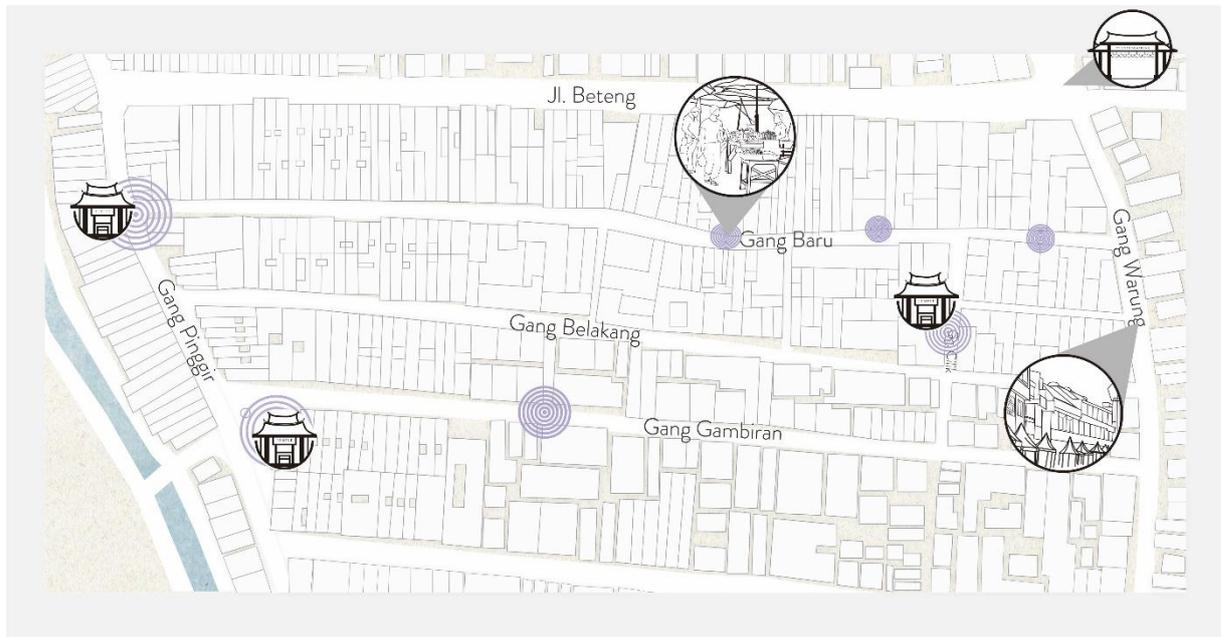


Figure 3. The position of incense scents

This section concludes that the role of smells in space and the environment can be useful as spatial orientation and a distinctive feature. The use of the sense of smell is useful for looking for an identifier that falls into the intangible element category so that through smell, we can conceptualize the invisible world around us. If an area's legibility usually consists of several landmarks, then smell marks can also highlight certain aspects of a place and space (Erwine, 2016).

Smell perception in a place can result in long-lasting memories and affect people's emotions, behavior, and attitudes (Engen, 1982; Engen & Ross, 1973; Quercia et al., 2015). Therefore, the olfaction experience contributes to enhancing the emotional bonds between people and place through their engagement related to the place attachment. In this sense, smellscape design can help urban preservation achieve a placemaking that needs to attract and engage people in historical places.

There has been a change in the function of the area of *Pecinan* from housing to a business district. Until 2005, Semarang City Government, through Mayor Decree No. 650/157 On 28 June 2005, assistance for the *Pecinan* area began to be revitalized. The *Pecinan* area, which was only a trading center then initiated *KOPI Semawis* (Semarang Chinatown Community for Tourism), and turned into a tourist center that displays the Chinese and Local culture (Saputra, 2018).

One of the activities carried out to carry out this goal is the routine implementation of *Waroeng Semawis*, which consists of various positive aromas to attract and engage people. In Henshaw (2013), there is a special relationship between food and odors to form the main component of the city's smellscape. The experience of food and other positive odors in urban smellscape contributes toward local place belonging and identity.

In another reference, achieving a successful urban place is determined based predominantly on street life, the combination of three essential elements of physical space, the sensory experience, and activity through building and spaces (Montgomery, 1998). Therefore, the role of smellscape can be stated to play a role in enhancing the vitality and engagement of

the *Pecinan* area, and the official needs to perceive the built environment from a local perspective.

CONCLUSION

This research addresses the need for a new interpretation of urban conservation, supporting the idea of a sustainable cultural environment in opposition to the ocularcentrism and reductionist approach. Smellscape became a matter as this approach reflects the social and cultural characteristics of the community and place. The character resulting from smell will make it different and easier to identify and remember (McClean, 2019).

This study explored historical areas through people's perceptions and experiences using the smell sense. Using the smells walk, semi-structured questionnaire, and interview, we found 209 smell marks, 67 smell variations, and categorized them into ten groups: fishy, food, vegetables and fruit, garbage, burnt, rotten, spices, industry, emissions, and people and nature.

Besides the findings of smell marks, this study also addresses the quality of the spatial experience based on the olfactory approach, which relates to familiarity with odor. The more familiar person with the smell in the space, the more likely it is to add a pleasant factor to the space experience. These include odors that usually have a negative connotation, such as fishy smell, which turns into a pleasant smell because it reminds of personal activities, memory, or preference.

The distinctive spatial experience that arises through this smell also turns out to be a clue to the area's legibility. Through this research, we can understand that a typical cultural heritage area has characteristics that can not only be seen from the visual senses, but also through the sense of smell. From a visual point of view, the area's legibility can be seen from landmark elements (Bently et al., 1985), then with a smell, we meet the term smell mark. The smell element (smell marks and events/atmosphere) is essential to be considered because the smell character has longer memory durability than that produced from the visual senses and is associated with human emotions (Engen & Ross, 1973; Xiao, 2018).

With the rediscovery of intangible elements in this area, it is hoped that it can increase the role of smell in a positive perspective and preserve it. This research deserves to be continued further so that the discussion will be more valid. This study has several limitations related to the limited number of respondents, the small area coverage, and the unmeasured odor factor. Furthermore, studying with these criteria will help explore the relationship between smells, the environment, and humans. A more detailed discussion of odor behavior at an architectural scale also has a good topic that involves a relationship between material, wind, humidity, and odors.

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REFERENCES

- Adrienne, A. A., & Dwirahmi, A. (2013). *Pecinan Semarang: Sepenggal Kisah, Sebuah Perjalanan*. Kepustakaan Populer Gramedia.
- Bembibre, C., & Strlič, M. (2017). "Smell of heritage: A framework for the identification, analysis and archival of historic odors". *Heritage Science*, 5(1), 1–11. <https://doi.org/10.1186/s40494-016-0114-1>
- Bently, I., Alcock, A., Murrain, P., McGlynn, S., & Smith, G. (1985). "Responsive environments. A manual for designers". In *Elsevier Ltd*. [https://doi.org/10.1016/0169-2046\(88\)90064-3](https://doi.org/10.1016/0169-2046(88)90064-3)

- Bruce, N., Condie, J., Henshaw, V., & Payne, S. R. (2015). "Analysing olfactory and auditory sensescapes in English cities: Sensory expectation and urban environmental perception". *Ambiances, July 2015*, 0–14. <https://doi.org/10.4000/ambiances.560>
- Bubandt, N. (1998). "The odor of things: Smell and the cultural elaboration of disgust in Eastern Indonesia". *Ethnos*, 63(1), 48–80. <https://doi.org/10.1080/00141844.1998.9981564>
- Buck, L., & Axel, R. (1991). A novel multigene family may encode odorant receptors. *Society of General Physiologists Series*, 65, 175–187.
- Classen, C., Howes, D., & Synnott, A. (1994). *Aroma: the cultural history of smell*. Routledge. <http://books.google.com/books?id=HmDIoCbZTzMC&pgis=1>
- Dowdey, S. (2020). *How smell works – Fifth Sense*. Howstuffworks. <https://www.fifthsense.org.uk/how-smell-works-2/> (accessed 25 February 2020)
- Engen, T. (1982). "The Perception of Odors. In Artificial Human Sensors". *Academic Press, Inc.* <https://doi.org/10.1201/b11773-4>
- Engen, T., & Ross, B. M. (1973). "Long-term memory of odors with and without verbal descriptions". *Journal of Experimental Psychology*, 100(2), 221–227. <https://doi.org/10.1037/h0035492>
- Erwine, B. (2016). "Creating Sensory Spaces: The Architecture of the Invisible". In *Creating Sensory Spaces*. <https://doi.org/10.4324/9781315688282>
- Henshaw, V. (2013). "Urban smellscape: Understanding and designing city smell environments". In *Routledge*. <https://doi.org/10.4324/9780203072776>
- Henshaw, V., Mclean, K., Medway, D., Perkins, C., & Warnaby, G. (2018). *Designing with Smell: Practice, Techniques, and Challenges*. Routledge.
- Henshaw, V., & Mould, O. T. (2013). "Sensing designed space: An exploratory methodology for investigating the human response to sensory environments". *Journal of Design Research*, 11(1), 57–71. <https://doi.org/10.1504/JDR.2013.054066>
- ICOMOS. (2008). "Québec Declaration on the Preservation of the Spirit of Place". <https://doi.org/10.1017/S0940739108080430>
- ICOMOS, A. (2013). "The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013". https://doi.org/10.1007/978-1-4419-0465-2_1046
- Lynch, K. (1960). *The Image of The City*. The M.I.T. Press.
- Martokusumo, W. (2001). "Heritage and Urban Conservation Some Notions on Post-Colonial". *Urbanism in Search for Cultural Identity 1. August*, 22–23.
- Martokusumo, W., Poerbo, H.W., Sarwono, J., Sudarsono, A.S., & Putu, N. (2019). *SOUNDSCAPE AND THE UNDERSTANDING*. 371–380.
- McLean, K. (2019). *NOSE-FIRST: Practices of smell walking and smellscape mapping*. Royal College of Art.
- McLean, K., Christ, C., & Kingdom, U. (2020). "Sensory Mapping". In *International Encyclopedia of Human Geography (Second Ed, Vol. 12)*. Elsevier. <https://doi.org/10.1016/B978-0-08-102295-5.10592-X>
- Montgomery, J. (1998). "Making a city: urbanity, vitality, and urban design". *Journal of Urban Design*, 3(1), 93–116. <https://doi.org/10.1080/13574809808724418>
- Pallasmaa, J. (2005). *The Eyes of The Skin: Architecture and The Senses*. John Wiley & Sons Ltd. http://arts.berkeley.edu/wp-content/uploads/2016/01/Pallasmaa_The-Eyes-of-the-Skin.pdf
- Porteous, J. D. (1985). "Smellscape". *Progress in Human Geography*, 9(3), 356–378. <https://doi.org/10.1177/030913258500900303>
- Quercia, D., Schifanella, R., Aiello, L. M., & McLean, K. (2015). "Smelly Maps: The digital life of urban smellscape". *Proceedings of the 9th International Conference on Web and Social Media, ICWSM 2015, Jacobs 1961*, 327–336.

- Re: Streets. (2020). *Wayfinding*. <https://www.restreets.org/wayfinding#tab2> (accessed 31 May 2020)
- Rodaway, P. (1994). *Sensuous Geographies: body, sense, and place*. In *Routledge*.
- Saputra, G. (2018). *Begini Sejarah Terbentuknya Pecinan di Kota Semarang*. *Bisnis.Com*. <https://semarang.bisnis.com/read/20180214/535/756923/begini-sejarah-terbentuknya-pecinan-di-kota-semarang> (accessed 27 September 2020)
- The Japan Times. (2001). *Ministry compiles a list of the nation's 100 best-smelling spots*. <https://www.japantimes.co.jp/news/2001/10/31/national/ministry-compiles-list-of-nations-100-best-smelling-spots/> (accessed 13 August 2020)
- Trevino, M. T. (2020). *The people trying to save scents from extinction*. *BBC*. <https://www.bbc.com/future/article/20200108-why-preserving-certain-scents-is-important> (accessed 15 August 2020)
- UNESCO. (2009). *HOI AN PROTOCOLS*.
- Xiao, J. (2018). "Smell, smellscape, and place-making: A review of approaches to study smellscape". In *Handbook of Research on Perception-Driven Approaches to Urban Assessment and Design* (pp. 240–258). <https://doi.org/10.4018/978-1-5225-3637-6.ch010>
- Xiao, J., Tait, M., & Kang, J. (2018). "A perceptual model of smellscape pleasantness". *Cities*, 76(August 2017), 105–115. <https://doi.org/10.1016/j.cities.2018.01.013>
- Xiao, J., Tait, M., & Kang, J. (2020). "Understanding smellscape: Sense-making of smell-triggered emotions in place". *Emotion, Space and Society*, 37. <https://doi.org/10.1016/j.emospa.2020.100710>
- Zardini, M. (2005). *Sense of The City: an Alternate Approach to Urbanism*. In *Canadian Centre for Architecture and Lars Müller*.