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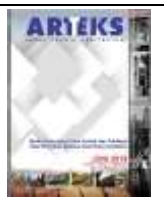

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Attractive urban lighting as a new destination branding

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ABSTRACT

In recent decades places that use attractive urban lighting to attract visitors have emerged. This shows a shift in lighting, giving the impression of a place, nocturnal image, and attracting attention. The purpose of this paper is to explore places, activities, and impressions of attractive urban lighting to see its potential in improving city visuals at night. The data was collected through an online questionnaire distributed by a non-random snowball sampling method from 126 respondents. The analysis was carried out in stages, starting with content analysis and continued with correspondence analysis and hierarchical clustering. The results showed that places with attractive urban lighting could be grouped into seven categories of place, ten categories of activity, six categories of impression. Three models are formed from these themes, namely cognitive image, unique images, and affective image, which will form an overall image of attractive urban lighting as the new destination branding.

Introduction

Attractive places are places that have unique characteristics to attract visitors to come. The attractiveness of natural scenery, culture, and traditional buildings has an essential role in shaping the uniqueness and image of a place (Ginting, Nasution, and Rahman 2017). People often show a preference for the natural environment compared to urban areas (Widodo 2019; Pradono 2019). However, research show that historical-cultural, recreational, and panoramic places in urban space have restorative values close to the natural environment (Hidalgo et al. 2006). Perceived restorative can predict the attractiveness of a place more than the aesthetic attributes.

There has been a growing interest in attractive nighttime places in the last few decades. Research on residents' and immigrants' perceptions of the Hong Kong cityscape shows a high interest in diverse nighttime images compared to daytime images of the city (Huang and Wang 2018). The shift in night lighting, which was initially for safety, gives the impression of a place, nocturnal image, and attracts attention (Achsani and Wonorahardjo 2020; Boyce 2019). In addition to making the place attractive, lighting can also improve the visual quality of the city (Azis, Santosa, and Ernawati 2019). The night markets that offer activities such as eating out, everyday shopping, and novelty seeking show a closer relationship with visitors regarding the experience

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and images than residents (A.-T. Hsieh and Chang 2006; Lee et al. 2008).

An attrasctive urban lighting phenomenon has various activities and perceptions for its visitors. Therefore, this paper explores places, activities, and impressions of attractive urban lighting to see its potential in increasing city visuals at night.

Method

This study uses a qualitative method with conventional content analysis as the analysis method. Qualitative content analysis is understood as a "research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (H.-F. Hsieh and Shannon 2005, 1278). The main goal of conventional design is concept development or model building by developing categories directly from text data (H.-F. Hsieh and Shannon 2005). In general, the data analysis process consists of three main steps: selecting the unit of analysis, creating a category, and building a theme from the category. The selection of the unit of analysis is an essential step in reducing data that can be analyzed to answer research questions (Cho and Lee 2014). Several steps in creating a category are: 1) reading the data repeatedly to get the whole idea; 2) making code from words; 3) sorting codes based on similarities and differences to a category. Tree diagrams can also help to organize categories into a hierarchical structure. Making a theme must be adjusted to the purpose of the research and the relationship between the categories, be it concurrence, antecedents, or consequences. Furthermore, relevant theories address in the study's discussion section (H.-F. Hsieh and Shannon 2005).

The collection data process carries through an online questionnaire distributed by the non-random snowball sampling method. The questionnaires were distributed through family, friends, and colleagues' message groups and done voluntarily and anonymously. Questionnaire divide into two parts. The first part focuses on research questions in the form of open-ended questions to explore places, activities, and impressions of attractive urban lighting. These open-ended questions use to obtain text data that can be coded and developed into categories and themes to answer research questions. The three open-ended questions in this study are: "Name 1 (one) place you have visited and have interesting night lighting"; "What activities do you do in that place?"; and "What impression did you get when you were in that place?". After that, respondents ask to fill in the second part in demographic information such as gender, age, domicile, and educational background through closed questions.

Result and discussion

From the results of distributing online questionnaires, there were 126 respondents, with 61 male respondents (49%) and 65 female respondents (51%). Most respondents have an educational background in architecture (42%) and engineering (28%). In addition, most of the respondents live in Bandung (34%), Jakarta (13%), Malang (11%), and other cities in Indonesia.

A place with attractive urban lighting

This section aims to analyze the content of the open-ended question “Name 1 (one) place you have visited and has interesting night lighting”. Code generation process based on the function of each place. Table 1 shows the process of making code from respondents' responses regarding places with attractive urban lighting. Table 2 shows seven categories of places with attractive urban lighting obtained from this open-ended question, namely: Urban Green Space (f:50), Commercial Building (f:48), Public Building (f:9), Monument (f:7), Bridge (5), District (f:5), and Mosque (f:4).

Table 1. Code generation for places

Respondent	Response	Code
Respondent 3	“Alun-alun Masjid Raya Bandung”	City Park

Table 2. Category of places with attractive urban lighting

No	Category	Code
1	Urban Green Space (f:50)	Landscape
		Roadside Garden
		Rooftop Garden
		Forest Park
		City Park
		Recreational Park
		Nature Park
2	Commercial Building (f:48)	Mall
		Hotel
		Office
		Recreational Building

No	Category	Code
3	Public Building (f:9)	Cultural Building
		Hospital
		Public Service Building
		School
		Laboratorium
4	Monument (f:7)	Monument
5	Bridge (f:5)	Bridge
6	District (f:5)	District
7	Mosque (f:4)	Mosque

Activities in place with attractive urban lighting

This section aims to analyze the content of the open-ended question "What activities did you do in that place?". Code generation process based on each activity type. Table 3 shows the process of making code from respondents' responses regarding activities in places with attractive urban lighting. Table 4 shows ten categories of activities from places with attractive urban lighting obtained from this open-ended question, namely: Recreation (f:40), Relaxation (f:38), Culinary (f:36), Socializing (f:25), Take a Photo (f:24), Learning (f:10), Working (f:9), Worshipping (f:8), Driving (f:8), Shopping (f:7).

Table 3. Code generation for activity

Respondent	Response	Code
Respondent 3	"Accompanying children playing, chatting with family, enjoying Bandung specialties, praying fardhu if the time is right at the mosque in front of the square"	Worshiping, culinary, accompany children to play, socializing

Table 4. Category of activity in places with attractive urban lighting

No	Category	Code
1	Recreation (f:40)	Holiday
		Playing
		Take a walk
		Date
		Accompany children to play
		Recreation
2	Relaxation (f:38)	Relaxation
		Enjoy the atmosphere
		Contemplation
3	Culinary (f:36)	Culinary
		Drink coffe
4	Socializing (f:25)	Gathering
		Chatting
5	Take a Photo (f:24)	Take a photo
6	Learning (f:10)	Learning
7	Working (f:9)	Working
8	Worshipping (f:8)	Worshipping
9	Driving (f:8)	On the way
		Driving
10	Shopping (f:7)	Shopping

The impression of a place with attractive urban lighting

This section aims to analyze the content of the open-ended question "What impression did you get when you were in that place?". Code generation process is done by breaking down text data that comes from the results of the respondent's response. Table 5 shows the process of making code from respondents' responses regarding the impression of places with attractive urban lighting. Table 6 shows six categories of impressions of places with attractive urban lighting obtained, namely: Space Ambiance (f:68), Space Perception (f:33), Visual Attraction (f:29), Mood (f:19), Contemplation (f:18), and Perceptual Clarity (f:14).

Table 5. Code generation for impression

Respondent	Response	Code
Respondent 3	"Friendship and togetherness"	Friendly

Table 6. Category of impression in places with attractive urban lighting

No	Category	Code
1	Space ambiance (f:68)	Fresh
		Peaceful
		Comfortable
		Friendly
		Lively
2	Space perception (f:33)	Safe
		Functional
		Artistic
		Romantic
		Modern
		Iconic
		Rigid
3	Visual attraction (f:29)	Beautiful
		Attractive
4	Mood (f:19)	Happy
		Excited
5	Contemplation (f:18)	Inspirational
		Amazed
		Serene
8	Perceptual clarity (f:14)	Focus
		Clear
		Bright
		Comfortable for view

Correspondence analysis of olace, activities, and impressions

There is no significant value between place, activity, and impression categories with closed questions (demography). However, correspondence analysis between the place and activity categories shows a significant value ($p<0.0001$). Figure 1 shows the relationship between categories is in a dendrogram.

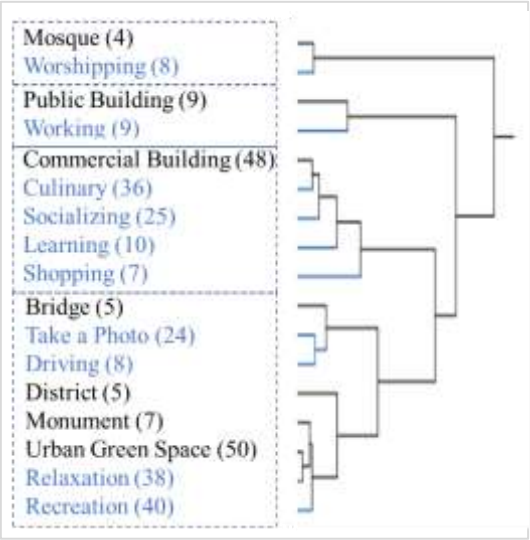

Figure 1. Dendrogram from correspondence analysis between the place and activity categories ($p<0.0001$)

The dendrogram for the place and activity categories has four activity themes in places with attractive lighting: worship, work, social, and recreational. The worship activity corresponds with a mosque and the work activity with a public building. The social activity consists of culinary, socializing, learning, and shopping in the commercial building. The recreational activity consists of taking photos, driving, relaxing, and recreation in bridges, districts, monuments, and urban green spaces. Of all the activities' themes, recreational activity has the highest frequency level, both in activities and places.

While the correspondence analysis between the place and the impression category shows a significant value ($p<0.0002$), and figure 2 shows the relationship between categories dendrogram. There are three impression themes in places with attractive urban lighting: perception, vision, and sensations from the place category dendrogram and impression category. The perception theme consists of category impressions such as space perception, space ambiance, and perceptual clarity with categories such as mosques, public buildings, and commercial buildings. The vision consists of visual attraction in bridges, urban green spaces, and districts. The sensation such as contemplation and mood in the monument. The perception theme has the highest frequency, both impression, and place.

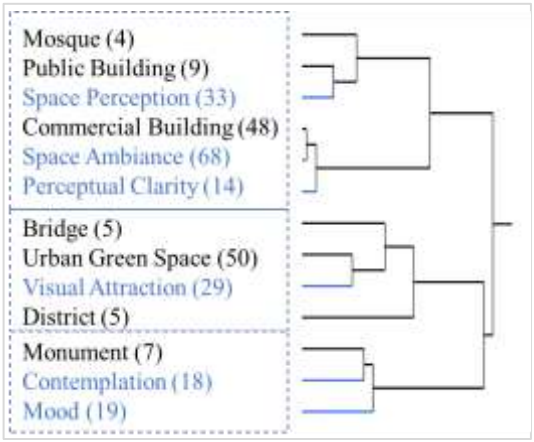

Figure 2. Dendrogram from correspondence analysis between the place and the impression category ($p<0.0020$)

The correspondence analysis results with a significant value indicate that each place with attractive urban lighting has different lighting activities and impressions for its users. In contrast to the insignificant correspondence analysis of place category, activity category, and impression category on demographics, it shows that demographics have no relationship to activities and user impressions at places with attractive urban lighting.

The correspondence analysis results between places, activities, and impressions develop a place model with attractive urban lighting. The theme I result from hierarchical clustering between places and activities, namely social, work, worship, and recreational. Furthermore, theme II results from the hierarchical clustering between place and impression: perception, vision, and sensation. So, from the grouping theme I and theme II, we get three theme models, namely cognitive images, unique images, and affective images of places with attractive urban lighting, as shown in table 7.

In the absence of limitations on open-ended questions regarding places, respondents answered them with various activities and impressions in indoor and outdoor places. In contrast, previous studies produced a distinctive visual impression on indoor (Flynn et al. 1979) and mood and visual impression in outdoor (Calvillo Cortés and Falcón Morales 2016; Azis, Santosa, and Ernawati 2019). The addition of 'attractive' to the open-ended question makes the sresults of the mood theme only positive, in contrast to positive and negative mood (Calvillo Cortés and Falcón Morales 2016).

The three images of attractive urban lighting align with the theoretical model of destination

branding, which is very important to identify and differentiate tourist destinations from others (Qu, Kim, and Im 2011). Destination branding is the concept of destination image where components such as cognitive and affective images play an essential role in building and influencing the overall image of the destination image (Baloglu and McCleary 1999). The result also aligns with the argument that unique images are the second most significant influence on the overall image, even the effect is higher than affective images (Qu, Kim, and Im 2011). The category of impressions on unique images in this study is the visual attraction of attractive urban lighting. Attractive places are often associated with historic-cultural or recreational places, and less attractive places are housing and public building (Hidalgo et al. 2006). However, the result shows that lighting in buildings can make a public building an attractive place. So that it can be said, these three attractive urban lighting images are "lighting branding" that can positively affect nocturnal identity, quality of life, and economic improvement districts (Arbab et al. 2020).

Table 7. Model for attractive urban lighting

Place	Activity	Theme I	Impression	Theme II	Model
Commercial building (f:48)	Culinary (f:36) Socializing (f:25) Learning (f:10) Shopping (f:7)	Social activity	Space perception (f:33) Space ambiance (f:68) Perceptual clarity (f:14)	Perception	Cognitive images
Public building (f:9)	Working (f:9)	Work activity			
Mosque (f:4)	Worshipping (f:8)	Worship Activity			
Urban green space (f:50)	Take a photo (f:24) Driving (f:8) Relaxation (f:38) Recreation (f:40)	Recreational activity	Visual Attraction (f:29)	Vision	Unique images
District (f:5)					
Bridge (f:5)					
Monument (f:7)			Contemplation (f:18) Mood (f:19)	Sensation	Affective images

Cognitive image of attractive urban lighting

Cognitive images have the most significant frequency compared to unique and affective images. There are three building categories, three activity themes, and one impression theme. Commercial building (f:48) with social activities such as culinary (f:36), socializing (f:25), learning (f:10), and shopping (f:7). Public building (f:9) with the work activity (f:9) and a mosque (f:4) with worship activity. The impressions obtained from all the places and activities are 'perception' such as space perception (f:33), space ambiance (f:68), and perceptual clarity (f:14).

This cognitive images model developed from the human need for an extension of time to carry out the rest of their activities during the day (Boyce 2019). The impression from these places focuses on aspects of cognition or perception such as space ambiance, space perception, and perceptual clarity. The respondents' answer when exercising around the Bung Karno Stadium in figure 3 shows that the respondent began to give an impression of the ambiance and perception of the place he used and measured the ability of light to provide perceptual clarity.

"Gelora Bung Karno in Jakarta; Walking and jogging; Comfortable for eyesight, especially for those with astigmatism" (Respondent 59).

This answer is in line with the results that state that visitors' sociodemographic characteristics and various kinds of information obtained before coming to a place will affect the perception and cognition of a place (Baloglu and McCleary 1999). The high frequency of cognitive images is also in line with the existing findings. Cognitive images are the most influential factor in destination branding and its formation in the overall images of a place (Qu, Kim, and Im 2011).

Figure 3. Stadion Gelora Bung Karno
Source: (Pangestu 2018)

Unique images of attractive urban lighting

Unique images have the second largest and higher frequency than affective images. There are three categories of buildings, four activities, and one category of impressions. The building categories included in the unique images are urban green space (f:50), bridge (f:5), and district (f:5). There are four categories of recreational activities, namely recreation (f:40), relaxation (f:38), take a photo (f:24), and driving (f:8). The impression obtained from all the places and activities is 'vision' or visual attraction (f: 29).

This unique image model developed from the need to use night lighting for entertainment purposes in permanent or temporary places to attract economic attention or promote certain brands (Boyce 2019). Unique images are also a critical component in destination branding and the formation of the overall image of the destination image (Qu, Kim, and Im 2011). The impressions obtained from these places are related to the visual attraction of place lighting. During a recreation of Batu Night Spectacular, the respondents' answer shows that the impression comes from the various visual attractions provided.

"Batu Night Spectacular; Recreation with family, take a walk, enjoy a different atmosphere of the evening; Unique, interesting, lively" (Respondent 92).

Figure 4. Batu Night Spectacular credit to Anendya Soeroto

Affective images of attractive urban lighting

Affective images have a minor frequency compared to others. There are one building category, four activities, and two impression categories. The building category included in the affective images is an urban monument (f:7). Interestingly, affective images have the same activity category as unique images. There are four categories of recreational activities, namely recreation (f:40), relaxation (f:38), take a photo (f:24), and driving (f:8). The impressions obtained from all places and activities is 'sensation' such as mood (f: 19) and contemplation (f: 18).

This affective images model developed from the human desire to create something beautiful and attractive (Boyce 2019). The impression is closely related to 'sensation' such as feeling the mood and contemplation. A monument in a city is often a source of pride, and dramatic lighting can add to its beauty and communicate the city's image (Boyce 2019; Jay 1971; Valetti, Pellegrino, and Aghemo 2020).

"Monumen Nasional; Especially looking at the lights at Monas; Memorable, inspiring and entertaining" (Respondent 129).

Figure 5. Batu Night Spectacular credit to Anendya Soeroto

Design implication

Buildings such as urban green space, commercial buildings, public buildings, monuments, bridges, districts, and mosques can be attractive urban lighting and potentially enhance the city's visuals at night and make it a

new destination branding. "Lighting branding" is formed from:

1. Cognitive images arise from the human need to extend their activities at night, such as commercial buildings, public buildings, and religious buildings. Four activities usually happen social, work, and worship activities. Social activities consist of culinary, socializing, learning, and shopping. The impression is closely related to space ambiance, space perception, and perceptual clarity.
2. Unique images arise from the human need to promote its place for economic reasons, such as urban green space, bridges, and districts. The recreational activities are taken in this place, such as recreation, relaxation, taking a photo, and driving. The impression that arises is related to vision or visual attraction.
3. Affective images arise from the human need to create something beautiful, such as monuments. Most of the activities carried out are recreational activities such as recreation, relaxation, taking a photo, and driving. The impression is closely related to 'sensation' such as feeling the mood and contemplation.

Conclusion

From the research questions on places with attractive urban lighting, we got seven categories of places, ten categories of activities, six impressions, and three attractive urban lighting themes models. Seven categories of attractive urban lighting are urban green space, commercial building, public building, monument, bridge, district, and mosque. The ten categories of activities carried out at the venue are recreation, relaxation, culinary, socializing, take a photo, learn, work, worship, shopping.

The six impression themes obtained are space ambiance, space perception, visual attraction, mood, contemplation, and perceptual clarity. Meanwhile, the three attractive urban lighting themes obtained are cognitive, unique, and affective images. These three models are in line with the theoretical model of destination branding, which is very important to identify and differentiate tourist destinations from others, which is attractive urban lighting in this study.

The essential model themes are cognitive, unique, and affective images based on frequency. The three models exist because of the human desire for beauty, entertainment, doing activities at night, and creating attention. These three models are essential in designing new places as attractive urban lighting for a new destination branding.

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Author(s) contribution

Rizky Amalia Achsani contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

Kurniati Ornam contribute to the research concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.

Hanson Endra Kusuma contribute to methodology, supervision, and validation.

Surjamanto Wonorahardjo contribute to the research concepts preparation and literature reviews.

Sugeng Triyadi contribute to methodology, supervision, and validation.