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Research Article

Importance and performance of streetscapes at a tourism destination in Indonesia: The residents' perspectives

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Abstract The present study examined the importance and performance of streetscapes at a tourism destination in Makassar, Indonesia, from the residents' perspectives using the importance–performance analysis method. Thus, six attributes of the streetscapes in four segments of the old city district were identified and presented to 400 participants. The participants were then asked to rate the perception and preference of each attribute. Results of the attribute values were illustrated in a Cartesian diagram. Findings indicate notable discrepancies between the perceptions and preferences of the respondents. Thus, these attributes were inconsistent with their expectations. Moreover, the results showed that each segment should have different priorities for specific attributes to improve the performance of the streetscapes. Overall, such data can be used by stakeholders, such as tourism developers and government policymakers, to make appropriate and informed decisions that will improve the attractiveness of this tourism destination and increase the number of visitors.

1. Introduction

Makassar, the capital of the Indonesian province of South Sulawesi, has significant potential for tourism development due to its rich natural and cultural resources. The total number of domestic and foreign visitors to Makassar has increased from 5,289,983 in 2017 to 5,567,124 in 2018 (South Sulawesi Province Culture and Tourism Office, 2019).

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Previous research indicates that as the number of visitors increases, the necessary infrastructure and facilities must meet national standards (Ashworth and Page, 2011). Similarly, Cooper et al. (2008) revealed that tourism destinations must satisfy the expectations of visitors by including infrastructure and facilities that are tailored to their needs. However, although infrastructure and facilities can increase the number of visitors and deliver added-value experience, they can also be one of the reasons for their reluctance to visit a tourism destination, especially if such aspects are inadequate (Dwyer et al., 2010).

Previous studies reported five "A" factors that must be combined to generate a positive experience at a tourism destination: attractions, access, accommodations, amenities, and activities (Añaña et al., 2018; Buhalis, 2000). In line with this, Holloway and Taylor (2006) also wrote that the success of a tourism destination depends on the linkage of three variables: attractions, facilities, and accessibility. Thus, access as an "A" factor is a subject of discussion in the present study, particularly considering "land access," when visiting tourism destinations.

Infrastructure for transportation not only generally refers to highways but also other transportation facilities, such as streetscapes, parking facilities, transportation modes, street furnishings, and signage, as well as various services, including pedestrian walkways and zebra crossings (Harvey and Aultman-Hall, 2015; Rehan, 2013). Tourism destinations that are equipped with adequate transportation facilities also enable easy tourist visits to such destinations. In addition, Gosling and Maitland (1984) posited that circulation and open space systems are the basic organizing structures of any development, including tourism development. Their findings indicate that tourism and transportation are closely interrelated, thereby supporting one another considering tourism development. Hence, streetscapes, as an infrastructure for transportation and one of the aforementioned "A" factors, is another subject of discussion in this study.

Krippendorf (1987) indicated two crucial actors in tourism development: residents and tourists. Hence, the preferences and perceptions of residents and tourists have not only become valuable inputs for stakeholders in tourism development and those aiming to produce successful tourism products (Kim et al., 2014) but have also been emphasized in many previous studies. For example, Nisco et al. (2015) distinguished the positive and negative aspects of tourism destinations based on the opinions of consumers or visitors. Tyrväinen et al. (2014) found that perceptions of travelers are one of the essential indicators for the sustainability of tourism development. From the viewpoints of residents, Yu et al. (2011) and Zhang et al. (2012) revealed that one of the essential stakeholders in tourism is the residents living in a tourism destination. Moreover, Simmons (1994) stated two reasons why involving the community in tourism planning and development is crucial. First, the community comprises people who experience the remarkable impact of tourism. Second, the community is an essential factor in offering hospitality at a tourism destination, which can attract additional visitors.

Furthermore, Zhang and Chan (2016) offered policy recommendations for the development and sustainability of nature-based tourism in Hong Kong according to the viewpoints of residents and visitors. Kim et al. (2018) studied the motivations of Japanese visitors when visiting Korea and applied the following two models: BN regression and multinomial logit. In a related study, Wang et al. (2018) examined the research regarding preferences of visitors for various models of tourism destinations by using a mobile Internet dataset. Moreover, Kontogeorgopoulos et al. (2014) conducted community-based participatory research involving residents in developing tourism destinations. Overall, the opinions of residents can be remarkably helpful for tourism development.

The opinions of residents have rarely been examined considering streetscapes despite their use by many researchers. Therefore, the present study focuses on the level of importance and performance of streetscapes at a tourism destination in Makassar from the perspectives of residents by using the importance—performance analysis (IPA). The findings can be used by stakeholders, such as tourism developers and government policymakers, to make appropriate and informed decisions that will improve the attractiveness of this tourism destination and increase the number of visitors. The remainder of this study is presented as follows. Literature review includes a literature review regarding streetscapes, soundscapes, and the IPA approach. Research method describes the research methodology and analysis process. Discussion presents a discussion of the findings. Conclusion concludes the paper.

2. Literature review

2.1. Streetscapes

The term "streetscape" has been defined as the visual image of the physical area of a street and its various elements, such as pedestrian walkways, bicycle paths, public transportation stops, shaded areas, road medians, street lights, and signage (Torbay Council, 2007). All these components play a role in shaping the overall character, visual appearance, and identity of an area. In addition, if streetscapes are well-planned, then they can provide a sense of security and convenience for users (Crankshaw, 2009). In line with Crankshaw (2009), Carmona et al. (2010) indicated that the character of a streetscape is determined by two primary elements: street-forming and related activities. Street-forming elements include road width, alignment, building characteristics, and even vegetation growth on walls. The related activities include vehicle traffic and pedestrian activities outside of buildings and various functions inside of buildings. Interestingly, previous research has shown that a streetscape that highlights the unity of buildings and pleasant footpaths and parks can attract visitors to the area (Woodcock et al., 2013). Other studies have reported that well-designed streetscapes can foster a sense of connection, understanding, and community spirit among residents (Torbay Council, 2007; Woodcock et al., 2013).

Many studies have comprehensively explored the concept of streetscapes. For instance, in the United States, Makers (2003) and Koo (2017) respectively developed streetscape plans for downtown Tacoma (Washington) and Lexington (Kentucky) to improve the security, comfort, and

attractions for pedestrians, cyclists, and drivers. Koo (2017) added that streetscape not only improves the physical environment but also enhances other non-physical aspects, such as the community's sense of identity. In related studies, Asgarzadeh et al. (2012) and Harvey and Aultman-Hall (2016) measured the oppressiveness of streetscapes and their livability. The measurement by Asgarzadeh et al. (2012), which focused on solid angles of the physical elements of a street, demonstrated significant growth in the oppressiveness level with the increase in solid angles of the buildings. Meanwhile, Harvey and Aultman-Hall (2016) used geographic information systems (GIS), Internet-enabled surveys, and even social media to supplement traditional qualitative methods for collecting streetscape measurements. Moreover, Pham and Labbe (2017) discussed the need for essential streetscape and green and open spaces in Hanoi, Vietnam, one of the densest cities in the world. However, similar to many other large cities, Hanoi has recently begun to examine the advantages of creating streetscape projects and green and open spaces because they not only provide residents with locations for leisure/sports activities but also improve their overall quality of life.

Rehan (2013) reported the following four main principles considering the sustainability of streetscapes: legibility, comfort and safety, attractiveness, and liveness. Various requirements and considerations must be met to develop a sustainable streetscape (City of Toronto, 2019). For example, a sustainable streetscape should include the following aspects: green spaces that support the image and activities of the area, a user-oriented design, and effective collaboration between public and individual sectors (Otak Inc., 2007; IBI Group, 2013). Another essential element of a sustainable streetscape is pedestrian access. More specifically, pedestrian paths must be equipped with adequate facilities (e.g., trees, lights, and benches) to foster interactions with nearby attractions and amenities (e.g., shops, restaurants, and cafes). Well-designed pedestrian paths can also change the ratio of users and increase the number of pedestrians. Thus, the planning and development of pedestrian paths must consider various factors, such as safety, enjoyability, comfort, clear routes, accessibility, and attractiveness (Otak Inc., 2007), based on the perceptions and preferences of the community.

Overall, streetscapes are important for improving the overall welfare of visitors and residents (Hartanti and Martokusumo, 2014). However, in developing countries, such as Indonesia, streetscapes have not been managed to the maximum effect. Thus, several major cities in Indonesia, including Makassar, have begun to organize their streetscapes to attract visitors and improve their overall image. In this case, the arrangement of main roads, including arterial and collector roads, is governed by the Ministry of Public Works through Regulation No. 06/PRT/M/2007 on the General Guidelines for Building and Environmental Management Plans.

2.2. Soundscapes

Interestingly, discussions on streetscapes have been separable from noise or soundscapes (i.e., the sounds or combination of sounds that emerge from the surrounding environment). In this regard, Engel et al. (2018) investigated 52 peer-reviewed papers on soundscapes published over the past two decades. More specifically, their study focused on the different question formats, types, and topics and the various data collection methods (e.g., soundwalks, interviews, listening tests, and focus groups) for the involved public and acoustic stimuli. Meanwhile, Asdrubali and D'Alessandro (2018) examined various peer-reviewed papers on innovative approaches for noise management in smart cities published over the past five years. These approaches include the smart noise solution approach, which has helped assessed the level of environmental noise and improved the well-being of residents. Based on their findings, the authors proposed the following three approaches: dynamic noise mapping, smart sensors, and the soundscape approach. In a related review, Morillas et al. (2018) focused on the relationship between noise pollution and aspects of urban (e.g., urban forms and streetscapes) and building designs. The authors argued that improved knowledge of this relationship can help mitigate noise pollution in urban environments. In addition, for the first time in history, the noise was mentioned as a main factor of pollution at the 1972 World Environment Congress in Stockholm, Sweden (United Nations, 1972). More recently, the United Nations declared noise to be the second-ranked cause of environmental pollution after air pollution. Both types of pollutants generally have a significant impact on the health, welfare, and quality of human life. The increasing numbers of visitors to tourism destinations and residents living in such destinations are also associated with the rise in the variety and quantity of noise. Previous research has shown that this increase in noise not only triggers health issues but can also reduce productivity at work (Asdrubali and D'Alessandro, 2018). Thus, obtaining additional knowledge on noise or soundscapes is crucial.

Many researchers have investigated noise or soundscapes through various approaches. For instance, Engel et al. (2017) examined the level of noise created by an urban expressway and its effects on the surrounding area. A total of 397 people were interviewed for their study to determine their perceptions of such noise, and noise mapping was conducted using B&K Predictor 7810 software. They found that 56% of the interviewees agreed that the noise in the area did not annoy them, while 44% complained regarding the noise from the secondary thoroughfares adjacent to the urban expressway. In a related study, Paneto et al. (2017) applied computer simulations (i.e., Brüel & Kjær's Predictor (Version 8.11) software and Predictor-Lim A Software Suite Type 7810) and found that the level of noise exceeded the permitted noise level regulation standards. Furthermore, Watts et al. (2013) investigated eight open spaces surrounded by roads in Bradford, England, by using the tranquility rating prediction tool and questionnaires that measured the extent of tranquility from green spaces. Their results suggest that respondents were relaxed and tranquil after visiting a green space. Finally, Licitra et al. (2017) reviewed various noise action plans and their prioritization processes (which are vital for conveying effective action planning). They found that such plans should include a step-by-step process in

which the actions are ranked in accordance with their level of urgency.

2.3. Importance–performance analysis (IPA)

Introduced by Martilla and James (1977), the IPA method is a powerful and simple tool for measuring the priority levels of attributes and the satisfaction of respondents (Deng et al., 2008). In particular, this method is used to investigate the discrepancies between the perceptions of stakeholders regarding the importance and performance of certain attributes.

Many researchers have applied the IPA method in various fields, including the tourism (Chen et al., 2016; Dwyer et al., 2012; and Ying et al., 2018), information technology (Magal and Levenburg, 2005), education (Lee and Joung, 2017), and environmental (Lee, 2019) fields. In Indonesia, Astami and Handayeni (2015) used this method to analyze the priorities of infrastructure development in East Java based on the preferences of visitors and residents. Meanwhile, Aquarita et al. (2016) researched the potential for bicycle tourism development in Bandung, West Java, according to the perceptions and preferences of tourists. In related studies, Manurung (2011) applied the IPA method to analyze the satisfaction of visitors toward a tourism destination, while Oktaviani and Suryana (2006) investigated such satisfaction regarding Pasirmukti Gardens in Bogor, West Java.

The IPA method was utilized in the present study to measure the satisfaction of residents regarding the streetscapes of the old city district in Makassar. Therefore, the respondents were first asked to rate the importance of the attributes of the streetscapes and then provide their overall perceptions and preferences of the streetscapes.

Fig. 1 presents a diagram of the IPA method. The diagram shows four quadrants, with the *Y*-axis representing the preferences of the community toward the streetscapes (i.e., the importance of the streetscapes) and the *X*-axis denoting the streetscape perceptions of the residents (i.e., the performance of the streetscapes). Therefore, if the preference value is high, then this value indicates a high level of importance; if the preference value is low, then the level of importance is low. The average importance and performance points of the research variables are then plotted in the quadrants.

The quadrants in the diagram are presented as follows.

Quadrant I (QI) – High priority (high importance and low performance). The attributes in Q1 denote that the perception level of the community is the weakest. Thus, the attention of stakeholders is necessary to produce attributes with high performance (i.e., Concentrate here).

Quadrant II (Q2) – Maintenance achievement (high importance and high performance). The resources should focus on maintaining or gaining a competitive advantage in Q2 (i.e., Keep up the good work). Quadrant III (Q3) – Low priority. The attributes in Q3 have low importance and low performance. Quadrant IV (Q4). The attributes in Q4 have low importance (i.e., Possible overkill). Budgetary allocations and additional attention from planners should generally be given to the attributes that have high importance for the community.

3. Research method

The residents' preferences and perceptions of the streetscapes at a tourism destination in Makassar were measured through questionnaires that focused on six attributes. The respondents assigned values regarding the importance and performance of each attribute based on a five-point Likert scale. Considering the level of importance, the values included the following: 1 = unimportant; 2 = not too important; 3 = quite important; 4 = important; and

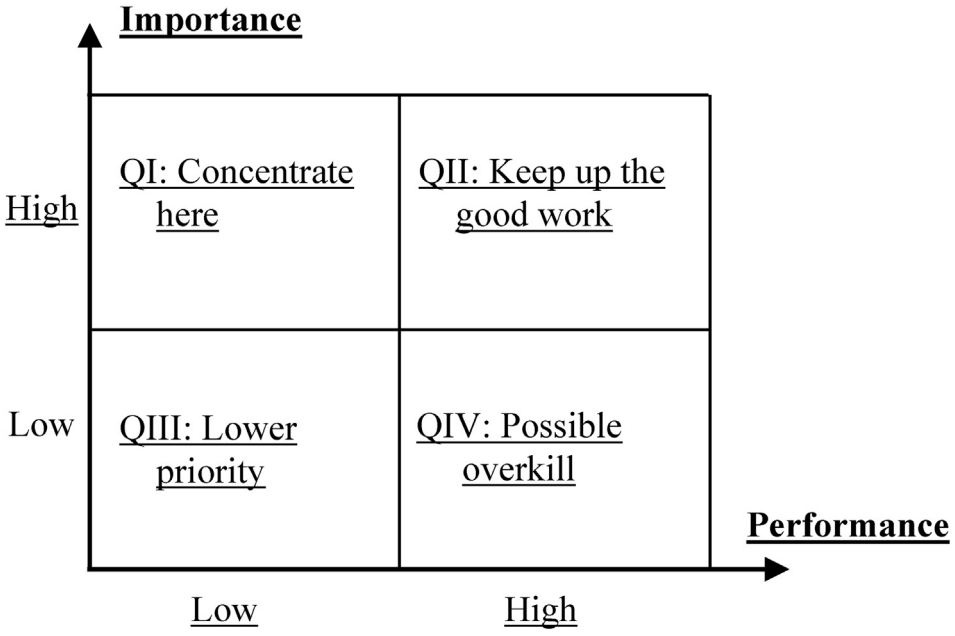

Fig. 1 Diagram of the IPA method (Ying et al., 2018).

5 = strongly important. Regarding the level of performance, the following values are included: 1 = very bad; 2 = not too bad; 3 = quite good; 4 = good; and 5 = very good. Sample images and design explanations of the streetscape elements were also provided in the questionnaires.

3.1. Study area

This study focused on the old city district in Makassar (Fig. 2), a tourism destination situated near the iconic Pantai Losari beach in Jalan Penghibur. This district is also a popular gathering place for the community because it includes a wide range of tourism amenities, including overnight accommodations, restaurants and cafes, retail and souvenir stores, and tour agents (Heryanto et al., 2013). Table 1 presents the primary tourism amenities distributed throughout the four segments of this district.

The units of analysis include the streetscapes in the old city district, which are separated into the following four segments (Fig. 2). In Segment 1, tourism amenities are complete due to the presence of three- and four-star hotels, restaurants, salons, retail and souvenir stores, banks, and ATMs. Fort Rotterdam, a well-known tourism destination, is also located in this segment. The majority of the residents in this segment live in high-density housing.

Fig. 2 Map of the target area highlighting several tourism destinations (a. Fort Rotterdam; b. culinary locations; c. Losari beach) and streetscapes (d. Green lane; e. Lorong; f. Pedestrian walkway).

Table 1 Main tourism amenities.

Tourism amenities	Segment 1	Segment 2	Segment 3	Segment 4	Total
Restaurants	27	37	37	28	129
Hotels	7	3	10	9	29
Souvenir shops	8	8	4	1	21
Total	42	48	51	38	179

Segment 2 is dominated by middle- and upper-class residential zones, with many houses built close to one another along the lorong (i.e., a small road approximately 1.5 m wide that can only be used by pedestrians or motorcycles). The tourism facilities in Segment 2 are not as abundant as those in Segment 1. Interestingly, one of the main tourism destinations in Segment 2 is Somba Opu, the largest souvenir center in South Sulawesi. Segment 3 includes middle- and upper-class residents and hotels, restaurants, cafes, souvenir shops, and two major parks (i.e., Taman Macan and Taman Segitiga). Finally, Segment 4 includes middle- and upper-class communities with neatly arranged houses, clean roads, numerous trees, and various restaurants. A dense settlement is also located in the western part of this segment.

3.2. Data collection process

Data collection was conducted through field surveys and questionnaires. The field surveys were performed to analyze the streetscapes in the old city district, while the questionnaires were used to determine the importance and performance of the streetscapes. The respondents comprised residents in the research area and those working in tourism fields, such as hospitality, food and beverage, travel, tourism retail, and public service. A total of 600 questionnaires were distributed across the four segments; after which, only 498 questionnaires were returned (112 questionnaires from Segment 1, 131 from Segment 2, 135 from Segment 3, and 120 from Segment 4). However, only 100 questionnaires from each segment were applied in the analysis. The profiles of the respondents are presented in Table 2.

4. Discussion

4.1. Existing condition

The findings indicate that several tourism destinations are located in the old city district of Makassar, some of which are within walking distance from one another. More specifically, Pantai Losari beach is a landmark in the district, with several colonial buildings situated nearby (e.g., the Stella Maris Hospital and the official residence of the

Table 2 Profiles of the respondents.

Characteristic	Segment 1		Segment 2		Segment 3		Segment 4		Total	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
Gender										
Male	61	54.46	63	48.09	88	65.19	70	58.33	282	56.63
Female	51	45.54	68	51.91	47	34.81	50	41.67	216	43.37
Age (Years)										
15–25	14	12.50	44	33.59	21	15.56	27	22.50	106	21.29
26–35	20	17.86	61	46.56	30	22.22	38	31.67	149	29.92
36–45	45	40.18	23	17.56	61	45.19	34	31.67	163	32.73
46–55	31	27.67	3	2.29	19	14.07	21	17.50	74	14.86
56 >	2	2.00	0	0.00	4	2.96	0	0	6	1.20
Average	39.6		28.8		37.0		34.4		34.95	
Level of Education										
Primary School	0	0	0	0	0	0	0	0	0	0
Junior High School	3	2.68	7	5.34	3	2.22	0	0	13	2.61
Senior High School	16	14.29	34	25.95	28	20.74	27	22.50	105	21.08
Diploma	37	33.04	49	37.40	56	41.48	40	33.33	182	36.55
Undergraduate	50	44.65	35	26.72	44	32.95	43	35.83	172	34.54
Master/Doctor	6	5.36	6	4.58	4	2.96	10	8.33	26	5.22
Occupation										
Unemployed	4	3.57	5	3.82	9	6.67	11	9.17	29	5.82
Employee	79	70.54	90	68.70	98	72.59	83	69.17	350	70.28
Housewife	17	15.18	25	19.08	11	8.15	14	11.67	67	13.45
Student	12	10.71	11	8.40	17	12.59	12	10.00	52	10.44

Table 3 Mean importance and performance scores of the streetscapes.

Attribute description	Mean Performance (*X*)				Mean Importance (*Y*)				*X*−*Y*			
	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4
Street web	3.99	3.54	4.02	4.04	4.44	4.20	4.49	4.45	−0.45	−0.66	−0.47	−0.41
Pedestrian walkway	2.86	2.51	2.75	2.88	4.41	4.21	4.57	4.23	−1.55	−1.70	−1.82	−1.35
Vegetation	3.11	3.03	2.71	2.87	4.23	4.10	4.66	4.61	−1.12	−1.07	−1.95	−1.74
City park	3.26	3.62	3.02	3.15	4.01	4.27	4.63	4.50	−0.75	−0.65	−1.61	−1.35
Green space	2.34	2.72	2.74	2.73	3.98	4.24	4.62	4.48	−1.64	−1.52	−1.88	−1.75
Structure of the lorong	2.34	2.75	2.60	2.11	4.58	4.62	3.84	3.74	−2.24	−1.87	−1.24	−1.63

mayor). Other tourism destinations in the vicinity include Fort Rotterdam, the Tomb of Datu Museng, Paotere Traditional Port, Somba Opu, and the Tomb of the Kings of Tallo.

The street hierarchies in Segments 1 to 4 are secondary arterial streets, secondary collector streets, local streets, and lorongs. The conditions of the street webs in all the segments are generally good at 2−15 m wide. The main roads around the area, such as Jalan Penghibur, Jl. A. Yani, Botolempangan, Arif Rate, and H. Bau, are categorized as secondary arterial roads. In addition, the majority of the secondary arterial roads are equipped with pedestrian walkways. The walkways, which are located near government buildings, appeared to be well-maintained, while the green spaces are well-ordered. However, the walkways in some locations are utilized by street vendors and used as motorcycle parking lots. Moreover, various banners and advertisements are installed along the walkways (especially around commercial buildings), thus distracting pedestrians with visual pollution.

The category of green and open spaces in this study includes the following: urban parks, green spaces located along the corridors of the roads, and green spaces in public buildings or private houses. The findings indicate the presence of only three city parks in the study area: a park in Segment 1 located near Fort Rotterdam and built to reflect the historical heritage of the site, one in Segment 1 (i.e., Taman Macan), and another in Segment 3 (i.e., Taman Segitiga) used by residents as a place to interact.

4.2. Reliability

SPSS 23 software was used in this study, and Cronbach's α coefficients were employed to evaluate the reliability of the data. The reliability value calculation was performed by setting the number of variations in the scores of different attributes due to chance or random error. Overall, the reliability score was $\alpha = 0.85$ and 0.89 for every preference and perception levels, respectively. Moreover, Cronbach's α of 0.70 was set as the internal consistency target for every preference and perception level.

4.3. Analysis

Table 3 shows the mean importance and performance scores of the streetscapes for each segment (Segment 1 − S1; Segment 2 − S2; Segment 3 − S3; and Segment 4 − S4) based on the following six attributes: street web, pedestrian walkway, vegetation (along the street corridor), city park, green space, and structure of the lorong.

The table shows that the highest mean performance scores of the streetscapes were 3.99, 4.02, and 4.04 for street webs in S1, S3, and S4, respectively. The attribute with the highest performance in S2 was city park, with a mean score of 3.62. However, regarding the level of importance, the structure of the lorong (in S1 and S2) and vegetation (in S3 and S4) were the highest, with mean scores of 4.58, 4.62, 4.66, and 4.61, respectively. Although the respondents scored the structure of the lorong as the most important in S1 and S2 and vegetation as the most important in S3 and S4 from the perception dimension, these segments were rated last, third, second, and fourth, respectively. This finding indicates that the streetscapes did not meet the expectations of respondents.

Overall, Table 3 reveals that the community's perceptions of the streetscapes were significantly lower than its preference levels. Table 3 also includes negative values for *X*−*Y*, which means that each attribute did not meet the expectations of respondents. Moreover, the following attributes had the most significant degree of difference between the respondents' perceptions and preferences toward the streetscapes: structure of the lorong in S1 and vegetation and green space in S3, with values of −2.24, −1.95, and −1.88, respectively. Conversely, the street web had the lowest degree of difference between the residents' perceptions and preferences in S1, S3, and S4, with scores of −0.45, −0.47, and −0.41, respectively.

A paired *t*-test was also conducted to determine the differences between two paired samples with the same subject but different treatments. The subjects in this study

Table 4 Analysis of the importance and performance *t*-test values of streetscapes.

Attribute description	*t*- test Value			
	S1	S2	S3	S4
Street web	−6.41[a]	−7.06[a]	−5.99[a]	−5.09[a]
Pedestrian walkway	−18.87[a]	−18.34[a]	−19.44[a]	−16.20[a]
Vegetation	−9.82[a]	−9.46[a]	−17.80[a]	−15.72[a]
City park	−6.03[a]	−6.03[a]	−13.36[a]	−13.00[a]
Green space	−15.48[a]	−15.85[a]	−23.60[a]	−21.63[a]
Structure of the lorong	−24.28[a]	−19.05[a]	−10.73[a]	−19.48[a]

[a] Sig. (two-tailed) < 0.05.

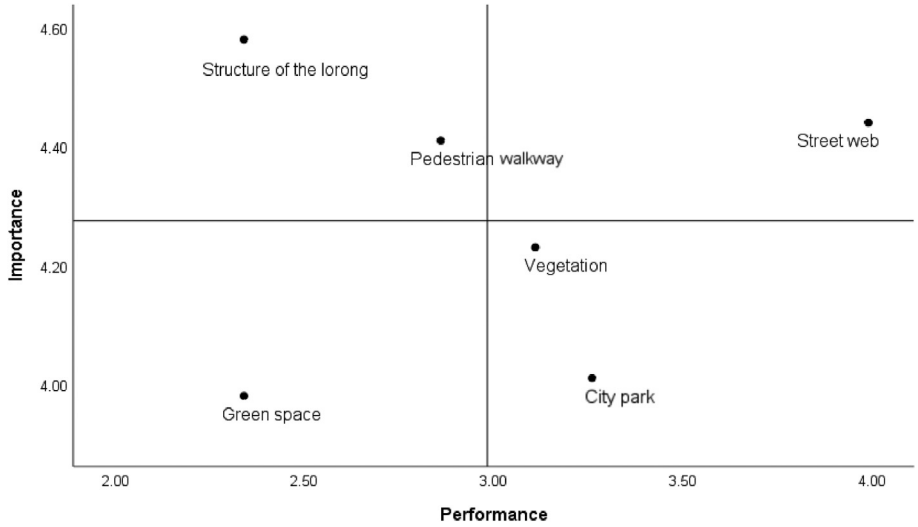

Fig. 3 Cartesian diagram of Segment 1.

were considered to be the attributes of the streetscapes that received various treatments, that is, importance and performance. Table 4 shows that the attribute values had a probability value or two-tailed significance of <0.05. This finding indicates the presence of a notable discrepancy between the respondents' perceptions and preferences toward the streetscapes. The results of the paired *t*-test and the negative $X-Y$ difference also revealed that the streetscapes performed negatively, thus suggesting that the expectations of respondents were not exceeded.

Moreover, the data from Table 3 were used to create a Cartesian diagram of the IPA quadrants for further interpretation of each segment (Figs. 3–6). The four quadrants were created by the average values of the streetscapes' importance and performance. This approach is the most common crosshair placement method used in tourism research (Junio et al., 2017).

As shown in Figs. 3–6, Quadrant I includes the following attributes: structure of the lorong and pedestrian walkway (S1); the structure of the lorong (S2); pedestrian walkway, vegetation, and green space (S3); and vegetation and green space (S4). The findings indicate that these attributes were recognized as noteworthy by the respondents, but the current performance was unsatisfactory. Moreover, S1 and S2 included the same primary priority attribute, that is, the structure of the lorong. This finding indicates that the lorongs satisfied the expectations of respondents. Meanwhile, S3 and S4 had additional attributes that required improvements. Thus, these attributes were prioritized in each segment.

Quadrant II includes the following attributes that were considered important and satisfying to the respondents: street web (S1); and street web and city park (S3 and S4). The respondents also believed that the attributes in Quadrant II were essential and expected to be supporting factors for community satisfaction. Hence, these attributes also required further improvements.

Quadrant III includes the following attributes with a low level of perception and performance: green space (S1); pedestrian walkway, vegetation, and green space (S2); and the structure of the lorong (S3). Previous studies on IPA have suggested that although the attributes in this

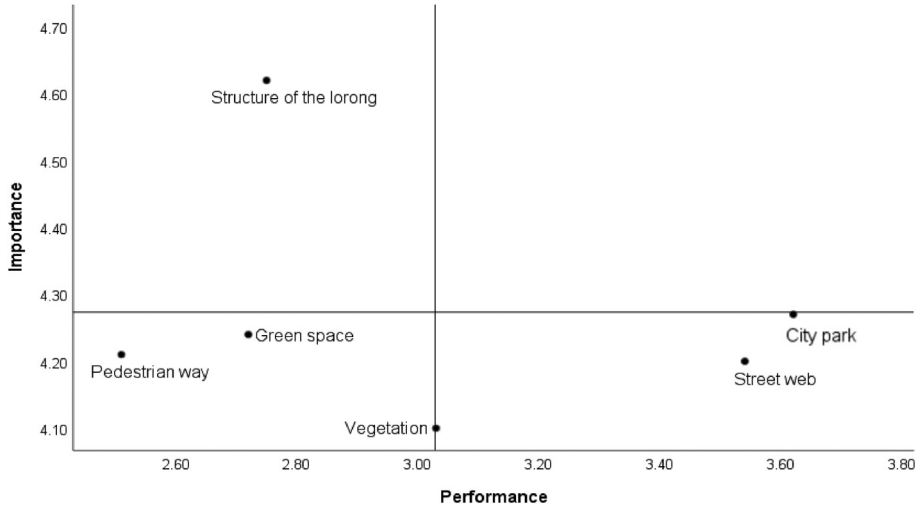

Fig. 4 Cartesian diagram of Segment 2.

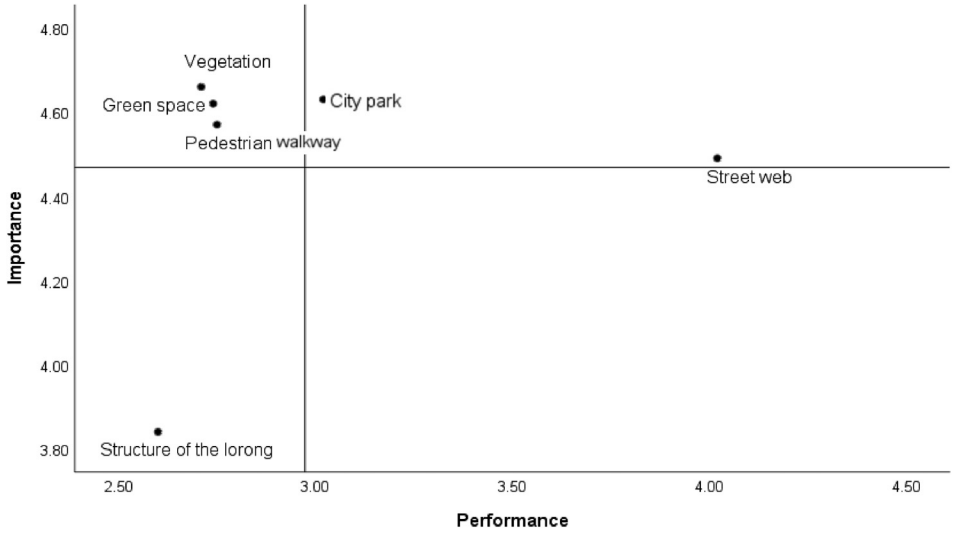

Fig. 5 Cartesian diagram of Segment 3.

quadrant do not need to be prioritized, they should be ranked in order of importance.

Finally, Quadrant IV includes the following attributes: vegetation and city park (S1); and street web and city park (S2). Notably, no attributes were found in S3 and S4. Although the attributes in this quadrant were considered to be unimportant by the respondents, these attributes had high performance. This finding does not indicate the removal of these attributes; however, these attributes should be well-maintained without over-utilizing resources.

Finally, Table 5 presents the distribution of the attributes in each segment. Overall, the majority of the residents (especially those in S1, S3, and S4) believed that the condition of the street web is a vital element that can support tourism development. Moreover, the residents indicated that the structure of the lorong in S1 and S2 should be a top priority for stakeholders, while the main priorities in S3 and S4 should be vegetation and green space.

4.4. Streetscapes improvement

The following recommendations for streetscape improvement are based on the input from the respondents, related theories and literature, and local government regulations regarding building and environmental management. These suggestions are expected to guide the effective development of streetscapes in the four segments of the old city district in Makassar.

4.5. Street webs

Overall, two recommendations are provided for improving the street web in this district. First, some roads could be arranged in one direction to avoid congestion because these roads are not as wide as the main roads. Second, the community can use Pasar Baru Street (denoted by a straight

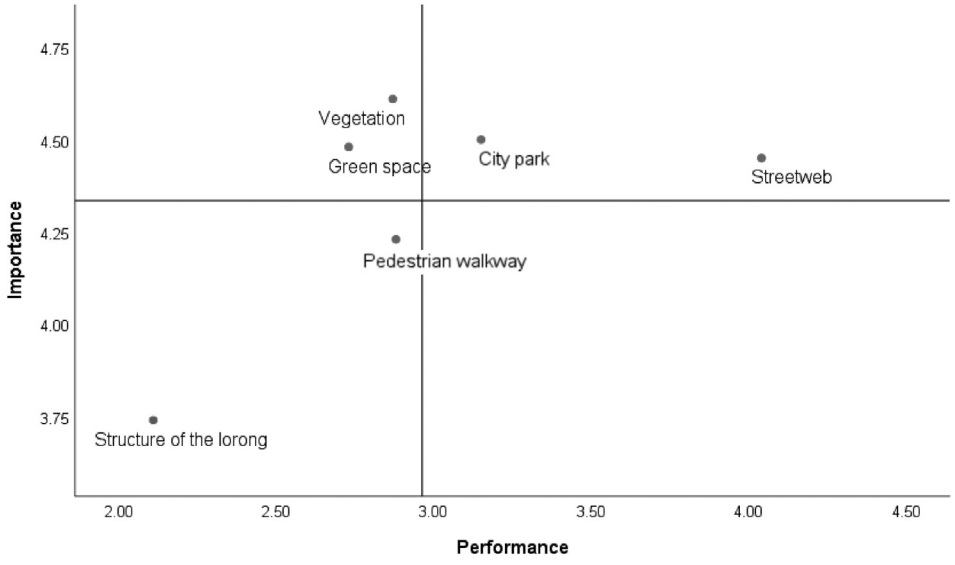

Fig. 6 Cartesian diagram of Segment 4.

Table 5 Distribution matrix of attributes on the IPA quadrant in each segment.

Attribute description	Segment 1				Segment 2				Segment 3				Segment 4			
	QI	QII	QIII	QIV	QI	QII	QIII	QIV	QI	QII	QIII	QIV	QI	QII	QIII	QIV
Street web		×						×		×				×		
Pedestrian walkway	×						×		×						×	
Vegetation				×			×		×				×			
City park				×				×		×				×		
Green space			×				×		×				×			
Structure of the lorong	×				×						×				×	

Fig. 7 Map of the street web and car exclusion on Pasar Baru Street (a, b, and c).

Fig. 8 Map of the green lanes, city parks (a, b, c), and lorongs (d, e).

line) to exercise, gather, and interact with others (Fig. 7a and b) because this street cannot be used by two- or four-wheeled vehicles, while traders can sell their goods along the road (Fig. 7c).

4.6. Pedestrian walkways

The improvement of pedestrian walkways and roads must occur simultaneously to create a sense of comfort and safety for users. The improvement of pedestrian walkways should generally be applied to all road networks. However, such improvement should be adjusted to the width of the roads and the direction of the traffic. For example, pedestrian paths should only apply to one side on one-way streets with a width of less than 6 m. Meanwhile, pedestrian paths should be on one side with green lanes on one-way roads with a width of more than 6 m. Pedestrian paths for two-way roads should be on the left and right sides with green lanes.

4.7. Green lanes

The development of green lanes and pedestrian walkways should be conducted simultaneously. Roads with a width of

Table 6 Recommendations for vegetation along the corridors.

Placement	Function	Characteristic	Type of Vegetation
Roadside green lane	Shade	Tree height should be 2—5 m, and tree density should be 1.5 m. Place plant paths a minimum of 1.5 m from the median edge. Ensure that the branches are 2 m above the ground. Ensure that the trees are planted in a row by using sturdy branches that do not droop and have solid leaf masses.	Kiara Payung (Filicium Decipiens), Angsana (Pterocarpus Indicus), and Tanjung (Mimusops Elengi)
Road median	Absorption of vehicle glare	Tree height must be 1.5 m with a planting radius of 1.5 m. Ensure that the heads of the trees are compact, have solid leaf masses, and provide adequate shade. The size and shape of the canopies should be balanced with the height of the trees.	Bougenville (Bougainvillea), Nusa Indah (Mussaenda Pubescens), and Kembang Sepatu (Hibiscus rosa-sinensis L.)
Traffic circles	Unobstructed view	Visibility of the vegetation should be broad to avoid the visibility reduction of the driver. The use of vegetation in the form of shrubs <0.8 m is effective.	Bushes and shrubs
Separator (outer separator)	Barrier lane	Use plants that do not obstruct visibility.	Shrubs <80 cm
Road intersection	Direction of circulation	Trees with a height of 5 m should be used as a guide.	Cemara (Casuarinaceae), Kiara Payung (Filicium Decipiens), and Palem Raja (Roystonea Regia)

more than 6 m can be equipped with green lanes on the left and right sides. Similarly, roads that are not used by motor vehicles should be equipped with green lanes and numerous shady trees (Fig. 8).

4.8. Open space

City parks and lorongs were categorized in this study as open spaces, which can be used to support the activities of visitors/residents. The findings reveal that the revitalization of city parks should be implemented in Segment 3, while that of lorongs is suggested in Segments 1 and 2. Moreover, the safety of visitors must be ensured to maximize the use of open spaces without fear. Thus, rules and regulations for road users should be created, and open spaces should include adequate lighting facilities, outdoor furniture, security posts, and shelters from unfriendly weather (Fig. 8a) to allow visitors to enjoy the sun, fresh air, and the wide variety of plants and flowers (Fig. 8b).

All the respondents agreed with the idea of providing city parks with elements, such as pedestrian walkways, jogging tracks, children's playgrounds, and benches. Thus, city parks should be revitalized by improving and upgrading the infrastructure and other facilities according to the needs and activities of visitors/residents (Fig. 8c). These recommendations may be adopted as a guide for the development of streetscapes in the four segments of the old city district.

Furthermore, the Green Pocket Concept should be implemented in individual open spaces in the front of residents' houses (Segments 1 and 2) and public open spaces along the lorongs. This concept can produce a green corridor, reduce air pollution, and even be used as a source of food for those living along the lorongs (Fig. 8e). The residents can also decorate the lorongs in an attractive manner (Fig. 8d).

Finally, Table 6 presents the recommendations for vegetation along the corridors.

5. Conclusion

The present study used the IPA method to determine the level of importance and performance of streetscapes in the old city district of Makassar, Indonesia. The results indicate that although the public perceptions of the streetscapes in the district were relatively negative, some elements, such as Fort Rotterdam, Somba Opu, and the culinary activities along Maipa Road, can still be used to highlight the identity of the area. The findings also revealed disparities between the perceptions and preferences of the residents toward the streetscapes. These disparities indicate that the attributes were inconsistent with their expectations. Moreover, the IPA analysis showed differences in the main priorities for improving or maintaining performance in each segment. The main priorities of each segment are as follows: Segment 1: pedestrian walkway and structure of the lorong; Segment 2: structure of the lorong; Segment 3: pedestrian walkway, vegetation, and green space; and Segment 4: pedestrian walkway and green space. Thus, stakeholders must distribute sufficient resources to improve the performance of these attributes.

Meanwhile, the residents in Segments 1, 3, and 4 chose the pedestrian walkway as the top priority for attracting the attention of stakeholders in tourism development. However, the three segments included different economic levels. For example, the majority of the population in Segment 1 comprised lower- and middle-class individuals/

families living in densely populated areas, whereas Segments 3 and 4 belonged to middle- and upper-class individuals/families with adequate housing. Therefore, Gibbs et al. (2012) showed that low-income neighborhoods generally include poor pedestrian walkways. By contrast, another study found that low-income environments have complete and extensive sidewalks but with limited aesthetic qualities (Neckerman et al., 2009). The present study found that the low-, middle-, and upper-class communities all wanted a comfortable pedestrian path. Moreover, the residents believed that a comfortable and safe pedestrian path could indirectly become a "tool" for attracting tourists to the area.

The implications of the findings for the Makassar city government in managing the streetscapes in the old city district are as follows.

1 The development of the following attributes under Quadrant I should be prioritized: pedestrian walkway and structure of the lorong (Segment 1); structure of the lorong (Segment 2); pedestrian walkway, vegetation, and green space (Segment 3); and vegetation and green space (Segment 4).
2 The following attributes under Quadrant II should be maintained to sustain their quality: street web (Segment 1); and street web and city park (Segments 3 and 4).
3 The following attributes under Quadrant III, which are considered less important, should be based on a priority scale of improvement: green space (Segment 1); pedestrian walkway, vegetation, green space (Segment 2); structure of the lorong (Segment 3); and pedestrian walkway and structure of the lorong (Segment 4).
4 The following attributes under Quadrant IV, which are considered non-essential, should be maintained to meet certain standards without over-utilizing resources: vegetation and city park (Segment 1); and street web and city park (Segment 2).
5 The city government should continue to maintain and develop the following attractions to strengthen the identity of the city as a tourism destination: Losari Beach (as a symbol of the city), Fort Rotterdam, various colonial buildings, and Somba Opu.

Attractive tourism destinations with well-organized streetscapes and friendly hosts/residents can significantly increase the number of visitors. Such an increase is especially important for countries that rely on tourism as an economic driving force for the region. However, if the number of visitors is excessive (i.e., overtourism), then the area can become overcrowded and the everyday lives of residents can be negatively affected. For example, the excessive number of domestic and foreign tourists in Kyoto, Japan, has overwhelmed the public transportation system, making it difficult for the residents to use such services (Sugiura, 2019). A similar situation occurred in Barcelona, Spain, where the residents were disturbed by tourism activities, such as stag parties, prostitutes, drug dealing, drunken tourists, and other harmful activities (Goodwin, 2016). Responsible tourism (i.e., creating an improved location for the residents to live in and an enhanced destination for tourists to visit) must be implemented to improve the quality of life for residents in tourism destinations. In other words, a healthy balance between what is good for residents and visitors should exist.

Moreover, overtourism refers to the number of visitors and motorized vehicles. An increase in the number of vehicles is directly proportional to the levels of air and noise pollution, which can affect the quality of human life. Considering the theme of this study, streetscapes are believed to reduce the noise caused by motorized vehicles. Thus, policymakers and urban designers should continue to consider the impact of noise on society as a whole.

This study includes several limitations. First, the six attributes used in this study may be insufficient for explaining the overall attitudes of residents toward tourism development. Thus, other elements of streetscapes should be used to further support the findings. Second, this study was only based on the perspectives of the residents. Hence, future research should include the perspectives of tourists/visitors to generalize the results. Third, future studies should examine the variables in other tourism destinations to obtain an improved understanding of residents' perceptions of streetscapes because this study only focused on the old city district of Makassar. Finally, this study only explored the importance and performance of streetscapes based on the opinions of residents. Therefore, future research should focus on other aspects, such as visual aesthetics and soundscapes.

Apart from these limitations, this study also includes several strengths. First, understanding the opinions of residents regarding the importance and performance of streetscapes can benefit stakeholders, such as tourism developers and policymakers, when starting new tourism development efforts or improving existing streetscapes in a tourism destination. Second, such information regarding particular segments and specific demographics of the respondents in the target area will be beneficial for planning future tourism destinations, especially those in new locations. Finally, planners and developers can create communication strategies and tailor improvements for the respondents in each segment.

Overall, the management of streetscapes in the old city district of Makassar is desperately needed. This management is especially urgent because old and historic areas not only include many non-functioning buildings but also experience numerous land-use conflicts, thus decreasing the environmental quality and economic value of the region as a whole. As a result, key tourism attractions will be lost, and the city will no longer be a magnet for tourists/visitors.

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