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MORALITY BEFORE KNOWLEDGE

Learning pedestrian's perspective towards sidewalk through new urbanism

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ABSTRACT
In the 1990s, several urban and environmental designers discussed various issues related to suburban expansion, including income disparities, environmental degradation, and rampant use of motorized vehicles. The New Urbanism movement became known in the 1970s and 1980s in America. The principles of New Urbanism are clearly illustrated in the book Charter of the New Urbanism (Leccese & McCormick, 2000). The nature of being friendly to pedestrians is one form/pattern of the theory of New Urbanism. New Urbanism is also known as neotraditional design, transit-oriented development, and traditional or neighborhood development (TND). The analysis technique used for this goal is IPA (Important Performance Analysis). Before conducting the analysis process, it is necessary to test the validity and reliability and the Wilcoxon test of the variables used. The study focuses on the Tunjungan area in Surabaya City, an essential element of accessibility for trade and service areas. A pedestrian network is necessary for safe and comfortable mobility, as mandated by the Regulation of the Minister of Public Works. TOD nodes were created to connect public and private transportation and link neighborhoods and districts through corridors. These corridors are essential in developing New Urbanism theory, which recommends corridors with mixed land use patterns to create a compatible environment and protect public security, health, and safety. Community participation is necessary to develop regulations related to corridors.

KEYWORDS: importance performance analysis; new urbanism; pedestrian perspective; sidewalk

1. Introduction

In the 1990s, several urban and environmental designers discussed various issues related to suburban expansion, including income disparities, environmental degradation, and rampant use of motorized vehicles. The New Urbanism movement became known in the 1970s and 1980s in America. The principles of New Urbanism are clearly illustrated in the book Charter of the New Urbanism (Leccese and McCormick, 2000). The nature of being friendly to pedestrians is one form/pattern of the theory of New Urbanism. New Urbanism is also known as neotraditional design, transit-oriented development, and traditional or neighborhood development (TND). There are several principles of New Urbanism (Newurbanism.org), namely:

1. Walkability
   a. All are within 10 minute's walk of homes and places of work
   b. Pedestrian-friendly street design (buildings close to the road; green lines; on-street parking; roads with low speed)
   c. Pedestrian lanes free of motorized vehicles in certain cases

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2. Connectivity
   a. A grid-shaped road network that is interconnected spreads and makes walking easier
   b. Hierarchy of small streets, streets, and alleys
   c. A high-quality network of pedestrians and public spaces makes walking a pleasure
3. Mixed-use and Diversity
   a. A mixture of land use between shops, offices, apartments, and houses in a location
   b. Population diversity-age, level, culture, and race
4. A wide range of sizes, types, and prices of mixed housing
5. The quality of urban architecture and design with an emphasis on beauty, aesthetics, comfort, and creating a sense of a place
6. Traditional environmental structures
7. Increase density by making buildings, housing, and shops close to each other so that they are easily accessible on foot
8. Smart Transport
   a. High-quality train network connecting cities, suburbs, and villages
   b. Pedestrian-friendly path design, thereby increasing the use of bicycles, scooters, and walking as daily transportation
9. Sustainability, the meaning is how to minimize the environmental impact of the use of motorized vehicles and also energy efficiency by walking more than using motorized vehicles
10. Improving Quality of Life means that walking can reduce the use of private vehicles, reducing air and noise pollution. Reduced pollution levels enhance the health of urban communities so that the quality of life increases

The Tunjungan area, especially the Jalan Basuki Rahmat corridor, is the object of this study because this corridor is an essential element of accessibility for the trade and service area of Surabaya City. According to the Regulation of the Minister of Public Works No.03/PRT/M/2014, a pedestrian network that is safe, comfortable, and humane in urban areas is an essential component that must be provided to increase the effectiveness of mobility of residents in urban areas. One of the most significant activity generators in the study area is the use of trade and service land, which previously was able to revive this corridor. This study aims to observe pedestrian's perspective towards Basuki Rahmat Street corridor and identify the condition of the existing pedestrian paths. The research questions are as follows:

1. Reviewing New Urbanism theory
2. Analysing pedestrian's perspective on Basuki Rahmat Coriddor's sidewalk

This research has clear goals because the previous research has not comprehensively elaborated on pedestrian perspectives on the corridor. Thus, this study will produce profound literature and surveys on Basuki Rahmat Corridor's sidewalk.

2. Methods

2.1 Explore Pedestrian Suitability/ Satisfaction Levels

The analysis technique used for this goal is IPA (Important Performance Analysis). Before conducting the analysis process, it is necessary to test the validity and reliability and the Wilcoxon test of the variables used.

2.1.1 Validity and Reliability Test

The purpose of the validity test is to determine whether the questionnaire used is valid to measure the variables studied. In general, there are two formulas or methods of validity testing, namely the Bevariate Pearson Correlation and the Correlated Item-Total Correlation. Pearson's Bivariate Correlation is one of the formulas that can be used to test data validity with the SPSS program.

2.1.2 Wilcoxon Test

The Wilcoxon Rank Sum Test is a comparative test with 2 independent samples if the data scale is ordinal, interval, or ratio but not normally distributed. The comparative test in question is a test to determine the difference in the number of ratings between the 2 groups.

2.1.3 Proses Importance Performance Analysis

In this technique, respondents are asked to assess the level of conformity/satisfaction of pedestrians with the performance of pedestrian paths. The average value of the suitability/satisfaction level is analyzed on the Importance-Performance Matrix, where the x-axis represents perceptions while the y-axis represents expectations. Then the results will be obtained in the form of four quadrants according to the following figure:

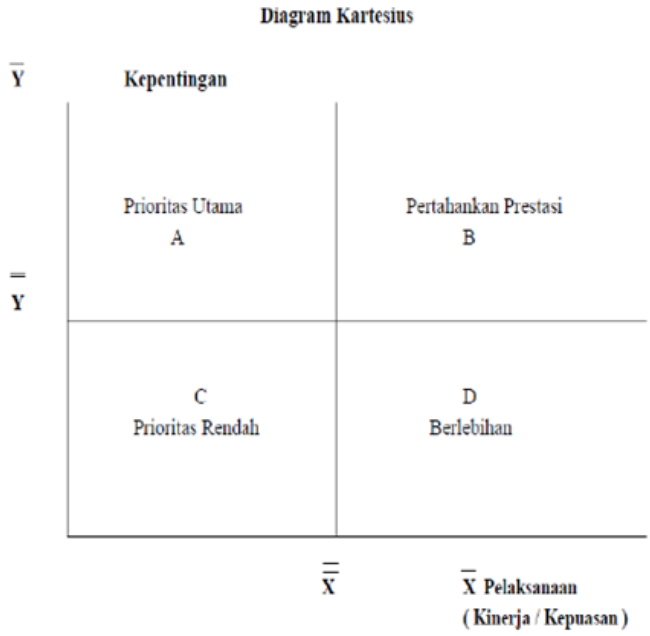

Fig. 1. IPA Matrix
(Modified from Martilla et al., 1977)

Each quadrant has the following meaning:

Table 1. IPA matrix interpretation

No.	Quadrant Elements	Explanation
A.	Main Priority	Factors located in this quadrant are considered essential and/or expected by pedestrians, but the current Perception and/or Performance conditions are not satisfactory. Factors located in this quadrant are priorities for improvement.
B.	Maintain Achievement	Factors located in this quadrant are considered Important and Expected to support factors for pedestrian satisfaction, so it is necessary to ensure that the performance of pedestrian paths can be maintained.
C.	Low Priority	Factors in this quadrant have a low level of Perception or Actual Performance. They are considered not too necessary and/or expected by pedestrians, so they do not need to prioritize or pay too much attention to these factors.
D.	Excessive	Factors in this quadrant are considered Not Very Important and/or Not Very Expected. Hence, allocating resources related to these factors to other elements with a higher priority for handling is necessary.

(Oug, 2014)

Below is an example of a table of respondents' satisfaction scores. The statement column is filled with respondents' answers to the questions asked in the questionnaire:

Table 2. Pedestrian satisfaction score

No.	Statement	Score		Total Score
		Performance	Importance	
1.				
2.				
3.				

(Modified from Martilla, J. et al, 1977)

If the satisfaction score is negative, further analysis is needed to determine priorities to formulate a walkable corridor development concept. In this section, performance values (x) and expectations (y) are mapped. From these results, a matrix consisting of four quadrants will be formed, each describing the priority scale in formulating the concept of research corridor development.

3. Results and Discussion

3.1 Literature Review

According to the Charter of New Urbanism (Leccese & McCormick, 2000), there are 27 principles of New Urbanism which are divided based on the regional scale, such as metropolitan areas, neighborhoods, districts, and corridors as essential urban elements, followed by urban design principles for mass blocks, roads, and buildings:

Table 2. Principles of new urbanism on a regional scale

Scale	Criteria
Region (metropolitan, city, village)	· Metropolitan areas can become New Urbanism with the following strategies: (1) land use and transportation connections, (2) fair housing and deconcentrating poverty, (3) green belts and urban growth limits, (4) regional tax-base sharing and social equity, (5) balance between regional and urban education.
	· Metropolitan areas are divided into urban centers, suburbs, and villages, each with an identified boundary and center.
	· Protect farmland and nature
	· Develop strategies to support infill development rather than neighborhood expansion.
	· These new developments need to be organized with neighborhoods and districts, as well as integrated with existing urban patterns (directing growth towards neighborhood clustering, regional structuring, balancing labor and employment trends, planning for urban sprawl)
	· Urban and urban center development must respect historical patterns, regulations, and boundaries
	· Distribution of affordable housing throughout the region so that it is balanced with employment opportunities and avoids the concentration of poverty
	· An alternative transportation framework must support the physical organization of the area. Stopping systems, pedestrians, and bicycles must be maximized to reduce dependence on motorized vehicles.
	· To avoid destructive competition, revenue and resources are distributed cooperatively between cities and urban centers.

(Charter of the New Urbanism, 2000)

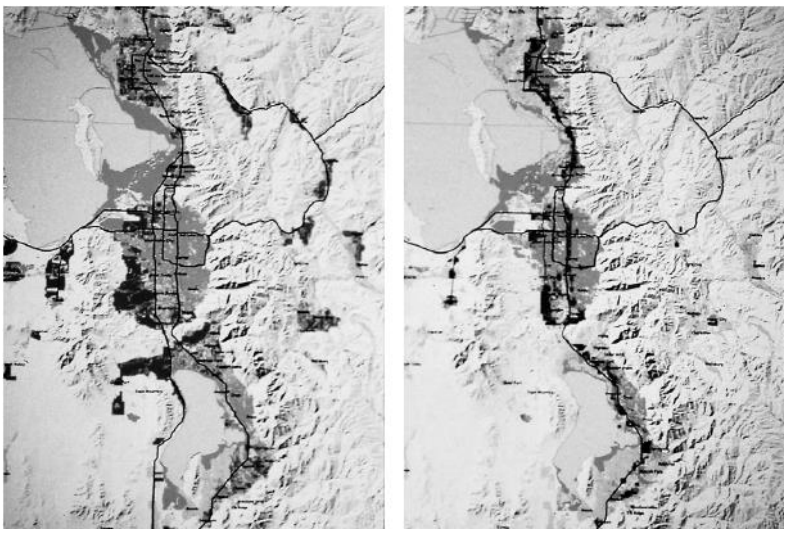

Fig. 2. The difference between regions with automobile dependent (left), and regions with the concept of compact, walkable, transit-oriented communities (right)
(Charter of The New Urbanism, 2000)

The figure above shows that urban sprawl will quickly occur in areas dependent on vehicles, while compact, walkable, and transit-oriented communities will avoid this phenomenon. Likewise, the picture below shows that mixed land use affects the city's shape, where the land grid system is more efficient and is used to preserve agricultural land than conventional forms, which tend to spread.

Fig. 3. Differences between areas with mixed land use (left), and single land use (right)
(Charter of The New Urbanism, 2000)

Table 3. Principles of new urbanism on the neighborhood scale

Scale	Criteria
Neighborhoods, districts and corridors	· Neighborhoods, districts, and corridors are essential elements in urban development. These three elements form an area identity that supports the community to be responsible for its maintenance and development. The corridor's function in New Urbanism theory is to connect 2 places rather than as a driving force for the development of the two places.

- The neighborhood should be compact, pedestrian-friendly, and have a mixed-use land use system. Districts generally use a single-use land use system and must follow environmental design principles. Corridors are neighborhood and district connectors; located along major roads and rail lines to rivers and grassy highways.

- Daily activities should be carried out on foot, giving freedom to people who cannot drive, especially children and older people. Road network interconnections should be designed to support walking activities, reduce the number and length of trips using motorized vehicles, and save energy.

- In the neighborhood category, the availability of different types of houses and price levels can bring together people of different ages, races, and incomes to strengthen social interaction.

- Corridors of stops, if properly planned and coordinated, can structure a metropolis and revitalize urban centers. On the other hand, the corridors of major roads/highways should not have their investment transferred from the existing location

- Buildings and land uses must be accessible by foot from the rest stop, thus enabling the community to use them as an alternative to motorized vehicles.

- Institutional, civil, and commercial activities must be connected in remote areas. Schools should be built and positioned so that children can reach them on foot and by bicycle

- The economic health and development harmonization of neighborhoods, districts, and corridors can be enhanced through urban design codes that guide predicting change.

- Conservation areas and open land are used to demarcate and connect different neighborhoods and districts.

(Charter of the New Urbanism, 2000)

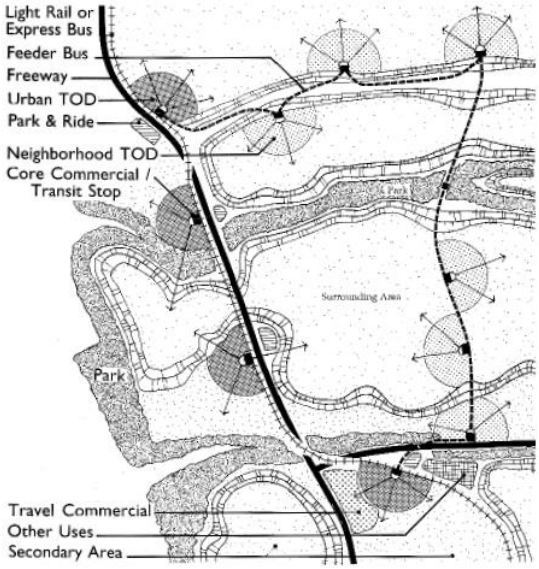

Fig. 4. Creates transit-oriented-development nodes at 1-mile intervals along the corridor (Charter of The New Urbanism, 2000)

TOD nodes like the picture above were created to connect public stops and private vehicles. In addition, another benefit is that residential areas and industrial areas can be connected. The image below shows the different neighborhoods, districts, and corridor scopes. Neighborhoods that become one will form cities and towns consisting of centers and periphery boundaries. A district is an area with a specific function, such as a theater district, capitol area, or campus. At the same time, the corridor is the link between the neighborhood and the district. Corridors are essential in developing New Urbanism theory because they affect modern transportation. For example, Townless Highways aims to connect 2 places, not to encourage development between them. Land along the corridor, the city center, can be developed into a dense area that can be served by public or private transportation. Theoretically, a corridor links neighborhoods and districts or general elements characterized by their environment. These corridors are connected to the main road at the neighborhood's border, where transport stops are designed for pedestrians and can accommodate buildings. New Urbanism theory recommends corridors as one of the things that need to be included in site-specific codes. Through community participation, cities must create regulations related to corridors with mixed land use patterns to create a compatible environment and to protect public security, health, and safety.

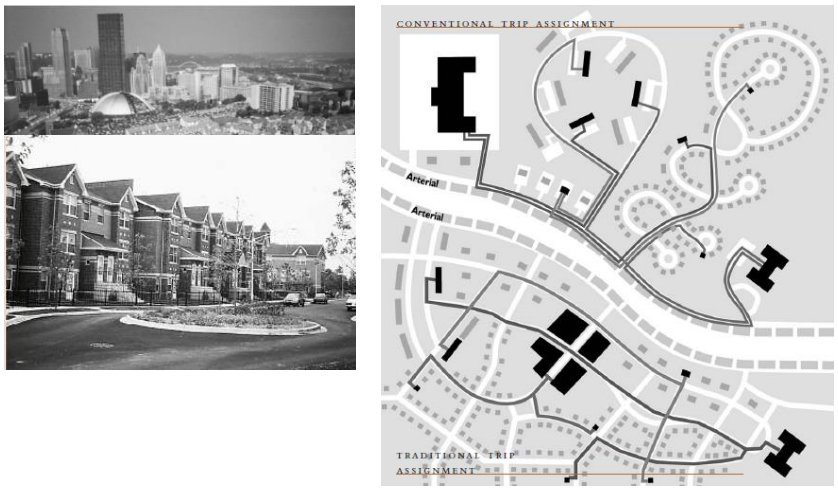

Fig. 5. (a) district, (b) neighborhood, (c) corridor
(Charter of The New Urbanism, 2000)

Table 4. Principles of corridor-scale new urbanism

Scale	Criteria
Blocks, roads and buildings	Physically limiting roads and public spaces as shared spaces
	Individual building projects must be linked to the environment
	The design of roads and buildings should strengthen environmental safety
	Respect pedestrians and public spaces by developing motorized vehicle accommodations
	Streets and squares must be safe, comfortable, and attractive for pedestrians. If these three things are combined, it will support walking activities so that people can get to know each other
	Landscape design and architecture should be derived from the local climate, topography, history and building practices
	Civic buildings and meeting places are important for strengthening community and cultural identity
	Buildings must provide clear location, weather and time identification to their occupants.
	Preservation and renewal of historic buildings, districts, and landscapes can emphasize the sustainability and development of urban communities.

(Charter of the New Urbanism, 2000)

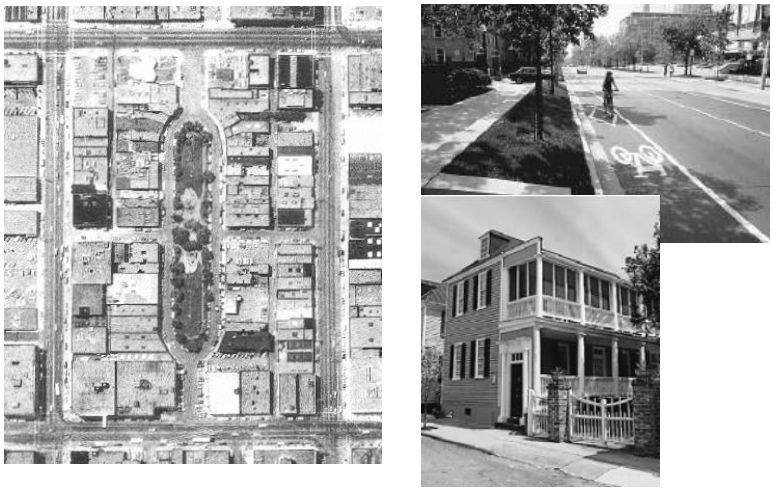

Fig. 6. (left) building blocks, (top right) roads, (bottom right) buildings
(Charter of The New Urbanism, 2000)

The above principles prioritize pedestrians as road users, reducing the use of motorized vehicles, preserving the environment, and increasing social interaction. The following is a table that explains the differences between regional, corridor, and block scales based on the aspects found in the discussion of the principles of New Urbanism above:

Table 5. Comparison of new urbanism principles based on regional scale

Aspect	Region	Corridor	Block
Landuse	Distributed and affordable to all regions	Mixed-use with various types/types of houses so that they are easy to reach	- Private buildings must be connected to the surrounding environment - Landscape design must be appropriate to the local climate, topography, history and building practices - Buildings must have a clear location identity
Transportation	- Maximizing the stopping system and use of bicycles - Connectivity between modes of transportation	Plan corridors for stops well	

Pedestrian pathway	Maximize the use of pedestrian paths	Daily activities are carried out on foot	Provide roads and public spaces that are safe, comfortable and attractive to pedestrians
Road Network		An interconnected road network that supports walking activities	Road design should strengthen environmental safety
Open Space		As a liaison and boundary between different neighborhoods and districts	The meeting place reinforces the identity of the local community
Social Interaction		Various types/types of houses and mixed-use land use patterns result in all levels of society being able to meet	Provide roads and public spaces that are safe, comfortable and attractive for pedestrians so that people can get to know each other

(Author, 2014 (Adapted from The Principles of New Urbanism (1999) and Walkable City (2005))

The table above shows that the theory of New Urbanism with a regional scale sufficiently discusses optimizing the use of pedestrian paths without discussing more specific impacts. As for the corridor and block scale, it has been particularly concerning the road network up to its social impact.

Table 6. Comparison of new urbanism principles based on theory

No.	Newurbanism.org	Charter of The New Urbanism	Result
1	a. Walkability b. Connectivity c. Mixed land use d. Safety and comfort e. Smart transportation f. Energy efficiency g. Environmental Conservation	a. Mixed land use b. Corridors that are transit oriented c. Walkability d. Integrated road network	The aspects that are prioritized from the two sources of principles are: mixed land use, connectivity, security, comfort and walkability

(Author, 2014)

3.2 Importance Performance Analysis

3.2.1 Data Validity and Reliability Test Results

From the validity test results, 2 sub-variables are considered invalid, as in Appendix C2—calculation Results of Validity and Reliability Tests. The sub-variables are (3) The travel time for pedestrians to cross; (16) the Existence of graffiti/murals. The two sub-variables are not related to each other. Meanwhile, the reliability test results show the extent to which the measurement results remain consistent when the measurement is carried out twice or more for the same symptoms with the same measuring instrument. According to Zulganef (2006), a research instrument indicates sufficient reliability if Cronbach's alpha coefficient is greater or equal to 0.70. From the calculation results (Appendix C-Table C.2 and C.3), the sub-variables used have a value above 0.7, so the sub-variables are reliable.

3.2.2 Wilcoxon Test

Because the test is two-sided and carried out with a significance level of 5%, using the Z table, it can be determined that the Z value is 0.025 = +1.96, so that the acceptance/rejection sentence prepared HO is rejected/H1 is accepted if the calculated Z value is less than -1, 96 or greater than +1.96. H0 is accepted/H1 is rejected if the estimated Z value is more significant than -1.96 or less than +1.96. Because the computed z value is -6.7, H0 is left, which means there is a gap between the perception score and expectations. (Appendix C-Table C4. Wilcoxon Test Results).

3.2.3 Importance-Performance Analysis

In this IPA analysis, the sub-variables used in the questionnaire are 21 sub-variables and 2 reduced sub-variables, as discussed above.

Because the satisfaction score above is negative, IPA analysis is carried out. From the results of the IPA analysis using the SPSS analysis tool, the results of the IPA quadrant in this study are:

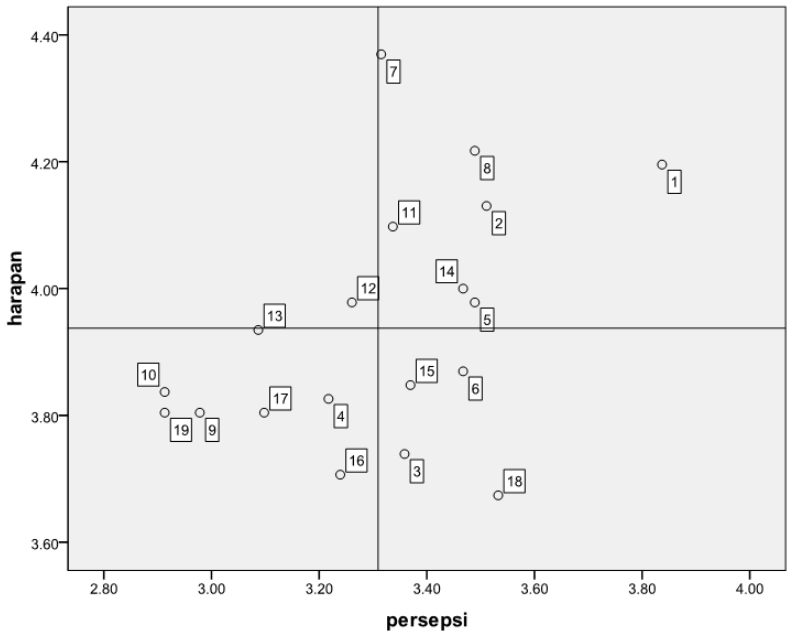

Fig. 7. IPA quadrant (suitability/satisfaction of pedestrians)
(Analysis, 2015)

The explanation of each quadrant is as follows:

A. Top Priority
The sub-variables in this quadrant are considered Important and/or Expected sub-variables by pedestrians, but the current conditions of Perception and/or Actual Performance are not satisfactory. The sub-variables located in this quadrant are priorities for improvement, including:
Sub-variable (12): The location of trash bins supports walking activities. Based on the questionnaire results, many pedestrians felt that the distance between trash bins was too far.
Sub-variable (13): The sidewalk design attracts pedestrians' attention. Based on the questionnaire results, many pedestrians felt that the creation of the sidewalks in the observation area needed to be more attractive, and there was much physical damage.

B. Maintain Achievement
The sub-variables located in this quadrant are considered Important and Expected to be supporting variables for pedestrian satisfaction, so it is necessary to ensure that the performance of pedestrian paths can be maintained.
Sub-variable (1): The location of crossing facilities (bridges, zebra crossings, etc.) supports walking activities
Sub-variable (2): Number of crossing facilities (bridges, zebra crossings, etc.) that support walking activities
Sub-variable (5): The number of lights for lighting supports walking activities
Sub-variable (7): Number of shade trees supporting walking activity
Sub-variable (8): The location of shade trees supports walking activities
Sub-variable (11): The number of trash bins supports the walking activity
Sub-variable (14): The presence of vegetation (shade trees) along the sidewalk attracts attention for pedestrians

C. Low Priority
The sub-variables in this quadrant have a low Perception or Actual Performance level. They are considered unnecessary and/or too expected by pedestrians, so they only need to prioritize or pay a little attention to these sub-variables.

Sub-variable (4): Marking location points (no parking, no stopping, etc.) support walking activity. Based on the questionnaire results, many pedestrians feel that the location of the markings in the observation area still needs to be corrected because there are still many motorists who violate them.

Sub-variable (9): The number of seats along the sidewalk supports walking activities.

Sub-variable (10): The point Location of seats along the sidewalk supports walking activities. Based on the questionnaire results, many pedestrians felt that the location of the sidewalk seats in the observation area needed to be more appropriate, and their number was still limited.

Sub-variable (16): The number of existing public transportation supports walking activities. Based on the questionnaire results, many pedestrians felt that the number of public transit in the observation area needed to be increased, so additional modes of public transportation were not required.

Sub-variable (17): It takes pedestrians to get to the bus stop/public transport stops by walking 10-20 minutes. Based on the questionnaire results, many pedestrians feel that 10-20 minutes to walk to the nearest bus stop is sufficient.

Sub-variable (19): Special paths for people with disabilities (disabled people) on the sidewalks support walking activities. Based on the results of the questionnaire, many pedestrians felt that the sidewalk paths for people with disabilities in the observation area were still invisible and not very important because of the small number of pedestrians (with disabilities) passing.

D. Exaggerated

Sub-variables in this quadrant are considered Not Very Important and/or Not Too Expected. Hence, allocating resources related to these sub-variables to other sub-variables with a higher priority for handling is necessary.

Sub-variable (3): The number of signs (no parking, no stopping, etc.) supports the walking activity. Based on the questionnaire results, many pedestrians felt that the number of markings on the sidewalks in the observation area was too much, but this did not reduce motorists' violations.

Sub-variable (6): Location of lights for lighting to support walking activities. Based on the questionnaire results, many pedestrians felt that the location of the lights in the observation area was satisfactory and that no changes or additions were needed.

Sub-variable (15): The type of public transportation that supports walking activities. Based on the questionnaire results, many pedestrians felt that the type of public transportation to support walking activities in the observation area was sufficient. There was no need to add a different kind of public transportation.

Sub-variable (18): It takes for pedestrians to reach their destination by walking 10-20 minutes. Based on the questionnaire results, many pedestrians are satisfied with the 10-20 minute walk from one point to another, so no faster than 10-20 minutes is needed.

4. Conclusions

The study focuses on the Tunjungan area in Surabaya City, an essential element of accessibility for trade and service areas. A pedestrian network is necessary for safe and comfortable mobility, as mandated by the Regulation of the Minister of Public Works. TOD nodes were created to connect public and private transportation and link neighborhoods and districts through corridors. These corridors are essential in developing New Urbanism theory, which recommends corridors with mixed land use patterns to create a compatible environment and protect public security, health, and safety. Community participation is necessary to develop regulations related to corridors.

The IPA analysis presents a quadrant analysis of pedestrian satisfaction factors in an observation area. The first quadrant highlights the essential but unsatisfactory sub-variables requiring improvements, such as the location of trash bins and sidewalk design. The second quadrant lists the important sub-variables supporting pedestrian satisfaction, which should be maintained, including crossing facilities, lighting, shade trees, and trash bins. The third quadrant contains sub-variables considered unnecessary or of low priority, such as the number and location of seats, markings, and particular paths for people with disabilities. The fourth quadrant includes sub-variables that could be more important or expected, such as the number of signs, the location of lights, and the type of public transportation. The analysis is based on questionnaire results, which reveal pedestrian perceptions and actual performance levels.

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Author Contribution

Conceptualization, V.M.; Methodology, V.M.; Software, V.M.; Validation, V.M.; Formal Analysis, V.M.; Investigations, V.M.; Resources, V.M.; Data Curation, V.M.; Writing – Original Draft Preparation, V.M.; Writing – Review & Editing, V.M.; Visualization, V.M.

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Conflicts of Interest

The authors declare no conflict of interest.

References

Carr, Stephen. 1992. *Public Space: Environment and Behavior*. Cambridge: Cambridge University Press

Fruin, J. (1971). *Pedestrian Planning and Design*. New York: Metropolitan Association of Urban Designers and Environmental Planners, Inc.

Halim, D K. 2008. *Psikologi Lingkungan Perkotaan*. Bumi Aksara. Jakarta

Hendrayan et al,. 2013. *Analisis Pelayanan Fasilitas Pejalan Kaki*. Jurnal Ilmiah Elektronik Infrastruktur Teknik Sipil. Volume 2

Heryanto, Bambang. 2011. *Roh dan Citra Kota*. Brilian Internasional. Surabaya

Kerridge, J., Hine, J., & Wigan, M. (2001). *Agent-based modelling of pedestrian movements: The questions that need to be asked and answered*. Environment and Planning B: Planning and Design, 28(3), 327-341.

Krippendorff, Klaus. 2004. *Content Analysis: An Introdusction to its Methodology*. Sage

Leccese, Michael, Kathleen, McCormick. 2000. *Charter of The New Urbanism*. McGraw-Hill, Inc. Pennysylvania

Lenakoly, Steven. 2007. *Penilaian 20 Kota, Pedestrian Surabaya Rangking Satu*. http://news.detik.com/read/2007/09/03/100707/824728/466/penilaian-20-kota-pedestrian-surabaya-rangking-satu?nd771104bcj. Diakses 3 April 2014

Lockyer, Nick. 2008. *Quantitative Surface* Analysis *of a Binary Drug Mixture.* Survey Analysis Research Center

Lynch, Kevin. 1960. *The Image of The City.* MIT Press. Cambridge

Margono,S. 1995. *Metodologi Penelitian Pendidikan, Cet.7*. Jakarta: Rineka Cipta, 2007. Mardalis, Metode Penelitian : Suatu Pendekatan Proposal. Jakarta: Bumi aksara.

Martilla, J. and James J. 1977. *Importance- Performance Analysis*. Journal of Marketing, 14 (January): pp. 77-79.

Nasional, Direktorat Perkotaan, Tata Ruang dan Pertanahan, Bappenas

Nicholson, Geoff. 2009. *Lost Art of Walking.* Riverhade Trade. USA

Oug, Johan. 2014. *Analisis Kepuasan Pelanggan dengan Importance Performance Analysis di SBU Laboratory Cibitung PT Sucofindo (Persero)*. J@TI Undip. Vol 9. No. 1

Patton, Michael. 2002. *Qualitative Research & Evaluation Methods*. SAGE Publications. Saint Paul, MN

Pedoman Perencanaan, Penyediaan, dan Pemanfaatan Prasarana dan Sarana Jaringan Pejalan Kaki di Kawasan Perkotaan. 2014. Direktorat Jenderal Penataan Ruang Kementerian Pekerjaan Umum

Pradono, Julianty at al. 2005. *Health Transision in Indonesia*. Jurnal Ekologi Kesehatan (2) 3

Puskarev & Zupan. 1975. *Urban Space for Pedestrian*. The MIT Press. Cambridge

Sevilla, Consuelo et, Al. 1993. *Pengantar Metode Penelitian*. Jakarta: Universitas Indonesia Press.

Shirvani, Hamid. 1985. *The Urban Design Process*. Michigan: Van Nostrand Reinhold

Slovin, Husein Umar. 2000. *Riset Pemasaran dan Perilaku Konsumen Cetakan Ketiga*. Jakarta: PT. Gramedia Pustaka Utama.

Sodik, Abdul. 2003. Organisasi: Perilaku, Struktur, Proses. Terjemahan Nunuk Andriani. Jakarta: Binarupa Aksara

Southworth, Michael. 2005. *Designing the Walkable City*. Journal of Urban Planning and Development:4(246)

Speck, Jeff. 2012. *Walkable City: How Downtown Can Save America, One Step at a Time*. Farrar

Suarasurabaya. 2012. *Trem dan Monorel Mulai Pembangunan Fisik 2014*. http://kelanakota.suarasurabaya.net/news/2012/108022-Trem-dan-Monorel-Mulai Pembangunan-Fisik-2014. Diakses 19 Maret 2014

Sugiyono. 2009. *Statistika Untuk Penelitian.* Bandung: Alfabeta Surabaya.go.id. 2014. *World Bank Apresiasi Persiapan Pembangunan AMC*. http://www.surabaya.go.id/berita/index.php?Page_page=9&&tot_Hasil=2452&selSortBy=&txtsearch=&act=. Diakses 19 Maret 2014

Trancik, Roger. 1986. *Finding Lost Space: Theories of Urban Design*. New York: Van Nostrand Reinhold

Transportation Research Board. 1985. *Highway Capacity Manual*

UU No 26 Tahun 2007 tentang Penataan Ruang. 2007. Sekretariat Badan Koordinasi Tata Ruang

Wigananda, Muhlas *et al*. 2012. *Analisis Kinerja Jalur Pedestrian di Kota Surabaya (Studi Kasus: Jl. Pemuda)*. Jurnal Teknik ITS:1

Zahnd, Marcus. 1999. *Perancangan Kota Secara Terpadu: Teori Perancangan Kota dan Penerapannya.* Semarang: Kanisius

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