Can activity support influence image of a street?

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Abstract. Activity support may affect the formation of the image of a corridor and street. Form, place, and character of activity support in an area will have the function attraction and usefulness of its activities. The aim of this research is to analyze how the influence of activity support on the image of a street, in this case, Dr.Mansyur street which located in front of Universitas Sumatera Utara. Along the street, there are various activities that conducted from morning until evening. The method used is a quantitative method with observation and questionnaire techniques. A population of this study is visitors and students of architecture department from Universitas Sumatera Utara (USU) with sample number is 100 respondents for visitors and 100 respondents for students. Independent variables are activity support factors that consist of the type of activity, form, color, dimension, material, position and lighting. The dependent variable is imageability by [1]. Data were analyzed using logistic regression analysis. The results show that activity support influences image Dr. Mansyur street that has an image as a campus and culinary area and easy to identify.

Keywords: activity support, image of the street, campus, culinary

1. Introduction

A city has activity support that may strengthen the character of urban public spaces. City public spaces that have activity support will have their characteristics. Activities in the city will strengthen the urban and municipal public space image with a good environmental image that will provide a sense of emotional security [1]. Activities in city public spaces consist of both formal and informal activities. On path or street, existing activities can liven the street and provide an image of that path [2]. On Dr. Mansyur street in Medan City, there is a campus namely University Sumatera Utara. The main activities on this street are dominated by trade and services. However, from morning until evening along this road there are supporting activities of street vendors. With the presence of support activities on this road, the road becomes more crowded. The aim of this study is to analyze the influence of activity support to image Dr. Mansyur street.

Activity support serves to connect two or more centers of common activities and move the main activity function of a city to be more liveable, continuous and crowded [3]. A well-functioning street will trigger activity support. The shape, location, and characteristics of an area will attract the growth of certain activities and functions, and the activity will grow in places that are likely to provide benefits [3]. Activity support may enrich the urban experience and create a better city.

Based on [3], activity support can form in open space and building. Open space consists of recreational parks, city parks, plazas, cultural parks, street hawker areas, pedestrian paths, small

merchant gatherings, art/antique sellers and traditional/local entertainment groups. The building consists of retail/wholesale shops, government centers, service centers and offices, department stores, public libraries, etc.

Activity support may support main activity that takes place somewhere. Based on [4], activity support studied based on form, size, color, texture or arrangement and position that related to visual quality. The most influential factor in activity support is the architectural details. This factor gives the impression that the character of a building has a high attraction if it has an attractive lighting [5].

Research by [6], activity support in the commercial area may support and influence the identity of a district. Kiosks and street vendors with some varieties may increase street density. Activity support that consists of form, color, dimension, texture, and position may influence visual quality of a street. Based on [7], the existence of activity support is influenced by internal and external factors. Internal factor is pedestrian walkway which may attract the street vendors. While, the external factor consists of the scope of place and activities in the public space. The scope of place is recreational items such as parks, fountains, and plants.

The image of a city is related to three components, namely identity, structure and meaning, in which identity can indicate the character of a city, the structure associated with the function of a city where the object is located, and meaning is an understanding by the observer on the two components [8]. Form, color or arrangement that can be identified and may make the city has imageability [1]. Likewise, if all the three elements are existence on the street, then that street will have imageability.

According to [5], one form of a street is a corridor which is a space of linear movement with rows of facades of buildings or trees that can be a liaison between one point to another in a city. Based on [9], a street also identified as path, avenue, road, highway, route, and way that used interchangeably. A road may use by travelers by foot or vehicles, then street not just for vehicles ways but also has the pedestrian walkway. A street form may analyzed regarding scale, proportion, contrast, rhythm or connection to other streets. Streets should be designed to be necessary for moving through and staying in.

Observer's experience toward a city is unique, and the uniqueness may rise to an alternative form of inequality, in which everyone's experience will be different when compared other circumstances [10]. Environmental images are different between observers [1]. Therefore, research on the image of a city should refer to the experience of the city's users or residents.

The literature study shows that activity support can take place on the street, i.e. pedestrian walkway. Activity support consists of a type of activities that take place and supporting components. Activities on the street may cause and strengthen the image of the street, an image of a corridor, etc. This research aim is to find how activity may influence the image of a street.

2. Method
This research is causality and uses a quantitative method with observation and survey with questionnaires techniques. This research conducted in Dr. Mansyur street which located in Medan city, North Sumatera Province. In this street, there is state university namely Universitas Sumatera Utara (USU). Research location divided into two segments, namely segment 1and 2 (Figure 1). Segment 1 located in front of USU that is from Jamin Ginting street junction to Prof. Zulkarnain street junction. In this segment, there are hawkers on pedestrian walkway and roadside. Segment 2 is from Prof. Zulkarnain street junction to Setiabudi street.

Figure 1. Map of Research Location

The research population is visitors (pedestrian who across Dr. Mansyur street) from morning to evening and students from architecture Department, Universitas Sumatera Utara who have taken an urban design course. The sample for visitors and students is taken based on Slovin formula at alpha 10%, 100 samples for visitors and 100 samples for students. Research variables consist of independent and dependent variables. Independent variables are the type of activity (X1), form (X2), color (X3), material (X4), position (X5), lighting (X6), and size (X7). The dependent variable is imageability (Y), consists of identity, structure, and meaning. This questionnaire using 1 to 5 points of Likert Scale, where 1 for strongly disagree and 5 for strongly agree. While for the dependent variable using two option, namely no image dan has an image (0 and 1). The analysis is using logistic regression.

3. Results and Discussions

3.1. Activity Support
The types of activity at research location are mostly in segment one. Activity support consists of the street vendors that are located on pedestrian walkways and roadside. While in segment two there are formal activities and almost no activity support. In this segment, activities take place inside buildings on both sides of the street consisting of commercial, restaurant, hotel, and house buildings (Table 1).

Table 1. Activities on Dr. Mansyur Street

Segment	Picture
Segment 1 • USU • USU Hospital Street vendor	

Segment 2
- Cafe
- Restaurant
- Housing
- Hotel
- Commercial

Source: Observation (2017)

Type of activity consists of four sub variables namely street vendors (TypeofAct1), tents vendors (TypeofAct2), cars vendors (TypeofAct3), and on mat vendors (TypeofAct4). According to visitors and students, activity support in Dr. Mansyur street was dominated by street vendors which located on the pedestrian walkway and roadside with mean value 3.46 for visitors and 3.96 for the students. Car vendors with mean value 3.42 for visitors and 3.90 for students. The form variable divided into two parts, namely visually attractive area (Form1) and overall attractive area (Form2). Perception about visually attractive area has mean value 2.88 for visitors and 2.12 for students. While the overall attractive area has mean value 2.46 for visitors and 1.92 for the students (Table 2).

Color divided into two parts namely color of the building (Color1) and color of the street vendors (Color2). Visitors chose that the color of the buildings is interesting with mean value 2.72. While students choose the color of street vendors more interesting than the color of buildings with the mean value of 2.06. The size of activity support considered big enough (Size) with mean value 2.68 for visitors and 2.76 for students. Material variable divided into three namely brick (Material1), wood (Material2) and iron (Material3). Visitors chose that building's material in research area dominated by brick with mean value 3.76 and for students is 3.62. The position of activity supports divided into street vendors located on the pedestrian walkway (Position1) and on the roadside (Position2). Position 1 has mean value 3.82 for visitors and 4.58 for students. While Position 2 has mean value 3.42 for visitors and 4.24 for students. Lighting variable divided into three namely lighting in the research area is interesting (Lighting1), street vendor using their lighting (lighting2) and building in research area has an interesting lighting (Lighting3). The majority of respondent chose those street vendors using their lighting and building in this area has an interesting lighting with mean value 3.42 for visitors and 3.54 for students (Table 2).

Based on perception about activity support from visitors and students, in the research area, was found that both groups of respondents had the same opinion. However, for the research area that has an interesting form, colors, and lighting, there is little difference perception about color between visitors and students. In this case, visitors have different educational backgrounds. While students, they have understood the urban design, so they more focus in assessing the research area.

Table 2. Mean Value of Activity Support

	N	Mean	
		Visitor	**Student**
TypeofAct1	100	3,46	3,96
TypeofAct2	100	2,98	2,94
TypeofAct3	100	3,42	3,90

TypeofAct4	100	3,08	3,28
Form1	100	2,88	2,12
Form2	100	2,46	1,92
Color1	100	2,72	1,96
Color2	100	2,50	2,06
Size	100	2,68	2,76
Material1	100	3,76	3,62
Material2	100	3,10	2,80
Material3	100	2,88	2,92
Position1	100	3,82	4,58
Position2	100	3,42	4,24
Lighting1	100	2,66	2,26
Lighting2	100	3,46	3,54
Lighting3	100	2,84	2,26
Valid N (listwise)	100		

Source: Analysis Result (2017)

3.2. Imageability
Imageability variable divided into four part namely this area has an identity as campus area (Identity1), this area has an identity as culinary area (Identity2), this area function as commercial area (Structure) and this area easy to identified (meaning). Visitors and students have the same perception; they stated that this area is known as campus area with mean value respectively 4.54 and this area easy to identified with mean value respectively 4.26 and 4.10 (Table 3). This analysis related to [8] who studied about imageability that consist of identity, structure, and meaning. Visitors and students have the same perception in assessing imageability in the research area.

Table 3. Mean Value of Imageability

	N	Mean	
		Visitor	**Student**
Identity1	100	4,54	4,54
Identity2	100	3,50	3,40
Structure	100	3,48	3,16
Meaning	100	4,26	4,10
Valid N (listwise)	100		

Source: Analysis Result (2017)

3.3. Influence of Activity Support To Image of The Street
Based on visitors perception, found that Constanta value is 0.006 with exp (ß) value = 0.563. This value means that the proportion of the area has an image is 0.563 times the proportion of the area has no image without the involvement of independent variable. While based on architecture students perception, the value of the Constanta is 0.002 with exp (ß) value = 1.941. It means that the proportion of the area has an image is 1.941 times the proportion of this area has no image, without the involvement of independent variable (Table 4 and 5). It shows that majority of architecture students chose that research area has an image compared with visitors.

Table 4. Beginning Block

Classification Table a,b

			Predicted		Percentage
			Image		
	Observed		no image	has an image	Correct
Visitor	Image	no image	64	0	100,0
		has an image	36	0	,0
	Overall Percentage				64,0
Student	Image	no image	0	34	,0
		has an image	0	66	100,0
	Overall Percentage				66,0

a. Constant is including in the model.

b. The cut value is,500

Source: Analysis Result (2017)

Table 5. Variables in the equation

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Visitor	Constant	-,575	,208	7,627	1	,006	**,563**
Student	Constant	,663	,211	9,873	1	,002	**1,941**

Source: Analysis Result (2017)

R Square value from visitor perception is 24,3% (Cox and Snell) and 33,4% (Nagelkerke), where variables TypeofAct (X1), Form (X2), Color (X3), Material (X4), Position (X5), Lighting (X6) and Size (X7) has a proportion value to the image (Y) is 33,4%. While R square from architecture student perception is 33,8% (Cox and Snell) and 46,8% (Nagelkerke), where variables TypeofAct (X1), Form (X2), Color (X3), Material (X4), Position (X5), Lighting (X6) and Size (X7) has a proportion value to the image (Y) is 46,8% (Table 6 and 7).

Table 6. Omnibus Test of Model Coefficient

		Visitor			Student		
		Chi-square	df	Sig.	Chi-square	df	Sig.
Step 1	Step	41,315	7	,000	27,890	7	,000
	Block	41,315	7	,000	27,890	7	,000
	Model	41,315	7	,000	27,890	7	,000

Source: Analysis Result (2017)

Table 7. Model Summary

	Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Visitor	1	102,793[a]	,243	,334
Student	1	86,892[a]	,338	,468

a. Visitor: Estimation terminated at iteration number 5 because parameter estimates changed by less than, 001
b. Student: Estimation terminated at iteration number 6 because parameter estimates changed by less than, 001
Source: Analysis Result (2017)

For visitors, the value of Chi-Square is 14.932 with p-value = 0.06 which means that the model has sufficiently explained the data or Goodness of Fit had been reached. Form (X2), Color (X3) and Position (X5) have a significant value <0.05 means the three variables influence the image (Y). The logistic regression equation formed can make the classification in Y=72%, this means that the independent variables can explain 72% of Form, Color, and Position. While for the architecture students, the value of Chi-Square is 5,088 with p-value = 0.748 which means that the model has sufficiently explained the data or Goodness of Fit had been reached. TypeofAct (X1), Form (X2), Position (X5) and Size (X7) have a significant value <0.05 means the four variables influence the image (Y). The logistic regression equation formed can make a classification in Y=80% this means that the independent variables can explain 80% of TypeofAct, Form, Position, and Size (Table 8, 9 and 10).

Table 8. Horsmer and Lemeshow Test

Step	Step	Chi-square	df	Sig.
Visitor	1	14,932	8	,060
Student	1	5,088	8	,748

Source: Analysis Result (2017)

Table 9. Classification Table

			Predicted		Percentage
			Image		
	Observed		no image	has an image	Correct
Visitor	Image	no image	54	10	84,4
		has an image	18	18	50,0
	Overall Percentage				72,0
Student	Image	no image	22	12	64,7
		has an image	8	58	87,9
	Overall Percentage				80,0

a. The cut value is, 500
Source: Analysis Result (2017)

Table 10. Variables in the Equation (a. Visitor and b. Student)

a. Variables in the Equation for Visitor						
						95% C.I.for
	B	S.E.	Wald	df	Sig.	Exp(B)	EXP(B)

								Lower	Upper
Step 1ᵃ	TypeofAct	,668	,519	1,656	1	,198	1,949	,705	5,389
	Form	-1,210	,525	5,325	1	,021	,298	,107	,833
	Color	1,250	,482	6,720	1	,010	3,489	1,356	8,976
	Material	,340	,558	,370	1	,543	1,404	,470	4,192
	Position	,873	,333	6,867	1	,009	2,393	1,246	4,596
	Lighting	,582	,487	1,429	1	,232	1,789	,689	4,644
	Size	-,244	,322	,576	1	,448	,783	,417	1,472
	Constant	-8,321	2,605	10,206	1	,001	,000		

a. Variable(s) entered on step 1: TypeofAct, Form, Color, Material, Position, Lighting, Size.

Source: Analysis Result (2017)

b. Variables in the Equation for Student								
							95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1ᵃ	TypeofAct	2,091	,627	11,122	1	,001	8,097	2,369	27,676
	Form	1,920	,778	6,084	1	,014	6,818	1,483	31,335
	Color	,915	,585	2,444	1	,118	2,497	,793	7,864
	Material	-,145	,716	,041	1	,839	,865	,213	3,517
	Position	1,502	,597	6,324	1	,012	4,489	1,393	14,466
	Lighting	,900	,606	2,201	1	,138	2,459	,749	8,072
	Size	-1,712	,517	10,958	1	,001	,180	,065	,497
	Constant	-15,724	4,990	9,932	1	,002	,000		

a. Variable(s) entered on step 1: TypeofAct, Form, Color, Material, Position, Lighting, Size.

Source: Analysis Result (2017)

For this regression equation, visitors and students have a different perception. Visitors chose that the form, color, and position of activity support may influence the image of the research area. While the architecture students chose that the type of activity, form, position, and size may influence the image of the research area. The results are in accordance with the research by [1], [4] and [6] which states that type of activity, form, color, position, and size may influence the image of the street.

4. Conclusion

Activity support may influence the image of an area or street. Some parts of activity support such as the type of activity, form, color, material, position, lighting and size can give an image on the street. The perceptions given by visitors illustrate their view of the place. Visitors with different educational and experiential backgrounds chose that form, color, and position of the activity support influence the image of Dr. Mansyur street. While the architecture students who have the background of architecture, they have understood urban design, so they may assess the research area in more detail. They chose that type of activity, form, color, and size of the activity support may influence the image of Dr. Mansyur street. Both groups of respondents chose the image of this street as a campus area (USU), easy to identify and

as a culinary area. It indicates that the difference in the background of the respondent may affect the different perception of a place that accordance with the study of [10]. From this research, found that activity support may influence the image of Dr. Mansyur street accordance with research by [1], [3], [4] and [6].

Acknowledgements

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