
Spatial analysis of users movement pattern and its socialization on public facilities and environment through the ESVA

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Abstract

The aim of developing spatial analysis of user movement pattern analysis and socialization is to ensure socializing comfort at the user environment. User Movement patterns and socialization need to be estimated in order to avoid any disturbance in obtaining user comfort during in its environment. Research on this spatial analysis was held on public facilities in Surabaya and Malang City. In the analysis on various public facilities was concluded that comfort sense was influenced by facilities and infrastructure, spacious place to socialize, view and direction in order to control the circulation flow and the ability to accept a variety of activities that are likely arise. Results of this research showed that the type of movement and socialization can be known through the Environment Socialization Values Analysis (ESVA). The value results of the ESVA are determined from the average number of socialization types that occurs and the average of user member number.

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1. Introduction

Research in the field of spatial indispensable for a variety of analysis advantages. Some advantages of this analysis is to provide a clear picture of the environment's ability to support the needs of its users. Other uses of this analysis is to predict the density and avoid disasters that can cause. Furthermore, spatial analysis capabilities in

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predicting the ability of the environment should still be developed to the customs and culture of the people who use them. Thus, the focus of the activities, habits and culture of the social environment will be discussed in more depth.

2. The need for spatial research on the building and the environment

Spatial analysis and research are very useful in measuring human comfort in the move in its environment. In addition Environment Socialization Value Analysis (ESVA) has other uses as a measure of the ability of the environment to accommodate and serve the needs of users in the environment. Two ESVA capabilities will provide a result that is environmental regulation requires consideration of the two sides between the user and the environment itself. The ability to adjust to each other both have directives that culture also is the deciding factor between the two forms of adjustment. The culture of the user is then interesting to explore and investigate its influence in affecting the environment settings. Culture conditions differ among users will add uniqueness when people are in their environment. A fusion of different cultures on the environment should be analyzed further usage patterns and trends in activity with the use of the environment.

![Fig. 1. The Example of ESVA spatial analysis with socialization patterns in Surabaya](source_image: Wardhana (2012))

In using the environment, users are strongly considering various factors into consideration. This is because the culture of using environment shaped and influenced by the surrounding environmental conditions. The environment used by the user always also involves other users with cultural backgrounds different. Thus, the combination of culture will be greatly affects human activities in socializing in the environment.

Human activity with cultural factors as constituent will be shown with a pattern of activity that has been patterned. This has been investigated by Wardhana (2012 and 2014). The pattern then becomes a very powerful influence state governance environment used in socializing. The arrangement of furniture and other amenities will make in social behavior pattern. Learn from this that we can predict the causes and circumstances of human activity on the environment or building too (Wardhana, Soemarno, & Prijotomo, 2012).

3. Methods

3.1. The advantages and disadvantages of various kinds of research in the field of spatial

Several studies in the field of spatial analysis has begun. Some of these studies was conducted by Izuyama (2010), Percival (2002), Judith (1986), Tversky (2003), Minam and Tanaka (1995), and Sepe (2009). Those studies showed activity that occurs in an environment at certain times. If the difference time of the research, it will be very
possible to happen a different result. Thus, it produced a variety of results that differ sharply.

One opportunity for researchers to optimize the results of research in the field of spatial analysis is to produce research that can indicate the use of space that is patterned from a variety of time use. With this pattern, the prediction of the success of an environment to support and facilitate the unity of human activities in it will be unpredictable. By looking at the floor plan and the ability of human density standards in which it will be able to predict the success of the environment in terms of environmental support ability.

4. Result and Discussions

4.1. Problems in the field of spatial analysis as well as an attempt to determine the predictive use of the environment in the future

The most difficult issues in an effort to produce a sharp analysis on the patterns of use of the environment by the user is habit or culture also in the move. Each of these places will have a culture in a different activity. When human beings who have different habits is met it will produce a new joint activity. The new activity also contains the shared culture that can change when new participants also joined the group. Changes in activity and habits like this then becomes an important issue to be solved in the techniques and methods of spatial research.

The diverse culture will mutually adjust to one another. Physical environment can be limiting and unifying will determine the continuity of the activities of users in groups. The activity will then be able to last long or not long depends on the conformity between the environment and the user group activities. If the activities of groups of users can be accommodated their needs, then the new activity will take longer.

4.2. ESVA and predicting the flow of motion and use of the environment by the user

Spatial analysis shows that there has been some method of getting data. The data is based on observations and surveys at any given time. It certainly will generate more data will be accurate if performed by taking the data several units of time are different. This is due to get an overview of socialization patterns indispensable conclusion looping the use of space by the user environment.

![Fig. 2. The Example of spatial analysis with socialization patterns in Surabaya and Jakarta Elderly House](source_image: Wardhana (2012))

In order to get a faster analysis process, it would require an analysis that also has the ability to predict or estimate the environment's ability to support human activities in it. Processes such as these require the efforts of several studies concluding with the same purpose. Of the inference can then be concluded for the calculation formula. This
effort has been pursued by analyzing some of the customs and culture of an environment different users in some cities such as Surabaya and Malang. Both cities are expected to provide a clear picture in the facilities commonly use by users with different cultural backgrounds. Profile of Surabaya and Malang in East Java will give a different effect on the needs of the public in using the means hangs in each city differently. Surabaya has a profile of trade and industry, while the city of Malang has a profile as a student city. People in both cities have different cultural backgrounds.

Expectations from efforts to find a formulation of spatial analysis as explained in the introduction of this paper, will more clearly be obtained by looking at how the variables were measured on the formulation of ESVA has been taken into account or not taken into account. Variables related to the culture of an environment in the formula ESVA is on the use of circulation. Circulation usage patterns are then analyzed the difference between the two cities of Surabaya and Malang.

4.3. **ESVA in accommodating the cultural environment in socializing**

In both cities, the circulation pattern of usage by the user to have differences and similarities (Wardhana, 2014). On the utilization of recreation facilities in the city of Surabaya, circulation utilized by users as a place to socialize in a long time. Type of use and activity that is likely to arise in the same circulation. The focus of the analysis that can enrich the analysis of the ESVA in activity in the city of Surabaya is the user's choice in socializing. At this city, meeting circulation of a favorite place to socialize. As for the type of activity is not so much changed.

Socialization activities in the city of Malang shows the difference to what happened in the city of Surabaya. Use of the environment as required in Malang, East Java shows the amount of change of the type of activity. At one favorite position in the common activity there are more than four kinds of different activities in the span of a day of use. Since the number of positions are reserved for the move, then the whole activity together show a high level of usage. When we look at the area of circulation, the area is also very often used for socializing. Related to the type of activity that is diverse, then this circulation also shows the use of higher compared to the non-circulation area.

![Fig. 3. Socialization activities on the use of public facilities in the city of Surabaya and Malang](image)

Source image: Wardhana (2014 and 2015)

From both cities above may be taken in common that the culture and habits of the public in using the surrounding environment is very diverse. Every place has a different usage patterns vary. In addition, the use of the environment as a place to socialize indicates the number of different types of activities that take place in it. Utilization of circulation as a place to socialize indicate that this place is a favorite user selected to use in socializing. Circulation should be able to accommodate changes in the type of socialization activity is high.
ESVA is an attempt to formulate predictive ability of the environment to accommodate human activity quantitatively. These efforts need to be made to measure and assess the success of an environment in supporting human activities in it. This success rate is shown by figures from the calculation results of the ESVA. The critical success factor is the number of the availability of space and circulation in an environment. Furthermore, the availability of analysis can predict the carrying capacity of the environment. This is what makes a predictable environment and its success in supporting the ability of socialization and activity in it.

As known, human activity in the environment will be also determined by the condition of the circulation. Circulation is this that governs the movement of people in it. Humans have a direction of movement activities, through the circulation of this movement occurs. When looking back at some of the benefits of the ESVA, the density of a place to place will also describe the possibility of inter-connectedness of the space density. The possibility of such a relationship can be estimated from the maximum density that will occur between spaces or can also be a place.

5. Conclusions

High and low value of human movement at the time of transfer between space shows the importance of circulation is used for socializing (Wardhana, Soemarno, & Prijotomo, 2012). The next movement must be accompanied with a complete infrastructure for socializing. The more complete facilities and infrastructure at the more long circulation socialization occurs in the circulation.

Customs and culture of people who are often difficult to measure quantitatively, by looking at the value of the ESVA, the human habit of socializing will be visible. This value can then be compared between one place to another place. ESVA with culture value in choosing a place to socialize and surf culture in an environment of their inhabitants will also be known. In general, the total ESVA value will describe the average number of users who socialize. This value is also the habit or human cultures interact with one another in their environment.
References