Perception of Students toward Green Open Spaces in Special Region of Yogyakarta

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Abstract. This study aims to determine students' perceptions toward the importance of green open space function in Special Region of Yogyakarta. This study applied a quantitative approach by using survey method about the importance of green open space function towards 124 respondents of the Graduate School, Yogyakarta State University, Yogyakarta Indonesia. The results of this study shows that students are knowing more the benefits of green open space (about 40.3%) compared to the substantial meaning and purpose of green open space (about 18.5% to 27.4%). Many students know the benefits of trees and greenery (about 90.3%) but are still in doubt about the existence of green open space and green path conditions (about 30.6% to 49.2%). As many as 50% Respondents still do not know about the role of government of Special Region of Yogyakarta in the provision of green open spaces.

Keywords: green open space, student perception, Yogyakarta

1. Introduction
Special Region of Yogyakarta has a variety of attractive tourist areas and commercial places which could give economic benefits for society, also to attract tourists to explore Yogyakarta. However, the Government of Yogyakarta is worrying about the development of commercial and urban areas which would reduce the allocation of green open space. The tendency of a decrease in the quantity of public space in big cities proved by the reduce of green open space from 35% in the early 1970s to 10% at present [1]. The existing green open space has been largely converted into urban infrastructure and new residential areas. Otherwise, green open space is very important for an area because it could be air circulation, microclimate regulator for smooth air circulation, as shade, oxygen producer, also absorbing air, water and soil pollutants [2].

Increasing of infrastructure development in various fields in Yogyakarta has become a fulfillment of the needs of society, could influence student perceptions. Perception is the process of absorbing information based on the circumstances of the surrounding environment. Perception depends on the point of view and understanding of things happening around. Perception is formed by experience about objects or events obtained by concluding information and interpreting messages from that information [3]. The process of perception formation begins with the stimulus of information, and then selected information would be interpreted into a perception [4].

The process of selecting information on everyone's perceptions is very influential on each person's attitudes and actions toward surrounding problems. The wrong perception will form into wrong
thoughts if someone miss-selects information. Perception plays an important role as aspiration for a problem and becomes a joint consideration in solving problems. Perceptions can be divided into rejecting or cooperating which basically will lead to an attitude on a matter or problem that occurs [5]. The correct perception of green open space needs to be built so that the care of students who will play an active role in it will be done wisely which manifests from each student's own actions towards the existence of green open space.

A good perception of green open space will form awareness and concern for the green open space, so that every student could maintain and preserve the green open space in accordance with its function, because green open space is one of the important elements of an area. Open space concerns the landscape of an area. The landscape consists of two elements: (1) hard elements (hardscape such as roads, sidewalks, sculpture, rocks and so on); and (2) soft elements (soft cape) in the form of plants and water. Open space on soft elements, namely fields, roads, river borders, green belts, parks and so on [6]. Green open space is one part of open space that must be owned by an area to avoid health problems and environmental beauty.

The definition of green open space varies. Green open space is known as a city space that functions as a green area for city landscaping, green area of urban forest, urban recreation area, cemetery green area, green agricultural area, green area green lane, green yard area [7] both public and private, whose surface is covered by vegetation, either directly or indirectly available to users [8]. Green open space is also known as an elongated area/path and or clustered, a place to grow plants, both of which grow naturally. The proportion of green open space in urban areas is at least 30% which consists of 20% of public green open space and 10% consists of private green open space [9]. Green open space in certain regions must comply at least 30% proportion to ensure the balance of the city’s ecosystem, both the balance of the hydrological system and the balance of the microclimate for increasing the availability of clean air needed by the community, and at the same time increase the aesthetic value of the city.

Reducing green open space in an area makes an area incompressible, oxygen content decrease, CO₂ emissions increase, the area looks not beautiful, hot and uncomfortable. Green open space is considered to comply the needs of urban communities in terms of creating better environmental conditions [10] which play an important role in naturally increasing processes to capture CO₂ in reducing greenhouse gases and other air pollutants [11]. Based on this, green open spaces play an important role in a Regional Spatial Plan. Spatial planning is the basis for anticipating the rapid development of built spaces, which must be followed by a policy of providing green and non-green open spaces [12]. The construction of green open spaces gives a good impact on the air temperature in an area. The condition of green open space is represented by vegetation density, more dense vegetation is, green open space conditions get better. Also, better green space conditions in urban areas causes air humidity get higher [13]. Based on this, green open spaces have ecological benefits that are good for the community and need to be well understood about their functions and roles in life.

The role of perception does not play a major role in preventing the reducing allocations of green open space, but is able to become a form of student aspirations and consideration for the Regional Government in building infrastructure for paying attention to green open space. Based on study in Pontianak City, people mostly understood the benefits and objectives of green open space about > 70%, but the activity of the community in finding out green open space information was still low about 4.95% - 11.43% [14]. The lack of community activeness is causing the green open space area is not reaching the allocation target. In the same way in Semarang, people's perceptions toward environmental management were good, but their implementation was still lacking, due to the lack of collaboration between the government and the community. Community participation is very necessary and must be improved [15]. The results of the study concluded that the role and perception of the community to be involved in managing green open spaces with the government is very important to maintain and preserve green open spaces. Based on these problems, this study aims to determine students’ perceptions of how much understanding towards the importance of green open space functions.
2. Method

This study was done at Yogyakarta State University located at Caturtunggal, Depok, Sleman, Yogyakarta for 2 weeks starting from May 24th to June 4th 2018. Respondents were postgraduate students of the Graduate School with a total of 124 students selected by purposive sampling based on certain considerations. The considerations to determine the sample of respondents are the criteria that students who are sampled have or are currently using green open space facilities at Yogyakarta State University, such as the Gedung Pascasarjana Lama Park, Pancasila Park or campus park around the Graduate School building. Non-probability sampling method was used because the population of postgraduate students was very large and the exact number was unknown so the number of samples targeted about ≥100 people to meet the survey research requirements, min. 100 respondents [16].

This study uses a quantitative approach by using descriptive survey method with questionnaire tools. The questionnaire instrument adapted the research questionnaire made by Januarisa et. al [14]. Questionnaire media using Google forms. Questionnaires were distributed to students in the form of interviews and brief explanations to Graduate School students who use green open space facilities around the Graduate School area by filling out questionnaires in the form of broadcast messages through social media. Questionnaire links were distributed without limitations, but only answered by 124 respondents.

Data is processed by translating questionnaire data into a table to make it easier to understand. The data processing results in the form of a percentage of the answers, then analyzed and discussed according to the research topic studied. Data collection techniques were carried out by direct communication techniques assisted by a questionnaire tool that contained a series of questions regarding matters related to the perception of YSU Graduate School students on the importance of the function of green open spaces in Special Region of Yogyakarta. Primary data in this study were obtained from the results of a survey. Whereas, the secondary data used are in the form of literature studies, green open space distribution data in Special Region of Yogyakarta, and relevant research results.

3. Results and Discussion

The results of this study is finding out the perception of YSU Graduate School students regarding the importance of the function of green open space, which the allocation data of green open spaces refers to the green open space Distribution Data [17]. The results of the study knew about student perceptions toward green open spaces in Special Region Of Yogyakarta as follows:

Table 1. List of questions regarding students’ perceptions toward green open space in Special Region of Yogyakarta.

| Type of questions                              | Numbers of respondents | Percentage (%) |
|-----------------------------------------------|------------------------|----------------|
| Understanding the meaning of Green open space. |                        |                |
| Known                                         | 34                     | 27.4%          |
| Less known                                    | 56                     | 45.2%          |
| Not knowing                                   | 32                     | 25.8%          |
| Doubt                                         | 2                      | 1.6%           |
| Total ( ∑ )                                   | 124                    |                |

Table 2. List of questions regarding students’ perceptions toward green open space in Special Region of Yogyakarta.

| Type of questions                              | Numbers of respondents | Percentage (%) |
|-----------------------------------------------|------------------------|----------------|
| Understanding the benefit of Green open space. |                        |                |
| Known                                         | 50                     | 40.3%          |
| Less known                                    | 47                     | 37.9%          |
| Not knowing                                   | 27                     | 21.8%          |
| Type of questions | Numbers of respondents | Percentage (%) |
|-------------------|------------------------|----------------|
| Doubt             | 0                      | 0%             |
| **Total (Σ)**     | 124                    |                |
| Understanding the purpose of Green open space. | Known 23 | 18.5% |
|                   | Less known 51          | 41.1%          |
|                   | Not knowing 35         | 28.2%          |
|                   | Doubt 15               | 12.1%          |
| **Total (Σ)**     | 124                    |                |
| The existences of Green open space in Special region of Yogyakarta. | Exist 57 | 46% |
|                   | No exist 0             | 0%             |
|                   | Not knowing 29         | 23.4%          |
|                   | Doubt 38               | 30.6%          |
| **Total (Σ)**     | 124                    |                |
| Benefits of trees and green plants for environmental balance in the Special Region of Yogyakarta. | Known 112 | 90.3% |
|                   | Less known 8           | 6.5%           |
|                   | Not knowing 0          | 0%             |
|                   | Doubt 4                | 3.2%           |
| **Total (Σ)**     | 124                    |                |
| Green Line Conditions in Special Region of Yogyakarta. | Very Good 3 | 2.4% |
|                   | Good 45                | 36.3%          |
|                   | No Good 15             | 12.1%          |
|                   | Doubt 61               | 49.2%          |
| **Total (Σ)**     | 124                    |                |
| Trees and Green Plants will make Spatial Development in the Special Region of Yogyakarta become beautiful, comfortable, and air becoming fresh. | Agree 118 | 95.2% |
|                   | Disagree 6             | 4.8%           |
|                   | Not knowing 0          | 0%             |
|                   | Doubt 0                | 0%             |
| **Total (Σ)**     | 124                    |                |
| The existence of trees in Yogyakarta Special Region could reduce pollution. | Known 112 | 90.3% |
|                   | Less known 4           | 3.2%           |
|                   | Not knowing 0          | 0%             |
|                   | Doubt 8                | 6.5%           |
| **Total (Σ)**     | 124                    |                |
| Role and efforts of Yogyakarta Special Region Government in the provision of Green open space (RTH). | Good 31 | 25% |
|                   | Less Good 29           | 23.4%          |
|                   | Doubt 2                | 1.6%           |
|                   | Not knowing 62         | 50%            |
| **Total (Σ)**     | 124                    |                |

**Table 3.** List of questions regarding students’ perceptions toward green open space in Special Region of Yogyakarta.

| Type of questions | Numbers of respondents | Percentage (%) |
|-------------------|------------------------|----------------|
| Information on Green open space (RTH) in Yogyakarta Special Region. | Frequently 1 | 0.8% |
|                   | Ever 52                | 41.9%          |
|                   | Rarely 38              | 30.6%          |
|                   | Never 33               | 26.6%          |
| Type of questions                                                                 | Numbers of respondents | Percentage (%) |
|---------------------------------------------------------------------------------|------------------------|----------------|
| **Total ( ∑ )**                                                                  | 124                    |                |
| Information on environmental damage in Special Region of Yogyakarta.             |                        |                |
| Frequently                                                                      | 5                      | 4%             |
| Ever                                                                            | 59                     | 47.6%          |
| Rarely                                                                          | 47                     | 37.9%          |
| Never                                                                           | 13                     | 10.5%          |
| **Total ( ∑ )**                                                                  | 124                    |                |
| Impression of respondents regarding environmental Conditions in Special Region of Yogyakarta. |                        |                |
| Concerned                                                                       | 70                     | 56.5%          |
| Not concerned                                                                   | 16                     | 12.9%          |
| Ordinary                                                                        | 38                     | 30.6%          |
| **Total ( ∑ )**                                                                  | 124                    |                |
| Respondents discussion regarding damage to environmental conditions in Yogyakarta Special Region. |                        |                |
| Frequently                                                                      | 2                      | 1.6%           |
| Ever                                                                            | 41                     | 33.1%          |
| Rarely                                                                          | 50                     | 40.3%          |
| Never                                                                           | 31                     | 25%            |
| **Total ( ∑ )**                                                                  | 124                    |                |
| Respondent discussion regarding green line status in Yogyakarta Special Region as Green open space (RTH). |                        |                |
| Frequently                                                                      | 2                      | 1.6%           |
| Ever                                                                            | 21                     | 16.9%          |
| Rarely                                                                          | 32                     | 25.8%          |
| Never                                                                           | 69                     | 55.6%          |
| **Total ( ∑ )**                                                                  | 124                    |                |
| The activeness of respondents in searching for environmental information in Yogyakarta Special Region. |                        |                |
| Active                                                                          | 1                      | 0.8%           |
| Occasionally                                                                    | 65                     | 52.4%          |
| Nonnative                                                                       | 58                     | 46.8%          |
| **Total ( ∑ )**                                                                  | 124                    |                |
| The activeness of respondents in seeking information on Green open space (RTH) in Yogyakarta Special Region. |                        |                |
| Active                                                                          | 3                      | 2.4%           |
| Occasionally                                                                    | 39                     | 31.5%          |
| Nonnative                                                                       | 82                     | 66.1%          |
| **Total ( ∑ )**                                                                  | 124                    |                |
| The importance of counseling about Green open space (RTH) in Yogyakarta Special Region. |                        |                |
| Very important                                                                  | 88                     | 71%            |
| Important                                                                       | 36                     | 29%            |
| No important                                                                    | 0                      | 0%             |
| **Total ( ∑ )**                                                                  | 124                    |                |
| Respondents’ Willingness to follow counseling about Green open space (RTH) in Yogyakarta Special Region. |                        |                |
| Very ready                                                                      | 71                     | 57.3%          |
| Ready                                                                           | 49                     | 39.5%          |
| No ready                                                                        | 0                      | 0%             |
| Doubt                                                                           | 4                      | 3.2%           |
| **Total ( ∑ )**                                                                  | 124                    |                |
Table 4. List of questions regarding students’ perceptions toward green open space in Special Region of Yogyakarta.

| Type of questions                                                                 | Numbers of respondents | Percentage (%) |
|-----------------------------------------------------------------------------------|------------------------|----------------|
| Willingness of respondents invites the community to participate in counseling about Green open space (RTH) in Yogyakarta Special Region. | Very ready: 79         | 63.7%          |
|                                                                                    | Ready: 40              | 32.3%          |
|                                                                                    | No ready: 0            | 0%             |
|                                                                                    | Doubt: 5              | 4%             |
| Total (Σ)                                                                         | 124                    |                |
| The existence of Green open space development activities in Yogyakarta Special Region. | Agree: 116            | 93.5%          |
|                                                                                    | Less agree: 1          | 0.8%           |
|                                                                                    | Disagree: 0           | 0%             |
|                                                                                    | Doubt: 7              | 5.6%           |
| Total (Σ)                                                                         | 124                    |                |
| Preservation of Green open space (RTH) in Yogyakarta Special Region.               | Very necessary: 87     | 70.2%          |
|                                                                                    | Necessary: 36          | 29%            |
|                                                                                    | No necessary: 0        | 0%             |
|                                                                                    | Doubt: 1              | 0.8%           |
| Total (Σ)                                                                         | 124                    |                |
| Student involvement in the construction of Green open space (RTH) in Yogyakarta Special Region. | Very necessary: 86    | 69.4%          |
|                                                                                    | Necessary: 32         | 25.8%          |
|                                                                                    | No necessary: 0        | 0%             |
|                                                                                    | Doubt: 6              | 4.8%           |
| Total (Σ)                                                                         | 124                    |                |
| Willingness of Students if invited to deliberation on Green open space (RTH) in Yogyakarta Special Region. | Very ready: 84        | 67.7%          |
|                                                                                    | Ready: 35             | 28.2%          |
|                                                                                    | No ready: 0           | 0%             |
|                                                                                    | Doubt: 5              | 4%             |
| Total (Σ)                                                                         | 124                    |                |
| Development of Green open space (RTH) in Yogyakarta Special Region in the long term. | Very agree: 93        | 75%            |
|                                                                                    | Agree: 30             | 24.2%          |
|                                                                                    | Disagree: 0          | 0%             |
|                                                                                    | Doubt: 1             | 0.8%           |
| Total (Σ)                                                                         | 124                    |                |
| Green open space (RTH) makes Yogyakarta Special Region to be comfortable.         | Very agree: 96        | 77.4%          |
|                                                                                    | Agree: 28             | 22.6%          |
|                                                                                    | Disagree: 0          | 0%             |
|                                                                                    | Doubt: 0             | 0%             |
| Total (Σ)                                                                         | 124                    |                |

Based on questionnaire, it is known that there were still many students who didn’t know about the meaning and purpose of the green open space. About 51 to 56 respondents were still not aware of the purpose and meaning of green space, although as many as 50 respondents knew about the benefits of the green open space. Student knowledge about green open space is still about its general benefits such as the benefits of trees and greenery in reducing air pollution, but not to the substance, namely the meaning and purpose of the green open space.

Regarding the existence of green open space in Special Region of Yogyakarta, as many as 57 students were aware of its existence, but the number of respondents who were hesitant about the existence of green open space was quite large, about 38 respondents. Likewise with knowledge of the
condition of the green line in Special Region of Yogyakarta, as many as 61 of 124 respondents were still hesitant about this. This is due to the lack of information obtained by students in understanding the location, layout, and function of green open spaces.

The role of the Yogyakarta Special Region Government in transparency in providing information on green open space is still lacking. About 50% of 62 respondents still do not know about the role of the government in providing green open space. This is due to the lack of active students in accessing information about green open spaces and lack of access to green open space information from the Government. About 82 respondents were not active for seeking information about green open spaces, and as many as 69 respondents had never discussed about the status of the green lane. Lack of student knowledge about the substance of the meaning and purpose of green open space is caused by the lack of active students in seeking information about the green space. The lack of active students in accessing information is assumed because the YSU Graduate School Students consist of various fields of study, so that each student focuses only on their scientific fields. Parks and green open space facilities are still considered merely complementary facilities so that understanding of the meaning and purpose of green space is still lacking.

However, based on the results of survey, the students' willingness to participate in the extension program regarding the importance of the function of green open space was categorized as very good. About 116 respondents agreed with the development of green open space in Special Region of Yogyakarta, as many as 84 respondents were willing if invited to consult about green open space. It means the enthusiasm and curiosity of YSU Graduate School students regarding the importance of the function of green open space is very good. Lack of student knowledge about green open space due to lack of environmental education activities in promoting and informing green open spaces in Special Region of Yogyakarta. The existence of these activities is important to increase student knowledge and involvement actively in maintaining and preserving green open spaces.

4. Conclusion
Based on the results and discussion of the study could be concluded as follows:

a. Student knowledge about the meaning and purpose of providing green open space is still lacking, but students better understand the benefits of green open space. Likewise by the presence of green open space and green line conditions in Special Region of Yogyakarta, most of the respondents were still in doubt. This is due to the lack of information about green open spaces from the Local Government and student activity in finding information on green open spaces.

b. Students' perceptions can be suggestions/advice regarding the need for green open spaces and can be an indicator in succeeding the development and management of green open spaces in Special Region of Yogyakarta.

c. Student participation in the management and development of green open spaces is very important. This effort is carried out to prevent the occurrence of irregularities in the use of open space. Based on the results, students' willingness to participate in extension and green space development activities was quite high. The existence of activities that involve the active participation of students in maintaining and preserving green open spaces will foster a better perception and understanding of the importance of the function of green open spaces in Special Region Of Yogyakarta.

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