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Factors Affecting Community Behavior in the Management of Private Green Open Spaces in Makassar City

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Abstract:
Background*: Global warming is a natural event where the temperature of the earth's atmosphere has increased due to various activities, both naturally occurring or human-caused. private green open space is also inseparable from the growth of public awareness to produce an aesthetic space. Aesthetic culture is also thought to influence a person's desire or attitude to maintain green open spaces. Therefore, this study focuses on the relationship between environmental knowledge, locus of control, and aesthetic culture on the behavior of maintaining private green open spaces*
Materials and Methods*: In this Correlational approach, 200 households with the status of homeowners. This research was carried out in Makassar City by taking the object of research on housing built more than 10 year ago with a land area of less tah 100 m*^{3}
Results*: The knowledge of green open space management includes the function of plants for environmental comfort such as cooler and shady air with the presence of plants. The community also understands the importance of the ability of plants to absorb rainwater to reduce puddles when it rains. The attitude of the community in managing green open space is marked by the desire to enjoy a cool and beautiful home.*
Conclusion: *, The influence of environmental culture and locus of control. Furthermore, the analysis of the indirect influence between variables shows that the environmental knowledge factor influences the behavior of managing private green open space through environmental attitudes.*
Key Word*: Community, Behavior, Manajement, Private Green Open Space*.

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I. Introduction

Global warming is very fast threatening human survival, so it must be taken seriously not only by the government or environmentalists but also by all mankind (Kramer, 2012). Global warming is a natural event where the temperature of the earth's atmosphere has increased due to various activities, both naturally occurring or human-caused. The high and diverse human needs make the exploitation of natural resources increasing every time. Recently, global warming has resulted in natural disasters in various parts of the world. In addition, social disasters such as crime are also increasing sharply in urban areas due to increased stress. It is also suspected as the cause of global warming. (Ahima, 2020), Lerner & Poole, W. (1999).

The city as a gathering place for the population is experiencing rapid development due to the attractiveness of its welfare and economy. The speed of urban development is also accompanied by the provision of economic and social facilities. This need has an impact on the demand for environmental carrying capacity. The carrying capacity of the environment is also very closely related to global warming. As a result, urban development is reflected more by the physical development of housing and social and economic facilities. Thus, the higher land-use change is indicated by the increasingly limited open land area.

Cities around the world are experiencing destabilization of ecosystems due to rising air temperatures, flooding, increased noise, and the lowering of groundwater levels (Subair & Haris, 2018). Even the fulfillment of clean water needs for urban residents is also increasingly difficult to solve. One of the adaptation steps to global warming is the provision of green open space (Respati et al, 2020). In addition to being the responsibility of the city government, green open space is also the responsibility of the community. The city government is obliged to provide public green open spaces that can be accessed by the whole community, while the community individually must provide private green open spaces that are private ownership and management.

Urban Green Open Space is part of the open spaces of an urban area filled with plants and vegetation (endemic, introduced) to support the direct and indirect benefits generated by green open space in the city, namely security, comfort, welfare, and the beauty of urban areas (Xue et al, 2017). Private green open space is

located on individual private land which is usually integrated with residential land (Subair & Haris, 2018). The general problem with the provision of private green open space is the limited land area which is also very dependent on the community's desire to carry out plant maintenance on their residential land. Theoretically, a person's desire to maintain the environment is strongly influenced by self-control or locus of control. Locus of control is divided into two, firstly the external locus of control produces behavior that is independent or dependent on pressure from outsiders or outside policies, secondly, the internal locus of control produces stable behavior (Haris dkk., 2018). One of the variables in this study is the locus of control or as a variable of community behavior in managing private green open space.

Furthermore, private green open space is also inseparable from the growth of public awareness to produce an aesthetic space. Aesthetic culture is also thought to influence a person's desire or attitude to maintain green open spaces. Therefore, this study focuses on the relationship between environmental knowledge, locus of control, and aesthetic culture on the behavior of maintaining private green open spaces.

II. Material And Methods

Study Design: Correlational approach

Study Location: This research was carried out in Makassar City by taking the object of research on housing built more than 10 year ago with a land area of less tah 100 m^3

Sample size: 200 households with the status of homeowners .

Procedure methodology

The research instrument is a test used to measure knowledge of green open spaces with the measured aspects being cognitive, affective, and psychomotor. Furthermore, researchers used a questionnaire instrument to determine self-control, aesthetic culture, attitudes, and behavior of the community in managing green open spaces. The instruments are arranged according to the Likert scale guidelines, with positive questions worth 4, 3, 2, 1 and negative questions worth 1, 2, 3, 4. Furthermore, the path analysis method is used to determine the effect of the independent variable on the dependent variable directly or indirectly. This analysis also gives the results of the size of the influence between variables. Data analysis was performed using the SPSS 21.0 program.

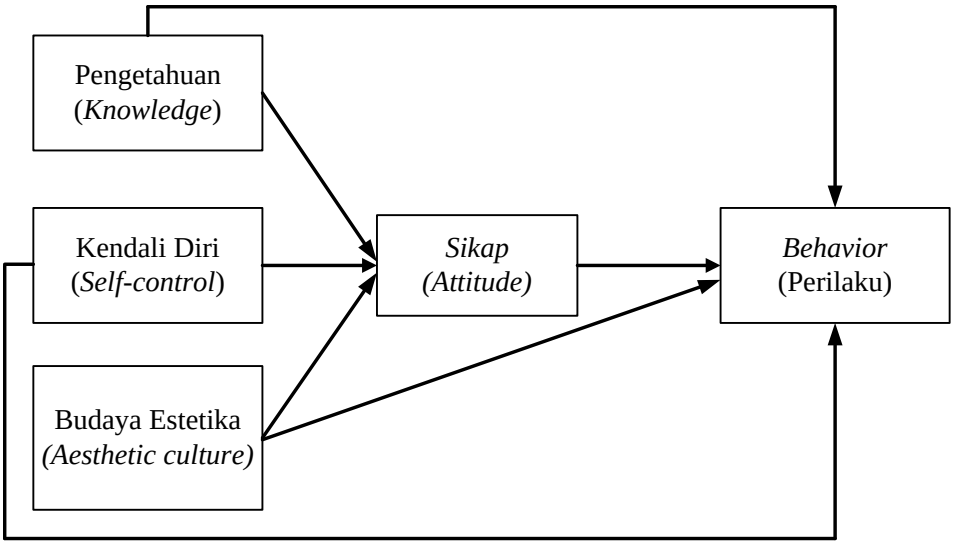

Figure 1. Direct Effect on Attitude

III. Result & Discussion

Environmental knowledge as the first variable is characterized by public knowledge of facts, concepts, and procedures. Facts about global warming are well understood, as is the role of vegetation in protecting the environment against increasing geothermal heat. Furthermore, the concept contains the meaning of the definition of global warming and its causes. Procedural knowledge includes public knowledge about the mechanism of increasing the earth's temperature and adaptation steps by planting vegetation. The description of the respondents' environmental knowledge shows the high level of community environmental knowledge related to global warming and the provision of green open spaces and their vegetation in table 1.

Table 1. Community environmental knowledge in managing private green open space

Value Range	Category	Frequency	Percentage
0.00- 0.25	Very Low	0	0%
0.26 -0.50	Low	24	14%
0.51- 0.75	High	104	52%
0.76- 1.00	Very High	68	34%
Total		200	100%

Source: Data analysis 2020

The study of locus of control variables includes internal and external indicators. Internally, the community feels the urge from within to maintain gardens or plants in their yard. In addition, with the habit of nurturing plants, there is also pride in him for the work that can be seen in real terms. Meanwhile, externally, self-control grows with the government's encouragement and a mutual agreement to maintain green open space. Table 2 shows that people generally have a low locus of control or there is no great desire of the community to maintain private green open spaces.

Table 2. Community Self-Control in Managing Private Green Open Space

Value Range	Category	Frequency	Percentage
1.00- 1.99	Very Low	12	6%
2.00 -2.99	Low	172	86%
3. 00- 3.99	High	16	8%
4.00- 4.99	Very High	0	0%
Total		200	100%

Source: Data analysis 2020

The third variable is aesthetic culture or the existence of people's habits in managing their environment with the encouragement of environmental aesthetics. The aesthetic culture variable has several indicators, namely the culture of creativity and productivity, the culture of ecology, and the culture of recreation. Where in table 3 shows the aesthetic culture of the community in managing private green open spaces.

Table 3 Community Aesthetic Culture in Managing Private Green Open Space

Value Range	Category	Frequency	Percentage
1.00- 1.99	Very Low	0	0%
2.00 -2.99	Low	146	73%
3. 00- 3.99	High	54	27%
4.00- 4.99	Very High	0	0%
Total		200	100%

Source: Data analysis 2020

The intervening variable that connects the independent variable and the dependent variable is environmental attitude. A study on the community attitude variable, namely the tendency of the housing community to act in handling green open spaces. This variable includes indicators of affective, conation, and cognition. Table 4 describes the attitude of the Makassar City community towards the maintenance of private green open spaces.

Table 4 Attitudes of the Community in Managing Private Green Open Space

Value Range	Category	Frequency	Percentage
1.00- 1.99	Very Low	8	0%
2.00 -2.99	Low	86	43%
3. 00- 3.99	High	98	49%
4.00- 4.99	Very High	8	4%
Total		200	100%

Source: Data analysis 2020

The results of the distribution analysis in this table indicate that the number of respondents with low attitudes is as large as the number of respondents with high attitudes. This shows that the level of the tendency to maintain green open space is influenced by various internal and external factors.

Furthermore, the main factor of this study is the behavior of the community in managing green open spaces. This variable includes indicators of maintenance, utilization, and arrangement. The results of the distribution analysis of respondents' answers show that most of the people have good behavior in maintaining private green open spaces (table 5).

Table 5 Community Behavior in the Management of Private Green Open Space

Rentang Nilai	Kategori	Frekuensi	Persentase
1.00- 1.99	Sangat Rendah	4	2%
2.00 -2.99	Rendah	74	37%
3. 00- 3.99	Tinggi	50	25%
4.00- 4.99	Sangat Tinggi	72	36%
Total		200	100%

Sumber: Analisis data 2020

The description of the behavior of managing private green open space shows that there is a habit of people maintaining plants in their yard. In addition, there are also community groups that use their yard plants as medicinal plants. With the support of these community habits, the risk of increasing environmental damage due to climate change can be minimized.

The next study is directed at the factors that influence people's behavior in managing private green open space. This study uses path analysis to find the magnitude of the influence between variables. The initial stage of this analysis is to examine the direct influence between independent variables on the behavior of managing private green open space based on the significance value (table 6).

Table 6. Direct Effect on Behavior

The Effect between variables	Sig	Result
Knowledge → Behavior	0.000	Sig < 0.05 Knowledge affects the behavior
Esthetic Culture → Behavior	0.000	Sig < 0.05 Esthetic Culture affects the behavior
Locus of control → Behavior	0.000	Sig < 0.05 Locus of control affects the behavior

While the influence of the attitude variable as an intervening variable on the behavior of managing private green open space is presented in table 7.

Table 7. The Direct Effect of Attitude on Behavior

The Effect between variables	Sig	Result
Attitude → Behavior	0.000	Sig < 0.05 Attitude affects the behavior

The second stage is the analysis of the direct influence between the independent variables on environmental attitudes. The results of the analysis are presented in table 8.

Table 8. Direct Effect on Attitude

The Effect between variables	Sig	Result
Knowledge → Attitude	0.000	Sig < 0.05 Knowledge affects the attitude
Esthetic Culture → Attitude	0.867	Sig > 0.05 Esthetic Culture don't affect the attitude
Locus of control → Attitude	0.230	Sig > 0.05 Locus of control don't affect the attitude

The third stage is to analyze the magnitude of the direct and indirect influence between the independent variables on the behavior of managing private green open space through environmental attitudes. This analysis focuses on variables that provide a significance value less than 0.000. Therefore, the results of the analysis only take into account the magnitude of the indirect effect of knowledge on behavior through attitudes. As for the direct effect, the analysis of the three variables is shown in Figure 2 and Table 9.

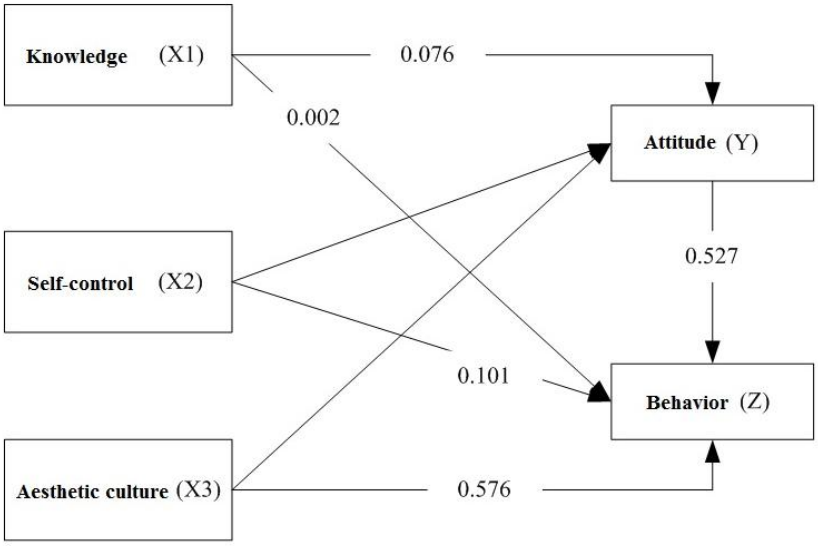

Figure 2. Output Relationship Between Variables

Table 9. Recapitulation of Direct and Indirect Effects

Direct Effect	
Knowledge → Behavior	0.002
Self-control → Behavior	0.101
Aesthetic culture → Behavior	0.576
Knowledge → Attitude	0.076
Attitude → Behavior	0.527
Indirect Effect	
Knowledge → Atitude → Behavior (0.076 x 0.527)	0.040

Source: Data analysis 2020

Table 9 shows that environmental knowledge has the best influence on the behavior of private green open space management. This variable has a direct and indirect effect on the behavior. While the other two variables only have a direct influence on the behavior.

In fact, people who have environmental knowledge related to the management of private green open space will produce a habit of maintaining space for planting trees or other types of vegetation in their yard. The knowledge of green open space management includes the function of plants for environmental comfort such as cooler and shady air with the presence of plants. The community also understands the importance of the ability of plants to absorb rainwater to reduce puddles when it rains. The attitude of the community in managing green open space is marked by the desire to enjoy a cool and beautiful home. Some people have a negative attitude towards the management of green open space with the assumption that their yard is messy due to the presence of trees.

Self-control has a direct effect on the behavior of green open space management. Self-control is divided into two forms, namely internal and external. Internally, a person's control to act comes from within himself. Self-control is formed from the willingness to spend money and take the time to maintain plants. Externally, this self-control comes from outside. The form of this control is due to a rule from the government or developer that requires every family to maintain a tree in their yard.

Furthermore, the aesthetic culture that influences one's desire to provide private green open space is formed by the existence of a culture of creativity, ecology, and recreation culture. This creativity takes the form of using narrow land as a park or selecting suitable vegetation according to the conditions of the land. While ecological culture is a person's habit of maintaining trees in the yard with the hope of reducing puddles and getting fresh air. The recreational culture encourages one to maintain a beautiful and well-maintained garden.

The study of the management of green open space is also inseparable from the management of the residential landscape. Harris et al (2012) describe that landscape management occurs through a complex socio-ecological system or there is a link between the ecological conditions of the area, the presence of external

motivations, or other people who act as drivers. In addition, human habits that are formed from the legacy of past management also give birth to an attitude to maintain the home page. External drivers are equivalent to an internal locus of control variables while inherited habits are a form of internal locus of control.

The relationship between human behavior and the characteristics of the landscape of the environment is also studied by Lowenstein and Minor (2012) that as an artificial ecosystem, the cover and diversity of open space vegetation is strongly influenced by demographic and socio-economic factors such as income, ethnicity, family life stage, and education as well as housing density. Human behavior can act independently or in groups to form a better ecological system through the nature and types of plants in the yard.

Well-maintained private yards provide ecosystem services that are not only enjoyed by homeowners but also enjoyed by others. However, yard maintenance takes a long time (some are once a day and some are once a week). The availability of this time influences the quality of the resulting green open space. Page size is also an important predictor of a person's willingness to manage green space on his home page. (Lin, et al, 2017). The description of the results of the study reveals a variable similar to this study, namely the locus of control or the existence of self-control that is formed due to internal and external influences.

IV. Conclusion

Environmental knowledge directly affects the behavior of private green open spaces. Similarly, the influence of environmental culture and locus of control. Furthermore, the analysis of the indirect influence between variables shows that the environmental knowledge factor influences the behavior of managing private green open space through environmental attitudes. Meanwhile, aesthetic culture and locus of control are only direct predictors but do not have an indirect influence on the behavioral variables of private green open space management.

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