Community sustainability and environmental quality improvement on studentified area in Malang City, Indonesia

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Abstract. Studentification occurs in a college town so that the large number and activity of students and those related to universities affect the condition of the city. The impact of students consists of socio-cultural and economic changes that can be seen in physical changes. In the previous research, these changes often result in conflicts between students and residents, less service for residents, and a worsening physical environment. This study aims to find the contributions of the studentification model in Malang city as one of the college towns in Indonesia that occurs in the area adjacent to the campus Brawijaya University Malang City. The method used in this research is Structural Equation Model Partial Least Square. Data were taken through in-depth interviews and online surveys to 32 neighbourhood leaders as respondents. Some of the findings show additional thought contributions to studentification theory, namely: community sustainability and environmental quality improvement.

1. Introduction

Studentification is a process where students begin to live in parts of the city near the campus so that the previous population is reduced due to the internal migration process [1]. The influx of students into this part of the city also causes changes in the composition of the population and housing, increases land and rent prices [2], and causes damage to housing and the surrounding campus environment [3]. There was also a change in the structure of the house from a family residence to a boarding house, and segregation between students and non-students, so that the area became a student residential area, which causes spatial dysfunction because only the needs of students will be met [4]. It is also considered a demographic disorder because the transformation of the built environment accompanies the changes in life and the displacement of families from an area, besides being a reinvestment process, environmental landscape changes, class changes, and residents' income because students are a source of income [5]. In addition, studentification is a process of urban spatial planning that impacts socio-cultural, economic, and physical changes in urban spaces due to the number of students who live temporarily in the surrounding campus area.

This study aims to find the contributions of the studentification model in Malang city as one of the college towns in Indonesia [6] to community and environmental sustainability. The research was conducted in Ketawanggede Village, Malang City, adjacent to the Universitas Brawijaya campus. This
2. Methodology

The method used in this study is the Structural Equation Model Partial Least Square (SEM PLS) to examine the relationship between variables with indicators and sub-indicators and to obtain a comprehensive picture of the entire model. The model has higher flexibility for researchers to link theory and data [8]. Variables in this model are formative, and indicators of this model are reflective and have a different pattern of indicator relationship with other variables. The primary data used to construct the structural model was obtained from interviews with 32 neighbourhood leaders (Ketua Rukun Tetangga). Interviews were conducted using questionnaires directly by cell phone conversations and Google-Forms. A preliminary study was conducted on perceptions of students to support this research, owners/managers of boarding houses, residents, and business actors in the study area [7]. Another preliminary study was to determine 3 variables, 9 indicators, and 13 sub-indicators in the studentified area around Universitas Brawijaya [9].

3. Results and discussion

3.1. Result

The study area there has changed in the socio-demographic structure with students predominated to the population (87%) whose also temporary migrants since they only stay in Malang for four years and will move to another city after completing their studies. Changes in demographics can lead to social cohesion, and segregation is essential to avoid social conflicts between students and residents around the campus [10] because residents have different backgrounds and cultures. Social cohesion goes well, describing that students participate at community prayer and locals known students since they must report themselves as temporary residents in the area. Social segregation was identified by students' interest in choosing boarding house accommodation based on similar backgrounds (town of origin and beliefs) for the convenience of living together [7]. Economic changes on studentification seen from students as rental market [11] determined by 71.66 % of all houses are boarding houses and showed there is a balance between providing products and services to students without narrowing the supply of goods for residents. Another indicator in the physical variable is the quality of the environment [1][12][5] which can be seen through changes in environmental quality (cleaner and better) and security of the surrounding area (commotion or theft of student goods). The formulation model by SEM PLS describes those socio-cultural and economic variables that have a positive and significant effect on physical variables. The higher socio-cultural and economic impact can increase the pressure on physical condition area.

Change of studentified area begins with the influx of students into the area around the campus, thus causing an increase in population density. This situation causes a need for the availability of boarding houses room in the area around the campus. Locals see this as an opportunity to earn income by renting out rooms to students. The boarding house owner stated that renting a boarding house was initially done to increase income but became the primary income [9]. The increase of population density causing physical changes to the building (43.83%) due to increasing the number of rooms for rent, converting family rooms into rental-worthy spaces, optimizing the space that can be rented, to adding floors to the building. The increased student numbers affect the increase of the number of boarding rooms and the need for business stalls to serve students' needs, which causes a change in the space to become business
stalls. The function changes of residential houses turned into the boarding house, and business stalls are 80.22%.

Physical condition changes in the study area are measured through form and function changes in houses and indicators of environmental changes in the area. Dimensions of houses form and function changes represented by sub-indicators of houses form changes showed by loading factor of 0.924. In contrast, the contribution of sub-indicators of house function changes from (residential into a boarding house or business stalls) in measuring the indicator of houses form and function changes seen from loading factor of 0.927%. Changes in houses are carried out by increasing the space area, the number of floors, and the form of space. The change of houses function is carried out by changing the residential houses into a new function (boarding house, business stall, or shop houses). Most respondents (65.6%) stated that more than 10 houses had changed form to multi-level buildings, added bedrooms, bathrooms, and more spaces to accommodate students and their activities. Furthermore, respondents (78.1%) stated that more than 16 houses in their neighbourhood changed function from residential houses to boarding houses/rental or places of business.

Indicators of physical change can be seen from the sub-indicators: environmental improvement and changes in environmental security. Environmental improvement is measured by improving the quality of the environment due to infrastructure and cleanliness, and changes in environmental security are seen from the level of security disturbances (theft, commotion, theft of laptops/cell phones, etc.). The respondents (50%) state that the environmental quality is better overall, while in terms of environmental security, 53.1% of respondents also stated that security disturbances have only occurred less than 5 times in 10 years.

3.2. Discussion

The previous community will change and tend to shift with the need for student boarding houses, strategic locations, and opportunities to get high property selling prices [13]. It shows that the area is not proposed inhabited by residents who are not students, so that the type and availability of property in the area are intended for students. Residents have difficulty selling their houses due to disorder, noise, and the declining physical quality of the area due to studentification [14]. Socio-cultural differences between students and residents are one of the causes of residents leaving the area around campus [14][15]. This study determined the community sustainability since those residents feel there is no urgent need to sell their property (70%) and still do not want to sell the house because they have not shared their inheritance yet (20%), and they know each other for a long time. Since most residents have lived in this area for more than 15 years stated that they want to keep the Javanese values, which cause the comfort of being familiar, and living in a strategic area are the strong motivation for survival. Several respondents also mentioned that investors would buy the property at whatever price the owner offers due to the limited number of properties offered on the market.

The influx of students around campus can cause environmental a decrease in cleanliness because students tend to disorganize and do not like to keep the environment clean [5][16], and students poses a security threat since they may not be involved in criminal, but become attractors for these criminal acts [5][17]. Students tend to have no habits or awareness in maintaining goods or the environment, so it is not easy to expect them to care for the surrounding area. This study shows that although it is recognized that students often do not care about the cleanliness of the environment; residents are trying to provide garbage collection. On the other hand, students try to maintain a better and cleaner environment because they are willing to follow the existing rules and regulations. The number of students living in the area around the campus also poses a security threat [5]. Students may not be involved in criminal acts but become attractors for these criminal acts [4][5]. Students tend to have no habits or awareness in maintaining goods or the environment, so it is not easy to expect them to care for the surrounding environment.
The results of this study indicate that the students increase the income and welfare of the residents, causing the possibility of security disturbances. However, the study area is relatively safe from security disturbances and theft because most respondents are from neighbourhood leaders (53.1%). Stated that in the last 10 years, there have only been fewer than five security disturbances (theft, commotion,
laptop/mobile theft, etc.) 43.8% of respondents stated that security disturbances (theft, commotion, theft of laptops/mobile phones, etc.) only occurred once in 12 months. It is also shown by efforts to use RT CCTV at 8 points monitored by residents and students, installing portals in the area's entrance area, and increasing regional rules and regulations with restrictions on night activities.

4. Conclusion
This research shows that socio-cultural changes directly affect the economic and physical changes, as well as economic changes, will affect the physical changes in the study area. The structural model showed that changes in socio-cultural variables could be reflected by social cohesion and social segregation indicators. In contrast, economic variables can be shown by indicators of income growth and new business opportunities, and physical variables can be described by indicators of changes in houses form and changes in the environment. Some of the findings show additional thumb contributions to studentification theory, namely: community sustainability, environmental quality improvement, and security of the surrounding area.

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