

# Planned behaviour theory for the science agency: the role of youth for sustainable waste management

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## Planned behaviour theory for the science agency: the role of youth for sustainable waste management

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**Abstract.** This study focuses on the role of youth as an agency of sustainable waste management. Indonesia faces big problems in processing plastic waste. For this reason, the presence of students as an agent is very necessary. The research aims to determine the extent of planned behavior theory can influence students to participate in waste separation. This study applies the planned behavior theory. This theory has several items such as motivation, situational factors, attitude, environmental awareness, subjective norms, intention and behavior, perceived behavioral control, and moral obligation. These factors influence students to participate in sustainable waste management.

### 1. Introduction

Trash in Indonesia is a massive problem that has not been completely solved until now. The amount of waste continues to increase every year and becomes a problem because it causes environmental pollution that has a negative impact on society. The government and the community must collaborate resolving these problems. Indonesia produces around 66-67 million tons of waste in 2019 [1]. Minister of Environment and Forestry Siti Nurbaya said that the types of waste produced are of two types, namely plastic waste by 15 percent and organic waste by 60 percent [1]. The growing population of Indonesia has an impact on the increase in landfill. The government must focus to process this waste.

Indonesia ranks second after China as the country with the largest producer of plastic waste [2]. This condition illustrates that the government and the people of Indonesia are less concern in dealing with plastic waste problems. Makassar City, located in South Sulawesi Province, Indonesia is one of the cities that has a significant population and economic growth because services, industry, business and other economic activities continue to increase. Rapid and growing urbanization, increasing

population numbers and increasing consumption of goods also influence the amount of waste that continues to increase [3].

Head of the Makassar City Environmental Service, Gani Sirman said that the garbage in the city of Makassar every day averages between 1,000 and 1,200 tons. The amount of waste production has been averaged in accordance with the population which is currently around 1.8 million. The waste is sourced from households, hospitals, economic centers, markets, offices and industries that are increasingly developing in Makassar. Most of the waste sources come from households and markets [4]. This condition is one of the reasons that the government is important to promote youth in managing waste.

This research is different from previous research. Previous research analyzed planned behavior theory with questionnaires and cluster systems, structural equation modeling techniques (SEM) and discriminant analysis [5]. This study also uses the planned behavior theory but uses a qualitative approach. Based on the background above, this research question is how the planned behavior theory can influence students to participate in separate waste?

## 2. Theory

This study applies the planned behavior theory. This theory focuses on the behavior and intentions of youth in managing the environment to be clean from organic and non-organic waste. This research focuses on plastic waste. This behavior pattern is based on several things, namely attitude, subjective norms, perceived behavioral control, environmental awareness, moral obligation, situational factors, motivation, intention and behavior [5,6]. In attitude indicator, researchers ask questions to students, namely what motivates you to waste separation at the University and in your environment? For the subjective norm, who influences you to participate in waste separation. Are they the closest people, universities, communities or self-awareness? For perceived behavioral control, what is the basis for your decision to participate in separate waste? Is this considered a task or because of his own wishes? For environmental awareness, does your involvement in separate waste aim to gain economic benefits or because of health factors? For moral obligation, are you involved in separate waste because of the responsibility factor? For situational factors, are you influenced by circumstances such as lack of trash, trash can that is located far from home, the smell of rotten waste in waste separation? For motivation factor, do you separate waste because of the incentives from campus? For the intention factor, will you do separate waste regularly even if there is no benefit from the activity? For behavior, do you have a habit in waste separation?



**Figure 1.** Framework based on data and analysis

The figure above shows that there are several factors that can motivate or influence youth in their activities to separate waste.

### **3. Method of Research**

This study applies qualitative methods, namely semi-structured interviews. Interviews were conducted on students that were involved in "Kuliah Kerja Nyata" (field activities) program in Makassar City, South Sulawesi Province, Indonesia. The number of students was 30 people from July to September 2018. Then, researchers and students also conducted workshop activities that aimed to provide information and training to the community in reuse and recycle. Students involved in the program came from various faculties such as social and political sciences, economics and business, marine science and fisheries, engineering, medical, health and society, and law faculties.

### **4. Analysis and discussion**

Students involved in the field activities program manage waste by 5R (Reduce, Reuse, Recycle, Replace, Replant). This activity for the majority of students was conducted because they are aware and caring for the environment. Several groups of students handled plastic waste as a planting medium in the cultivation of environmentally friendly viticulture systems. This activity is one way that can provide benefits to the community around the landfill site [7].

Students' concern for waste sorting was conducted regularly even though the trash can was located far from the home or student's learning location. Students also invited community leaders, the government as stakeholders, employees in hospitals located in locations, youth leaders to come to a meeting in the village office. Students taught participants about the benefits of sorting garbage. Teaching people to separate their waste is not an easy matter to need a communication campaign to introduce moral and trust concerns [8].

Students were very enthusiastic in teaching people to sort waste. The waste sorting activity was a movement in supporting the government programs of Makassar City under the name "Makassar Tidak Rantasa" (Makassar is not Dirty) (MTR), "Lihat Sampah Ambil" (See and Grab Trash Movement) (LISA), and "Lorong Garden" (Alleyway Cleaning Program) (LONGGAR). This government program has a positive impact because most people in Makassar City show a change in their life patterns, especially in separating organic and non-organic waste [9].

Then students also enthusiastically taught the public about the importance of recycling plastic waste. To support these activities, innovation and technological development are needed. Collaboration between the government and the private sector in opening the market for recycled waste is also needed [10]. Students further explained to the public about the economic benefits of recycling plastic waste [11]. Students asked the public to change the perspective of plastic waste because plastic waste has great potential to be developed through the process of recycling, reuse or remanufacture. The activity has created economic circular that can support a single-family economy. Economic circular can provide a good influence in supporting the family economy and environmental cleanliness and in line with the objectives of Sustainable Development Goals (SDGs)

### **5. Conclusion**

The involvement of students in waste sorting activities is very necessary. Adopting the planned behavior theory, this study investigates that the factors contained in the planned behavior theory affect students to participate in separate waste. Students have a high commitment to give attention to the environment around them especially in waste separation. Student awareness in creating new economic chains of plastic waste is also taught to the public. In addition, this condition can reduce the burden of landfills.

## 6. Limitation of Study and Future Research

This research has limitation such as there were only a few students involved in research and activities are only carried out in one city. Future research can involve more students. Research activities are also not only in one city but can be done in big cities in Indonesia which have more plastic waste.

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