



Improving The Ecopreneurship Spirit Of UIN Syahada Padangsidempuan Students By Utilizing Used Bottles

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Abstract

The goal of this study is to determine how environmental awareness may be developed in students through problem based learning on environmental chemistry courses. Environmental chemistry includes not just exposing compounds to water, soil, and air, but also to the pollutants that harm them. Furthermore, the main source of pollution in the environment is the result of human activity, so it is hoped that practices in environmental protection will be instilled in students as agents of change in society, such as how to minimize waste and convert disposable items into items that can be reused. This study employed a qualitative approach, employing observation instruments, interviews, reflective journals, and questionnaires. According to the research findings, the solution was developed by students with several activities, namely processing plastic waste into selling value and socializing the reduction of disposable waste to students at UIN Syekh Ali Hasan Ahmad Addary Padangsidempuan so that students are more responsible for the environment, reducing waste by personal use, and participating in the reduction of single-use waste. As a result of this research, student knowledge of the environment is increased, and they even participate in garbage reduction and creative waste development.

Keywords: *environmental awareness; problem based learning; environment chemistry*

Abstrak

Tujuan dari penelitian ini adalah untuk mengetahui bagaimana kesadaran lingkungan dapat dikembangkan pada mahasiswa melalui pembelajaran berbasis masalah pada mata kuliah kimia lingkungan. Kimia lingkungan tidak hanya mempelajari tentang senyawa-senyawa yang ada di air, tanah, dan udara, tetapi juga tentang polutan-polutan yang mencemari lingkungan tersebut. Selain itu, sumber utama pencemaran di lingkungan adalah hasil dari aktivitas manusia, sehingga diharapkan praktik-praktik dalam perlindungan lingkungan dapat ditanamkan kepada mahasiswa sebagai agen perubahan di masyarakat, seperti bagaimana meminimalisir sampah dan mengubah barang sekali pakai menjadi barang yang dapat digunakan kembali. Penelitian ini menggunakan pendekatan kualitatif dengan menggunakan instrumen observasi, wawancara, jurnal reflektif, dan kuesioner. Berdasarkan temuan penelitian, solusi yang dikembangkan oleh mahasiswa dengan beberapa kegiatan, yaitu mengolah sampah plastik menjadi barang yang bernilai jual dan mensosialisasikan pengurangan sampah sekali pakai kepada mahasiswa di UIN Syekh Ali Hasan Ahmad Addary Padangsidempuan agar mahasiswa lebih bertanggung jawab terhadap lingkungan, mengurangi sampah secara pribadi, dan ikut berpartisipasi dalam pengurangan

sampah sekali pakai. Hasil dari penelitian ini, pengetahuan mahasiswa tentang lingkungan meningkat, dan mereka bahkan berpartisipasi dalam pengurangan sampah dan pengembangan sampah kreatif.

Kata kunci: *kesadaran lingkungan; pembelajaran berbasis masalah; kimia lingkungan*

INTRODUCTION

Human life certainly will never be separated from the environment. Humans grow together with their environment, so that the environment is also greatly influenced by human activities. The current environmental problems in Indonesia are illegal logging, water pollution due to both industrial and household waste, air pollution in urban areas, and the decline in the quality of biodiversity, resulting in an abundance of waste that cannot be decomposed even for hundreds of years. This problem departs from the lack of public awareness in protecting the environment and awareness of the negative effects of managing the use of everyday life items that end up as waste.

Plastic waste has become a serious problem in Indonesia, especially in urban areas. Most people choose to dispose of plastic waste in various public places such as roads, rivers or empty yards. Considering that plastic waste is difficult to decompose, it will interfere with environmental hygiene and health. If waste disposal gets out of control, it will result in accumulation of waste in Temporary Storage Sites (TPS) and Final Disposal Sites (TPA) (Ni'mah et al., 2021).

The main problem with using plastic is plastic waste which cannot be decomposed naturally. It takes a very long time to remove plastic waste from the earth, because the use of plastic is difficult to control, almost all sectors in human life use plastic. Plastic is also capable of heating the earth by making the air temperature hotter day by day, due to the non-porous polymeric nature of plastic. Currently, most plastic products are produced without any planning regarding their waste after they are used (Wilastrina et al., 2021). Some manufactured plastic products are designed to fail within a certain period of time, known as “planned using”. This design philosophy has led to an overflow of plastic waste on land and in the earth's oceans. Processing this plastic waste requires a large investment and a complete restructuring process (Selintung & Lando, 2021)

By utilizing this waste, we can add economic value. As stated by (Erfan et al., 2021) that waste is also a potential resource that can be utilized so that it has added value as a recycled product or a new product that improves one's economy

One type of waste that is quite a lot is plastic bottle waste. Garbage is a waste or waste product in solid form as a human activity that is considered no longer useful. The use of plastic in human life is increasing. This increase in the use of plastic occurs because plastic is lightweight, plastic, economical and can replace the function of other goods. This practical and economical nature causes plastic to be used as disposable goods, so that more and more plastic equipment is used, especially in drinking water containers made from plastic bottles.

Bottle waste whose disposal is increasingly uncontrolled and haphazard has become a very worrying problem. Waste accumulation that exceeds the limit has appeared in several big cities, Temporary Shelters (TPS) and Final Disposal Sites (TPA) are full. thus polluting the environment and can cause disease in the vicinity of residential areas, even the danger of flooding can threaten due to careless disposal of waste.

The impact of plastic waste piles will inhibit the absorption of water and sunlight so that it will reduce soil fertility and is the main reason for flooding. In addition, waste that is exposed to ultraviolet light will undergo photodegradation which will break down plastic into small pieces which contain toxic materials such as BPA (bisphenol A) which, if entered into the food chain, will have a prolonged impact to the top of the chain. Many people choose to decompose plastic waste by burning it, unfortunately this method will produce smoke containing dangerous CO₂, CO, NO₂, and SO_x because it can cause respiratory damage to those who inhale it and cause the phenomenon of acid rain if it accumulates in the atmosphere in large quantities (Maharani et al., 2022).

Based on the things that have been decomposed before, there should be a way to process or utilize this used plastic waste. Especially used bottle waste that we often encounter on the road. In processing it, we can increase the economy where the used bottles used can be of sale value, in recycling used plastic bottle waste to save the existence of cleanliness on our beloved campus at Syekh Ali Hasan Ahmad Addary Padangsidempuan State Islamic University.

The theme taken from this activity was to implement the Utilization of used bottles into something useful and worth selling and to reduce used plastic bottle waste, for students at the State Islamic University of Syekh Ali Hasan Ahmad Addary Padangsidempuan.

RESEARCH METHODS

This research was conducted at UIN Syekh Ali Hasan Ahmad Addary Padangsidimpuan. The research subjects were students who were randomly selected. The research design follow by figure 1.

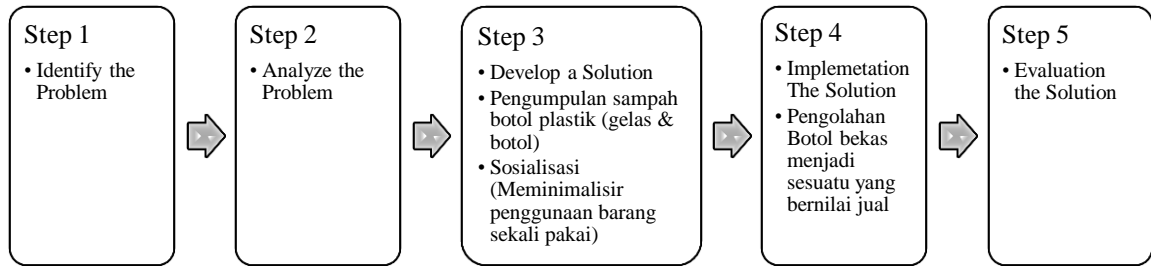


Figure 1. Reseach Design

RESULTS AND DISCUSSION

We collected the plastic bottle that was carried out under the beautiful tree of the new Tarbiyah and Teachers Training Faculty of Syekh Ali Hasan Ahmad Addary Padangsidimpuan State Islamic University in the form of trash cans that have been designed in such a way, so that students can dispose of used bottle waste and glass waste according to the place.



Figure 2. Trash can for used bottles and used drinking g;asses

The results obtained from the trial placement of the trash bins that were carried out still cannot be applied by students at the State Islamic University of Syekh Ali Hasan Ahmad Addary Padangsidimpuan. Due to the awareness of disposing of waste in its place and the selection of waste is not as expected. The results of this research are still in the trash that should be

specifically for plastic bottles and aqua bottles for other waste. Students are still lacking awareness of things in sorting the waste. Therefore socialization was carried out for students so that they could implement waste sorting, dispose of waste in its place and so on which can maintain cleanliness in the campus environment.

The processing or utilization that we make for the socialization of this processing is in the form of simple products whose main ingredients are used bottles and used drinking glasses which are used for daily life, so they don't become waste, and the results of processing products



that are carried out can be of sale value to increase economy.

Figure 3. Processing of used bottles and used drinking glasses

As for the products we make, as shown in the picture above, in the form of pencil cases covered with flannel, flower pots, and bags from used drinking glasses that can be used as pencil cases, wallets, and store items in accordance with the place.

Furthermore, the socialization regarding the processing of used bottles which was carried out at the Syekh Ali Hasan Ahmad Addary Padangsidimpuan State Islamic University went smoothly.





Figure 4. Socialization of the use of used bottles and used drinking glasses

The results of the interviews obtained regarding the use of used bottle waste on students at the State Islamic University of Syekh Ali Hasan Ahmad Addary Padangsidempuan stated that the existence of used bottle waste on the campus of the State Islamic University of Syekh Ali Hasan Ahmad Addary Padangsidempuan is very much, so the significance is that it is less controlled or students from the UIN Shahada campus still lack awareness about garbage disposal. In fact, it's not just bottles of used trash, which in my opinion are small, like tissue candy wrappers, they are very scattered in the area around the campus, not only in the area in the middle of the campus, there are also in the classroom, which we know is a place where We study with lecturers, right? Not only in class, but in the hallways or corridors of the faculty, there's not much, but there's trash that's in the small category, like candy wrappers, tissues or good paper, like cell phones, notebooks and so on. so on. So basically the existence of garbage is very polluting the campus environment because there are still many students who throw garbage carelessly, and lack cleanliness in the campus environment.

The way to deal with the impact of used bottle waste is by holding cooperation between students and cleaning staff so that they are aware of disposing of waste in its place or turning used bottle waste into handicrafts that have market value and can also be reused in everyday life.

In terms of recycling, most of the students at the State Islamic University campus, Syekh Ali Hasan Ahmad Addary Padangsidempuan, stated that they had recycled plastic bottle waste into something that has market value and has benefits for everyday life. Like how they do recycling when they are in elementary school (SD), junior high school (SMP), and senior high school (SMA). At the time of entering lectures, most students no longer apply this due to the

tight schedule of lectures and the many assignments that make these students do not have the opportunity to process them

CONCLUSION

The conclusion obtained from the use or processing of used bottles carried out under a beautiful tree on the campus of Syekh Ali Hasan Ahmad Addary Padangsidempuan State Islamic University states that there is still a lack of student awareness about the utilization or processing of used bottle waste and used drinking glasses, because there are still many students who do not throw them away waste in its place, and there is still a lack of awareness about the importance of processing waste.

Efforts to Reduce Plastic Waste, especially used bottle waste and plastic drinking cups as a basic ingredient for products that have sales value, are good steps to reduce plastic waste. By recycling this waste, you can help reduce the amount of plastic waste that ends up in landfills or in the environment.

In converting used bottles and plastic drinking cups into products with selling value, it shows creativity and innovation. By creating attractive and functional products from materials previously considered waste, you can demonstrate an ability to think outside the box and create unique solutions. Producing a valuable product from used bottles can be a potential source of income. If the products are sold at the right price and are well advertised, there is an opportunity for financial gain.

Using used bottles as materials for value-added products can also increase environmental awareness among the public. By educating people about the benefits of recycling and the importance of reducing plastic waste, we can contribute to changes in behavior that are more sustainable and environmentally friendly.

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