

Utilization of Styrofoam Waste as Learning Media

Yenni Friska Br Tarigan

yenni.friska92@gmail.com

Universitas Pendidikan Indonesia

Abstract: This study aims to see the development of learning media by utilizing inorganic waste to improve students creative thinking and ecoliteracy skills. This research uses descriptive analysis method, the instruments in this research are journals, books, and articles. The data collection technique used in this research is through literature study. The results of the analysis show that the movement to reduce waste by utilizing inorganic waste as a learning media has been carried out. Various creations and innovations have been carried out by students and teachers in utilizing waste as a learning media. Utilization through project based learning activities and the development of design modules regarding waste recycling. The impact of non-recyclable waste is that people have to think creatively and innovatively to find solutions for the accumulation of waste around their environment. the development of learning media by utilizing inorganic waste can increase the ecological intelligence of students when addressing problems related to waste.

Keywords: Social studies learning media, creative thinking, ecoliteracy, inorganic waste, environment

Introduction

Until today, waste is still a serious problem for the environment. Mounting piles of garbage, toxic gases produced, and obstacles to waste management are still hot topics of discussion. Various countries are trying to be able to control waste in their respective countries, including Indonesia. Data from the National Waste Management Information System (SIPSN) of waste piles in Indonesia reached 33,113,277.69 tons in 2020 consisting of 275 districts/cities throughout Indonesia. The top three dominating wastes are food waste, plastic, and wood/twigs/leaves. While the most sources of waste come from households, traditional markets, and areas. Plastic waste in Indonesia is the main source of waste weight accumulation, especially plastic is decomposed within 1 millennium or about 1,000 years.

Among the various types of plastic waste, Styrofoam is one of them. Styrofoam is said to be eternal trash because it cannot be decomposed. Meanwhile, the use of Styrofoam in society is increasing all the time. The various forms of Styrofoam and various sizes give a practical impression to the community. Just a small example if we buy seblak, fried rice, or even chicken porridge, traders usually have provided a place in the form of Styrofoam for buyers. In fact, the use of styrofoam is also harmful to health. So that Styrofoam not only attacks the environment but humans can also be affected.

Plastic and styrofoam materials that are hazardous to health are monomers, dibutyl phthalate (DBP) and dioctyl phthalate (DOP), lead (pb), nitrosamine compounds, plate esters, bisphenol-A (BPA) compounds pentachloro biphenyl. These materials can potentially cause tumors to cancer, especially in the liver, thyroid, uterine and livercancers, respiratory system irritation, blood cancer or leukemia (Utami, et al, 2020). This indifferent attitude to the dangers of Styrofoam can pose other challenges for humans besides the problem of waste that is difficult to decompose.

Every object has its own value and value for humans. Often we buy without paying attention to the impact on ourselves. Goleman (2010:2) reveals that

"each object has a history and future, background and ending that largely escape our observation, leaving a series of consequences that start from the initial extraction and mixing of materials, during manufacture and transportation, to the unseen consequences of its use in homes and workplaces, right down to disposal." This is what we are experiencing today.

Being lulled by the ease and sophistication of technology, as well as practical life makes people forget about environmental sustainability. There are still many people who are not aware of the importance of environmental sustainability. The distribution and types of waste seem to be real evidence. There are still many areas that do not have trash bins and even waste processing sites. In fact, not infrequently residents choose an alternative way by burning garbage.

Burning garbage will make the environment look more worrying. Based on the Regional Regulation (PERDA) No. 2 of 2005 concerning control of air pollution, burning garbage either in one's own environment or in a dumping ground in the vicinity of one's residence has been prohibited. When burning garbage, there will be harmful gases released from the burning process. Garbage that is burned will release carbon dioxide (CO₂) which can increase global warming. In addition, the chlorine produced by garbage can damage the earth's atmosphere. It is clear to us that one problem in general will attack the other joints of life like a chain that is intertwined with one another.

Waste processing is now not only the work of a few people, but all elements of society must work hand in hand to solve this problem together. Many things we can form from processed waste. Even from the waste of the coffers of the economy, we can actually get it. Therefore, this paper aims to overcome environmental problems related to Styrofoam waste and process it into social studies learning media.

Research Methods and Design

Implementation in this activity is carried out by observation and surveys in the

field first. The location of this research is Karanghaur Village, Bekasi Regency, West Java. Identification is carried out to find out problems and become study material in implementation. During the observation and identification, around people's houses and streets in the village. It was found that Karanghaur Village does not have a trash can and generally throw garbage into the yard around the house after that they will burn the garbage they have.

The technique used in finding problems in this research is direct observation. This observation shows the problem directly, the problem that is the subject of study, namely the accumulation of waste. The next process is to socialize and make examples of learning media using trash around students' homes, especially Styrofoam. Later this learning media will be adapted to the teaching materials on each topic of discussion.

Result and Discussion

Learning media are everything that can be used to convey messages or information in the teaching and learning process so as to improve student understanding. Learning media can increase interest, motivation, and provide stimulation for students in the teaching and learning process. All objects around can be used as learning media.

Utilizing Styrofoam as a learning medium is not only to transmit knowledge to social studies, but behind it to foster an attitude of caring for the environment towards students. This attitude of caring for the environment will build ecological intelligence in them. Ecological intelligence is built by intellectual intelligence, social intelligence, emotional intelligence, and even spiritual intelligence (Supriatna, 2017: 24).

The integration of the elements of intelligence will make students see from various sides of the environment. Not only from profits based solely on intellectual intelligence, but an attitude of caring, empathy, wanting to take care will also grow in them. Instilling an attitude of caring for the environment is actually given since childhood, so that when they grow up they will get used to

preserving the environment around them.

In social studies subjects which are an integration of social science disciplines, it will be easy to relate environmental issues to learning materials. This study will be an opportunity for teachers to increase curiosity and critical thinking in students. By bringing directly the results of the products they use every day as a learning resource, it will increase their empathy for the environment. Hopefully, the use of Styrofoam starting with them will decrease in the future.

In practice, teachers and students can collect garbage in the environment around the school and students who are made of Styrofoam. Then it will be adjusted to the teaching material at that time. In terms of natural resources, we can use Styrofoam as an example of the impact of environmental pollution, and we can turn Styrofoam waste into a learning resource, such as the topic of flora and fauna.

In addition to utilizing waste waste, here the teacher can hone students' creativity in being creative, an interlude in learning the teacher can insert the importance of protecting the environment in everyday life. Palmer& Neal in Supriatna (2017:199) explains "ecological competence in education can be achieved by developing sensitivity, awareness, understanding, critical thinking, and solving problems related to environmental problems and the formation of environmental ethics."

The concepts of ecology can be given by teachers to students. The campaign to care for the environment can be instilled in students from an early age. This media does not mean that it is an alternative in making other learning media. But this is a form of compassion for our environment. Through the use of styrofoam as a learning medium, it should give us a slap that we currently live among garbage. In this condition, what we want to emphasize is our caring attitude towards the environment. So that in the future we can reduce the production of waste in our homes.

Discussion and Recommendation

Lifestyle of modern society

The transformation of life from traditional to modern society has had positive and negative impacts on all aspects of life. In the technological lifestyle, every decade gives birth to a new sophistication that makes us increasingly dependent on technology. The results of technological engineering in the name of efficiency, hygiene, mass products, attractive packaging, durable storage, and others (Supriatna, 2017: 8), make people more immersed in the various products offered.

Almost all goods use plastic as a wrapper. When we don't know the impact of plastic, we just use it and throw it away. Every land has a trace of waste that is wasted without being treated first. Economic aspects are prioritized in the current era. The environment will lose out to economic interests. Every issue of equality between the economy and the environment is raised, then it will only become a discourse. “ *in a parallel development, during the industrial era, we also invented economics, an elaborate language deploying terms such as “ profit, marginal cost,” and “ market” to describe and justify the mechanisms of capitalist business* (Stone&Barlow, 2005: 57).

The footprint of our lifestyle is influenced by mere economic profit, but is manipulated with the words efficient, attractive, durable, and mass-produced. If it continues, it will be dangerous for sustainable development in the future. It cannot be guaranteed that the next generation will be able to enjoy nature like we do today.

Research conducted by Utami on health faculty students showed that the behavior of students was not good in using plastic and styrofoam for food wrapping as many as 151 students (53.5%) and good student behavior in using plastic and styrofoam for food wrapping as many as 131 students (46, 5%).

New lifestyle changes need to be made based on the data above. Social campaigns about the dangers of plastic need to be voiced louder. There are still many of us who are not aware of the dangers of plastic. Therefore, we can make

these changes starting from ourselves. A small example that we can do is stop using plastic straws and use stainless steel straws that can be washed and reused. Not just straws, we carry a drinking container wherever we need to do it. Considering all the packaging bottles that are traded in the market are made of plastic.

Sometimes we are lazy to do this, the attitude and mind to protect the environment is what we have to train from now on. Because it's not only us who feel the impact of environmental damage today, even creatures such as plants and animals feel the impact directly. Many trees are cut down and converted into oil palm land, animals have lost their habitat, and fish in the sea that consider waste as food eventually die because they consume the waste.

Changes in the lifestyle of modern society that are environmentally friendly must continue to be campaigned. This activity can not be instilled in our students who are still in school. Instilling moral values about the environment from an early age will be more effective than when they grow up. Therefore, the government, the community, parents, schools, and teachers work together to instill an attitude of caring for the environment.

The SDGs Points

Sustainable Development Goals (SDGs) are a global action plan agreed by world leaders, including Indonesia, to end poverty, reduce inequality and protect the environment. The SDGs contain 17 Goals and 169 Targets that are expected to be achieved by 2030. At the point of SDGs 2030 itself there are several points that we must heed, such as (1) good health and welfare, (2) responsible consumption and production (3) handling climate change, (4) protecting marine ecosystems, (4) protecting terrestrial ecosystems.

Each point above is a form of our concern for the environment in the future. This is a global goal, where not one country acts but every country. It is not one human being who struggles, but every element of society has a role. Here the role of large companies is also very important. How they can replace their

product materials to be environmentally friendly. Environmental pollution due to chemical reactions in nature needs to be a warning for all of us. That it's time we rethink about every product we wear. Where does it come from, what is the process of making it, where is the waste used, then how to decompose it after being used. In the current era, a critical attitude to protect the environment needs to be built. the consumer side also has a big impact as Goleman (2010:221) says "We have to look at the mentality of consumers as a whole".

As consumers, we are required to be smart in dealing with environmental problems. Consuming is not only for physical purposes, but also ecological aspects need to be considered. Currently, people are required to be smart buyers based on what they consume, what lifestyle they adopt, and what contribution they make to the environment. An example of a lifestyle that we want to instill and pass on to our next generation.

References

- Utami, A. M. Y., Listina, F., & Novariana, N. (2020, October). faktor-faktor yang berhubungan dengan perilaku mahasiswa dalam penggunaan plastik dan styrofoam untuk pembungkus makanan di fakultas kesehatan universitas mitra indonesia tahun 2020. *In Jurnal Formil (Forum Ilmiah) KesMas Respati e-ISSN* (Vol. 5, No. 2, pp. 129-146).
- Goleman,D. (2010). *Ecological Intelligence*. Jakarta: PT Gramedia Pustaka Utama
- Wirahadi, M. (2017). Elemen Interior Berbahan Baku Pengolahan Sampah Styrofoam dan Sampah Kulit Jeruk. *Intra*, 5(2), 144-153.
- Karuniastuti, N. (2013). Bahaya plastik terhadap kesehatan dan lingkungan. *Swara Patra*, 3(1).
- Supriatna,N. (2017). *Ecopedagogy: Membangun Kecerdasan Ekologis dalam Pembelajaran IPS*. Bandung: PT Remaja Rosdakarya.
- Stone,M and Barlow,z. (2005). *Ecological Literacy*. San Francisco: Sierra Club Books <https://www.sdg2030indonesia.org/>.