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Development of Social Media Content to Improve Digital Literacy Capability of Trilogi University Students Regarding the Importance of Applying the Concept of *Reduce, Reuse and Recycle* Waste by Grounding the Movement for the Love of the Environment

Febrianti Yuli Satriyani*, Benny Pasaribu

Trilogi University Jakarta, Indonesia,

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Abstract

This study aims to improve the digital literacy skills of students in Elementary School Teacher Education Study Program of Trilogi University by producing and publishing content in the form of pictures, posters, and videos that are digitally packaged in an attractive way and published on various social media instagram and youtube. The content contains information and education regarding the urgency as well as examples of implementing the concept of reduce, reuse and recycle (3R) waste by grounding the movement for the love of the environment. The development model applied is the ASSURE Model. With the steps, (1) analysis of student characteristics, (2) determining achievement goals, (3) choosing strategies, technology, media and materials for publication, (4) application of technology, media and materials, (5) trials and dissemination, and (6) assess and revise the effectiveness of multimedia. The results of the study show that the developed multimedia has proven to be theoretically with a validity level in terms of learning technology of 86% and in terms of material of 85%. Based on small-scale and field-scale trials, it was found that the development of this multimedia proved to have an attractiveness rate of 75% on a small scale and increased to 90% on a field scale. The level of effectiveness in achieving the goal is having an understanding of the importance of applying the 3R concept for students by 80% on a small scale and increasing to 88% on a field scale.

Keywords: *Social media, digital literacy, reduce, reuse, recycle, waste*

Introduction

The rapid development of science and technology as access to information requires skills in digital literacy for the community. Literacy has a very broad scope. Literacy is not a talent but a skill that must be trained. In the 21st century, literacy skills are an urgent need that must be owned by anyone to be able to compete globally. Digital literacy is the knowledge and skills to use digital media, communication tools, or networks in finding, evaluating, using, creating information, and utilizing it in a healthy, wise, intelligent, accurate, precise, and law-abiding manner in order to foster communication and interaction in daily life.

Garbage is an item that humans produce every day, both in the form of organic and non-organic waste. Currently the volume of waste in Indonesia continues to increase.

Based on data obtained from the Ministry of Environment and Forestry (KLHK) on September 8, 2020, it was stated that waste accumulation in Indonesia currently reaches 64 million tons per year or the equivalent of 64,000,000,000 kg/year. In 2020, the amount of waste until October 2020 has reached 67,800 kg. Data from the international FAO shows that Indonesians produce 13 million tons of food waste annually. This also makes Indonesia the second largest producer of food waste after Saudi Arabia (Widiyarto, 2020).

The fact that the amount of waste generated by the Indonesian people is a chore for all of us. This happens because not all people have the same understanding of the importance of applying the concepts of *reduce*, *reuse* and recycle waste. Data from the Ministry of Environment and Forestry (KLHK) on 3 September 2020 explains that, three main problems in waste management in Indonesia are: (1) 72% of people are not aware of the importance of managing waste, (2) the amount of plastic waste is increasing over time over time, and (3) the lack of capacity of the Regional Government in managing waste properly and correctly. The pattern of waste management

*Corresponding author's ORCID ID: 0000-0000-0000-0000
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in Indonesia still depends on landfilling in final disposal sites (TPA), which is 69% of the total waste landfill. Data on waste that has not been. managed is 8.5%, waste that has been used is only 7.5%, and other waste processing such as incineration is 5% and that which is buried is 10% (KLHK, 2020).

When thousands of tons of organic and non-organic waste are allowed to soar in the Final Disposal Site (TPA) without adequate processing technology, that's when the time bomb begins to tick (Widiyarto, 2020). When ton after ton of waste is allowed to pile up and is not exposed to oxygen, methanogens (methane gas) appear and are stored beneath the surface of the waste. Methane gas is flammable, capable of exploding like a bomb, so it is not surprising that fires of unknown origin often occur in landfills (Widiyarto. 2020). One of the phenomena that occurred due to the accumulation of waste was, on February 21, 2005, the Leuwigajah Final Disposal Site exploded due to extraordinary methanogen deposits in the TPA. It was recorded that 143 people died and leveled two villages. This is the tragedy that we now remember as National Waste Awareness Day. This event is a reminder of how (organic) food waste can be something very dangerous.

In addition to the hazards above, based on information from the Ministry of Environment and Forestry (2020), 50 billion single-use plastic bottles are produced every year. To produce these plastic bottles, water is required three times the volume of these bottles and 17 billion barrels of fuel (enough to fuel 1 million cars/year). If the plastic is recycled: 20-23%/year, then 38 billion plastic bottles become waste. Currently, Indonesia is the world's second highest contributor of plastic waste in the sea, 187,000,000 tons or the equivalent of 187,000,000,000 kg.

Based on these problems, the government issued various regulations related to waste, both the central government (KLHK) and local governments. The essence of the regulation is that waste must be managed with the 3R concept (reduce, reuse and recycle) (KLHK, 2020). Several government regulations related to waste, namely, (1) Law 32/2009 concerning Environmental Protection & Management, (2) Law 18/2008 concerning Waste Management, (3) PP 81/2012 concerning Household Waste & Similar Waste Management, (4) obligation from minister of environment No.13/2012 concerning Waste Banks, and (5) Presidential Regulation No. 97 of 2017 concerning National Policy and Strategy for the Management of Household Waste and Household-like Waste (23 Oct 2017).

The message from the Deputy Minister of the Ministry of Environment and Forestry is that the young generation is a potential asset as an environmental agent. The younger generation has an important role in supporting environmental and forestry conservation. The Ministry of Environment and Forestry continues to raise awareness and concern for the younger generation (millennials) to plant trees, reduce (especially) plastic waste, sort waste from its source, and preserve the environment. (Dohong,Alue. 2019).

Based on the phenomena above, the researcher is moved to jointly support the government to maintain the health and cleanliness of Indonesia's environment through the national caring movement through the development of social media content to improve digital literacy skills and the technosociopreneurship spirit of the Indonesian people regarding the importance of implementing the 3R concept (*reduce, reuse). and recycle)* waste by grounding the love for the environment movement. The hope of this research is that by developing interesting educational content related to the socialization of the 3R movement, it can increase student awareness. In addition, it is hoped that the community will also have a technosociopreneur spirit to sort, process, recycle and reuse both organic and non-organic waste that is produced.

This is in accordance with the obligations of everyone, area managers and waste producers based on KLHK regulations, namely, (1) everyone is required to reduce and handle waste in an environmentally sound manner, (2) managers of residential areas, commercial areas, industrial areas, special areas, public facilities, social facilities, and other facilities must provide waste segregation facilities, (3) each producer must put a label or sign related to waste reduction and handling on the packaging and/or product, and (4) producers must manage the packaging and or goods produced which cannot or are difficult to decompose by natural processes.

The phenomenon of people's lack of understanding about the importance of applying the 3R concept to waste is one of the reasons for this is the lack of media publications, sources or materials explaining this concept. Having the knowledge, understanding and awareness to implement the 3R concept is very necessary, considering that Indonesia is currently the second largest waste producer in the world. Strengthening the understanding of digital literacy can be obtained through the dissemination of the 3R concept and the love for the environment movement in the form of interesting content such as pictures, posters, rhymes, songs, videos and serial stories that are current and published through social media which are widely used by all levels of society, especially the younger generation. namely Instagram, facebook, tik tok, and youtube.

By obtaining a good understanding of the importance of implementing the 3R concept, as well as examples of applying the concept so that it can bring benefits to the perpetrators, it is hoped that this can lead to the emergence of a new profession, namely as a technosociopreneur. Because having an understanding of *reduce* can reduce the volume of organic and non-organic waste produced in Indonesia, given the very long time it takes for waste to decompose, especially non-organic waste. Thus minimizing the chances of floods, TPA exploding, disease outbreaks, and negative . In addition,

by having an understanding and awareness of the importance of the concept of *reuse* and *recycle* waste, it is hoped that it can increase people Indonesia so that new talents emerge, technosociopreneur who manage waste into goods that have higher economic value and are environmentally friendly, so that they can have an impact on improving the quality of economic development and preserving Indonesia.

This research will be conducted by lecturers and students of Elementary School Teacher Education Study Program Semester 1 in the Leadership and Management course. The process of making media in social media content is more focused on developing media and learning resources with the theme "I and the Environment". Students are directed to create creative content in the form of pictures in the form of posters and short videos related to the importance of keeping our earth's environment clean by applying the 3R concept (*Reduce, Reuse and Recycle*).

Based on the description above, the researcher feels it is important to conduct development research with the title, "**Development of Social Media Content to Improve Digital Literacy Capability of Trilogi University Students Regarding the Importance of Applying the Concept of *Reduce, Reuse and Recycle* Waste by Grounding the Love the Environment Movement*".***

Problem Formulation

Based on the background above, the problem formulation of this research is:

1. How is the process of developing social media content to improve the digital literacy skills of Trilogi University students regarding the importance of implementing the concept of *reduce, reuse and recycle* waste by grounding the love for the environment movement?
2. What is the level of validity, attractiveness and effectiveness of social media content regarding the importance of implementing the concept of *reduce, reuse and recycle* waste by grounding the movement for the love of the environment which was created so as to increase the digital literacy skills of Trilogi University students?

Research Objectives

This research aims to produce social media content to improve digital literacy skills and the techno-socio-preneurship spirit of Trilogi University students regarding the importance of implementing the concept of *reduce, reuse and recycle* waste by grounding the movement for the love of the environment which is theoretically, has good attractiveness values and effectively achieves objectives.

Research Methods

This research uses this type of research and development of the ASSURE model. The steps in this research are six stages, namely, the first step is to analyze the characteristics of students which include general characteristics, basic competencies regarding 3R and the implementation of the love of the environment movement, as well as student learning styles. The second step is to determine learning achievement goals based on the curriculum and national goals (competencies and indicators) that are used as references. The learning outcomes objectives include what competencies students must have in terms of knowledge, skills and attitudes *(action)* after the educational process.

The third step is to choose strategy, technology, media and materials. The selection of strategies must be adjusted to the content of the material (3R concept) and student characteristics and learning styles. The fourth step is to use the technology, media and materials developed and package them in learning multimedia for use by researchers and students in the learning process. The fifth step is validating the media that has been developed for learning technology experts and material experts. The sixth step is the trial, namely student participation in using the developed multimedia and assessing whether the media meets multimedia aspects that are in accordance with student development such as the level of attractiveness, validity, effectiveness in achieving goals.

The location of this research is at Trilogy University, which is located at Jl. TMP Kalibata No. 1 Jakarta. The subjects were 1st semester students in the Trilogi University PGSD Study Program with a total of 43 students.

The assessment of the validity of the developed media comes from a questionnaire to the validators of learning technology experts and material experts. An assessment of the attractiveness of the product being developed was obtained from the number of likes and subscribers on the Instagram and YouTube platforms. The effectiveness aspect was assessed from the discussion process between researchers and students regarding the importance of conveying and applying the concept of reduce, reuse and recycle waste for students of the Trilogy University elementary school teacher education study program.

Results and Discussion

This study aims to produce social media content in the form of posters posted on Instagram and videos uploaded on YouTube containing messages and invitations to apply the concept of *reduce, reuse and recycle* waste by grounding the movement for the love of the environment which aims to improve the digital literacy skills of Trilogy University students which are theoretically, have value good attractiveness and effectively reach the goal.

1. Creating Social Media Content Regarding the Importance of Implementing the Concept of *Reduce, Reuse and Recycle* Waste by Embracing the Love of the Environment Movement The

development products created are social media content in the form of posters and videos regarding the importance of the movement to reduce, reuse and recycle waste. This activity is implemented in the implementation of the Mid-Semester Examination for the Leadership and Management Study Program for Elementary School Teacher Education at Trilogy University. The manufacture of products is carried out by all class participants in groups. One group consists of 3-4 students. The details of making the multimedia are:

1. Analysis of Student

Characteristics of Trilogy University Elementary School Teacher Education Study Program students aged 18-21 years, actively communicating and having critical thinking. All students are able to operate laptops and *smartphones* to create social media content, either in the form of pictures or posters or videos. Students also have intelligence, namely having the flexibility to collaborate and cooperate with friends in their group. Students belong to the younger generation who have the ability to think critically and can work together to create multimedia containing information on the 3R (*reduce, reuse and recycle*) movement of waste.

2. Setting Learning

Objectives The learning objectives set are:

1) Students understand the 3R concept, namely *reduce*, *reuse*, *and recycle* (recycle) waste.
2) Students are able to explain the importance of applying the 3R concept in everyday life.
3) Students are able to create digital content in the form of posters and videos calling for the 3R movement to be grounded.
4) Students are able to disseminate their posters and videos through Instagram and YouTube social media accounts.

3. Selecting Strategy, Technology, Media and Materials

The next step is selecting strategy, technology, media and materials. The strategy used by researchers is to give assignments to students in groups to make posters and videos of the 3R movement which are published via Instagram and YouTube media. The Instagram and YouTube platforms are technology-based platforms that are currently booming and are popular with Indonesians for access. It is hoped that by disseminating information on the importance of 3R online/digitally it can effectively achieve goals and be efficient in terms of time and cost.

4. Producing Media

Multimedia production activities are carried out through several stages, namely planning, product creation, product validation and product dissemination activities Planning are carried out by researchers explaining: (1) the condition of the high number of waste generated by the State of Indonesia every day, (2) the 3R concept (*reduce, reuse and recycle*) waste, (3) discussing with students regarding urgency of implementing the 3R concept in Indonesia, and (4) concluded that it is very important to have an educational movement and apply the 3R concept in Indonesia.

The implementation activity began with the division of groups, namely the 44 students were divided into 11 groups. One group consists of 4 heterogeneous students (male and female, *low, intermediate* and *high*). Furthermore, giving assignments to all students to make works in the form of posters and videos about education and the importance of implementing the *reduce*, *reuse* and *recycle* waste in groups. Students are given time to work on product creation projects in the form of posters and videos for approximately 4 weeks. Furthermore, the product results are validated by experts.

A. Product Validation

Preliminary study activities that have been carried out serve as the basis for product development carried out by researchers and students. After the product has been developed, the next step is expert validation. This validation was carried out to measure the level of validity and attractiveness of posters and videos made by Trilogy University students from a theoretical.

Validation was carried out to educational technology experts and material experts. The product validation results show that the validity level of Learning Technology experts is 86% and the validity level of material experts is 85%. The suggestions and input from the validator are on aspects of writing, layout design and color, namely, (1) replaced with clearer letters and enlarged sizes, and (2) use of color composition, so that the size of the letters is adjusted. In the aspect of media display, images are added that are more familiar with the world of children and support the delivery of information.

1. Product Revision Phase 1

Suggestions and input from the validator are then used as material for consideration in revising the product that has been developed. Then a revision process is carried out, and the results of the revision are then consulted again with the validator. Then the valid product is tested by the researcher.

2. Small-Scale Product Trials

Activities carried out by researchers after conducting expert validation are trials with product simulations.

Individual scale trials were carried out through uploading posters on Instagram by representatives from each group. The result is that each group gets no more than 50 likes during a week of posting. The results of the implementation of individual scale trials of the developed multimedia are, in terms of attractiveness, 75% is achieved, and 80% is achieved in achieving the goal.

Table 1.1 Results of Likes and Subscribe media on Instagram and YouTube

.	Group	Likes on Instagram	Likes on Youtube
1	Group 1	46	88
2	Group 2	55	85
3	Group 3	23	85
4	Group 4	13	90
5	Group 5	85	88
6	Group 6	15	86
7	Group 7	28	90
8	Group 8	16	70
9	Group 9	25	88
10	Group 10	83	88
11	Group 11	26	88
	Total	**415**	**941**

3. Product Revision Phase 2

The second stage revision is carried out after small-scale product trials. Revisions are based on the number of likes and subscribers on Instagram and YouTube. Apart from that, it was also obtained from the input of lecturers in leadership and management courses. These inputs become study material for researchers to revise products that will be implemented in field-scale trials**.**

4. Field Testing of Products (Classes)

Field trials are carried out after the revision of the individual scale trial stage has been carried out. Field-scale trials were carried out with the aim of knowing the effectiveness and attractiveness of the developed multimedia (posters and videos). The trial was carried out by posting posters on Instagram by all students and videos on YouTube by group representatives. The instrument used in the field trial was to assess the attractiveness of the developed multimedia (posters and videos). The instruments used to assess the attractiveness of the product are the results of the number of likes and subscribers, as well as the effectiveness of the product with the wide publication of the 3R concept via Instagram and YouTube as well as the results of discussions regarding the urgency of implementing and publishing the 3R concept by students.

The results of the implementation of the developed multimedia field-scale trials were, in terms of attractiveness, 90% was achieved, and effectiveness in achieving goals was 88%. The data description of likes is as follows:

Table 1.2 Results of Likes and Subscribe media on Instagram and YouTube

No	Group	Likes on Instagram	Likes on Youtube
1	Group 1	131	190
2	Group 2	133	317
3	Group 3	106	213
4	Group 4	91	268
5	Group 5	267	319
6	Group 6	97	308
7	Group 7	110	345
8	Group 8	78	302
9	Group 9	108	396
10	Group 10	187	780
11	Group 11	294	616
	Total	**1,602**	**4,054**

The results of posts on Instagram show an increase, from small-scale trials to field-scale trials, that is, from 415 to 1,602. Apart from that, uploading videos on YouTube has also increased, from 941 to 4,054. this proves that the information conveyed can be received effectively by the public and get high enthusiasm by obtaining likes which continue to increase during the two weeks when the posting takes place.

Conclusion

Conclusions from the research. Development of multimedia in the form of posters uploaded on Instagram and videos uploaded on YouTube by students of the Elementary School Teacher Education Study Program has an attractiveness rate of 90% and an effectiveness of 88%. After conducting this research, students have a more adequate and in-depth level of understanding regarding the importance of applying the 3R concept (reduce, reuse and recycle) in everyday life, so that students and lecturers agree to disseminate their work through Instagram and YouTube pages with likes on Instagram. as many as 1,602 likes and on YouTube with a total of 4,054 likes within 2 weeks of running posts.

Suggestions

From the research results in the aspects of effectiveness and attractiveness of the media all are in very good criteria so that they can be used as a basis for disseminating research results on a broad scale (national and international), so that they can be utilized by lecturers and students as well as teachers and other levels of society in the learning process, as well as education related to the importance of protecting our earth through the application concept *reduce, reuse and recycle* waste.

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