



Implementation of Audio-Visual Media Counseling on the Knowledge and Attitudes of Environmentally Lifestyles

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Abstract

Environmental knowledge and attitudes are human behavior or actions that are conscious of the environment based on responsibility. Environmental knowledge and attitudes are the opposite of the frontier mentality. The research focuses on looking at the extent to which the level of education can increase or influence the knowledge and attitudes of society in general. The research population is the people who live in the coastal environment of the city of Makassar. A total of 60 samples were divided into 2 (two) categories, each of which was 30 samples, namely the high-educated sample category and the low-educated sample. Purposive sampling is used as a non-random sampling technique. The instrument used in collecting data in this study is a questionnaire to determine the characteristics of respondents and the level of knowledge and attitudes of people's lifestyles. The data analysis technique used in this research is paired t-test with the IBM SPSS program. The results found that the community's initial ability to knowledge and environmental attitudes from research instruments that were carried out initial tests before counseling still tended to be low because people still had not known and studied. This means that environmental education for higher education is indirectly less effective in increasing knowledge of environmental, but audio-visual media is very effective for low education.

Keywords: *Environmental Education; Environmental Health; Learning Media; Attitude; Knowledge*

Introduction

The environment has a crucial role in supporting the life of every living thing on earth. Humans and the environment interact with each other and are reciprocal relationships that will take place continuously (Beerling, 2017). This interaction occurs because humans need the environment to meet their needs. To support and meet the needs of human life and other living things, good environmental conditions are needed. If the environmental conditions are wrong, the fulfillment of the needs of every living creature and the balance of the environment can be disturbed (Beerling, 2017; Gottlieb, 2003). Looking at the above facts, it is necessary to pay attention/maintenance of the environment which is carried out based on the theory of Moeller, stating that environmental health is part of public health which pays attention to the assessment of understanding and controlling human impacts on the environment and environmental impacts on humans (Moeller, 2011). Currently, it is necessary to increase the favorable environmental factors and control the adverse factors. Environmental health is a reciprocal relationship

between humans and the environment that results in or affects the degree of human health, but it is necessary to monitor environmental factors that affect human health (Cairncross & Feachem, 2018). Environmental pollution is sometimes evident in our lives, such as piles of garbage on roads and markets, silting rivers filled with dirt, or shortness of breath due to exhaust fumes or factory chimneys.

There are also less visible, for example, the release of hydrogen sulfide gas from old oil sources. So does the deafening music that comes out of modern electronic equipment. Another negative impact of this pollution is household waste that accumulates the results of people's daily consumption, which causes an unpleasant odor. Even from a public health perspective, throwing it away and piling it up will become a breeding ground for various diseases and, when viewed from a beauty perspective (Akenji, 2014). Also becomes unsightly. With the impact and consequences of the destruction and pollution of the natural environment, the community must reduce and prevent the worst impacts that can be experienced. However, due to the lack of knowledge on managing environmental pollution, people should know that if it continues, the impact will be felt later in the decades or years to come by bringing unexpected disasters, such as floods, landslides, or during the monsoons (Thompson et al., 2009).

Environmental damage caused by humans through lifestyles that are not environmentally friendly can occur continuously and increase. This increase occurred along with bad behavior towards the environment (Frumkin, 2001; Miller & Spoolman, 2015). Human behavior towards the environment will determine the good or bad condition of an environment. Behavior is an action that arises and begins with an attitude. To change behavior, it is necessary to have a positive attitude towards the environment by caring for it. A positive attitude will encourage a person to be able to behave positively towards the environment. A positive attitude can also lead to negative behavior if there are no other supporting factors. For example, a student knows that littering is a bad thing, but when both parents are accustomed to littering, the student can bring up negative behavior in the form of littering. An attitude of caring for the environment is needed so that environmental damage does not increase. In this case, caring for the environment needs to exist in every community because the community plays a vital role in protecting the environment. The community's active role is also very much needed to carry out environmental conservation activities (Ali, 2019; Ronny, Arif, et al., 2019; Suarlin & Ali, 2020).

In addition, population growth also affects and changes the order of life, which can be seen in the attitude of the people who are starting to be individual, indifferent, uncaring, and dirty. This can be seen from their habit of throwing trash everywhere; crimes sometimes occur around settlements. The culture of disposing of waste is not always in its place; it is an undisciplined culture of the society that has harmed people's lives, either directly or indirectly. Environmental conditions in Indonesia are increasingly experiencing a decline due to the increasing fulfillment of community needs. The decrease in environmental conditions can cause environmental damage. Several factors can cause environmental damage. These factors are classified into two, namely natural factors and human factors. Based on these two factors, the human factor is the main factor causing environmental damage (R. Chopra, 2016). Volcanic eruptions, earthquakes, floods cause environmental damage due to natural factors. Environmental damage due to human factors is influenced by lifestyles that are not environmentally friendly such as forest burning and the use of technology that is not environmentally friendly. Both environmental damages due to natural factors and human factors can cause the environmental balance to be disturbed, which impacts human survival (K. Chopra & Gulati, 1997, 1998).

However, today the condition of the Indonesian people is still very alarming. This can be found in events that still often occur in the community. Both in the form of deviations from the rules, norms, and values that apply in society with various kinds of behavior. One of them is about the community's concern for the condition of environmental cleanliness. It is not surprising that Indonesian people are often concerned with problems related to environmental conditions. Garbage and the like such as liquid waste, and pollution, are problems that have a comprehensive negative impact that is detrimental, which disrupts natural ecosystems if not appropriately managed. In addition to causing unpleasant odors, garbage can

also be a media factor for various breeding diseases (Ronny, Arif, et al., 2019; Ronny, Irfai, et al., 2019; Ronny & Mulyadi, 2020). The negative impacts of wastes can extend to social impacts (disturbing comfort, beauty, and causing disease in humans), physical impacts (damaging soil structure, especially in the form of liquid oil, oil, chemical substances), and biological impacts (destroying biological components).

Research Methods

Research Design

This type of research is quantitative with experimental methods. The experimental design was carried out in two groups, and each group was given an experiment. This model uses an initial test (pre-test), then after being given treatment, another measurement (post-test) is carried out to determine the consequences of the treatment so that the magnitude of the effect of the experiment can be known with certainty. The treatment given (independent variable) is counseling using audio-visual media.

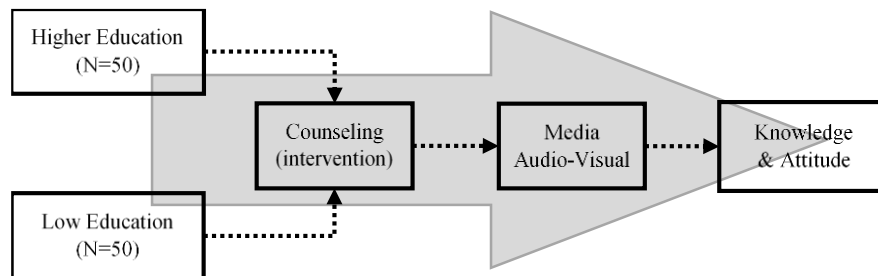


Figure 1: Research Implementation Design

The design that is considered the most appropriate is Pre-Experimental in the form of One-Group Pre-Test - Post-test. Because you want to see the effect, an intervention is needed. This design is not purely experimental because it does not use a control group but only performs the treatment group by taking initial measurements before the intervention and final measurements after the intervention.

Population and Samples

The population is a generalization area consisting of objects or subjects with specific qualities and characteristics determined by the researcher to be studied and then concluded. The population in the study is all people who live in coastal areas who are known to have a lifestyle that is not environmentally friendly and seems to tend to not care about the sustainability of the environment around where they live (Johnson & Christensen, 2019; Krippendorff, 2018; Walliman, 2017).

The sample is part of the number and characteristics possessed by the population. Sampling was carried out at the 95% confidence level or 5% critical value considering the critical value used in previous studies. In this study, 60 samples were divided into 2 (two) categories, namely for the high and low knowledge categories, each with 30 respondents. The number of samples (30 respondents) is the minimum number of samples for experimental research (Anderson & McLean, 2018; Creswell & Creswell, 2017).

Instruments

The instrument used in collecting data in this study is a questionnaire to determine the characteristics of the respondents and to determine the level of knowledge and attitudes of people's lifestyles. Knowledge and actions were measured using the Guttman scale, while attitudes were measured using the Likert scale. The knowledge variable is high if it scores 76% - 100%, moderate if it gets a value of 56% - 75%, and low if it gets a score of 40% - 55%. The attitude variable is said to be positive if the answer is > 50 and negative 50%.

Data Analysis

Based on the purpose of this study, the data analysis technique used in this study consists of several parts, namely:

1) Normality Test

The normality test of the data is needed to prove whether the variables from the data obtained are standard or not. The analysis used in this study is parametric statistics, so in this study, the data on each variable must first be tested for normality. In this study, the normality test of the data used was the Kolmogorov-Smirnov Test statistical test. With a significant level of 0.05, the data is declared normally distributed if the significance is greater than 5%. For guided decision making:

- Significance value or probability value < 0.05 , the data distribution is not normal.
- Significance value or probability value > 0.05 , the data distribution is normal

2) Uji Paired Sample T-Test

Paired t-test is used as a comparative or difference test if the data scale of the two variables is quantitative (interval or ratio). This test is also known as the pairing T-test. The paired t-test is a parametric difference test on two paired data. Following this understanding, it can be explained in more detail that this test is intended for different tests or comparative tests.

By comparing whether there is a difference in the mean or mean of the two paired groups. Paired means that the data source comes from the same subject. Perform analysis by processing data to compare the increase in the level of knowledge and attitudes of people's lifestyles before and after the intervention using audio-visual media using statistical techniques in the form of a two-average difference test (dependent sample t-test). The dependent sample t-test, in principle, will compare the average of the same variable.

Result and Discussion

Characteristics of Respondents

The research characteristics are divided into 3 (three), namely gender, respondent's age, and level of education. The distribution of the characteristics of the respondents in this study can be seen in the table as follows:

Table 1: Distribution of Respondents Characteristics

| Category | Frequency (N=50) | Percent (%) |
|--------------------|-------------------------|--------------------|
| Gender | | |
| Men | 26.00 | 43.33% |
| Women | 34.00 | 56.67% |
| Age | | |
| < 20 years | 3.00 | 5.00% |
| 20 – 30 years | 13.00 | 21.67% |
| 30 – 40 years | 22.00 | 36.67% |
| 40 – 50 years | 16.00 | 26.67% |
| > 50 years | 6.00 | 10.00% |
| Education | | |
| Elementary School | 6.00 | 10.00% |
| Junior high school | 12.00 | 20.00% |
| Senior High School | 31.00 | 51.67% |
| College/University | 11.00 | 18.33% |

Table 1 shows that the gender of the respondents is dominated by women with 56.67% (34 of 60 respondents), then men with 43.33% (26 of 60 respondents). Many female respondents are due to their enthusiasm for the activities that have just been carried out at their residence. The age category of most respondents ranged from 30-40 years by 36.67% (22 out of 60 respondents). This age is included in a person's productive age, and there is a tendency to influence others. The education level category of most respondents is in high school education with 51.67% (31 out of 60 respondents). Education is essential to implement an environmentally friendly lifestyle. There is a tendency for someone with a high level of education to know more knowledge.

In the respondent's education level category, there are 4 (four) categories which will then be classified into 2 (two) categories, namely Low Education (Elementary School and Junior High School) and Higher Education (High School and College/University). The distribution table for the Education category is as follows:

Table 2: Distribution of Respondents by Education Category (High and Low)

| Category | Frequency | Percent (%) |
|------------------|------------------|--------------------|
| Low education | 18.00 | 30.00% |
| Higher education | 42.00 | 70.00% |
| Total | 60.00 | 100.00% |

From Table 2, the results of the distribution of respondents' education categories (high and low education), most respondents were dominated by higher education levels (high school and college/university) of 70.00% (42 of 60 respondents)

Normality Assumption Test

Normality test is one of the basic tests carried out before conducting further or deeper data analysis. Standard data is often used as the basis for several statistical tests even though all data are not required to be normally distributed. Standard data itself shows that the data we use follows or approaches a normal distribution (the data distribution is not skewed right or left). The results of the normality assumption test can be seen in the table as follows:

Table 3. Kolmogorov-Smirnov Test (Lilliefors) knowledge variables

| | Low Education | | | Higher Education | | |
|---------------------|---------------|----|-------|------------------|----|-------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Before Intervention | 0.202 | 25 | 0.110 | 0.277 | 25 | 0.122 |
| After Intervention | 0.110 | 25 | 0.118 | 0.210 | 25 | 0.119 |

From Table 3 of results of the Kolmogorov-Smirnov (Lilliefors) normality test low education, the value is obtained Sig. for the data before the extension of 0.110 and the value Sig. for data after counseling is 0.118. Thus, it can be concluded that the value of Sig. for before and after counseling is more significant than 0.05, which means the data is normally distributed. For higher education results of the Kolmogorov-Smirnov (Lilliefors) normality test, the value is obtained Sig. for the data before the extension of 0.122, and the value Sig. for data after counseling is 0.119. Thus, it can be concluded that the value of Sig. for before and after counseling is more significant than 0.05, which means the data is normally distributed.

Table 4. Kolmogorov-Smirnov Test (Lilliefors) attitude variables

| | Low Education | | | Higher Education | | |
|---------------------|---------------|----|-------|------------------|----|-------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Before Intervention | 0.281 | 25 | 0.134 | 0.275 | 25 | 0.120 |
| After Intervention | 0.207 | 25 | 0.117 | 0.375 | 25 | 0.200 |

From Table 4 of the Kolmogorov-Smirnov (Lilliefors) normality test low education, the value is obtained Sig. for the data before the extension of 0.134 and the value Sig. for data after counseling is 0.117. Thus, it can be concluded that the value of Sig. for before and after counseling is more significant than 0.05, which means the data is normally distributed. For higher education results of the Kolmogorov-Smirnov (Lilliefors) normality test, the value is obtained Sig. for the data before the extension of 0.120 and the value Sig. for data after counseling is 0.200. Thus, it can be concluded that the value of Sig. for before and after counseling is more significant than 0.05, which means the data is normally distributed.

Statistical Analysis

A paired t-test usually tests the difference between two observations. Paired t-test is usually carried out on subjects tested in situations before and after the process or in pairs or similar. The results of the analysis can be seen in the table as follows:

Table 5: Paired Samples Statistics Community Knowledge Level (Low and High Education)

| | N | Low education | | Higher education | |
|--------|----|---------------|----------------|------------------|----------------|
| | | Mean | Std. Deviation | Mean | Std. Deviation |
| Before | 25 | 9.0800 | 1.73013 | 15.1200 | 2.84781 |
| After | 25 | 17.4000 | 1.15470 | 17.9600 | 1.13578 |

Table 6: Paired Samples T-Test Community Knowledge Level (Low and High Education)

| | Paired Differences | | t | N | Sig. (2-tailed) |
|-----------------------------------|--------------------|----------------|---------|----|-----------------|
| | Mean | Std. Deviation | | | |
| After – Before (Low education) | -8.32000 | 2.19317 | -18.968 | 25 | 0.000 |
| After – Before (Higher education) | -2.84000 | 3.19739 | -4.441 | 25 | 0.000 |

Based on the data analysis results that have been carried out, the results for the level of knowledge of people with low education obtained the mean value before counseling of 9.0800, for the mean value after counseling using audio-visual media was 17.400. The difference between before and after counseling is 8.3200 with a negative sign, which means that the value of the community's level of knowledge before counseling is carried out is smaller than after counseling. Then from these results can be proven by the value of Sig. of $0.000 < 0.05$ means that environmental sanitation counseling using audio-visual media is very effective in increasing the knowledge of people with low education.

Different results were obtained from the level of knowledge of highly educated people with counseling using audio-visual media. From the analysis results obtained, the mean before counseling was 16.88000, and the mean value after counseling was 17.96000. A mean difference of 1.08000 produces a sig value. $0.116 > 0.05$ means that counseling using audio-visual media to people with higher education indirectly does not increase environmental knowledge for people with higher education.

Table 7: Paired Samples Statistics Community Attitude Level (Low and High Education)

| | N | Low education | | Higher education | |
|--------|----|---------------|----------------|------------------|----------------|
| | | Mean | Std. Deviation | Mean | Std. Deviation |
| Before | 25 | 65.3600 | 4.69823 | 87.8400 | 11.48434 |
| After | 25 | 93.1600 | 2.39235 | 92.6000 | 2.41523 |

Table 8: Paired Samples T-Test Community Attitude Level (Low and High Education)

| | Paired Differences | | t | N | Sig. (2-tailed) |
|-----------------------------------|--------------------|----------------|---------|----|-----------------|
| | Mean | Std. Deviation | | | |
| After – Before (Low education) | -27.80000 | 4.54606 | -30.576 | 25 | 0.000 |
| After – Before (Higher education) | -4.76000 | 11.52996 | -2.064 | 25 | 0.047 |

Furthermore, for the attitude level of people with low education, the mean value before counseling was 65.3600, for the mean (average) value after counseling using audio-visual media was 93.1600. The difference between before and after counseling is 27.8000 and with a negative sign which means that the value of the community's level of knowledge before counseling is carried out is smaller than after counseling. Then, these results can be proven by the value of Sig. of $0.000 < 0.05$ means that environmental education using audio-visual media is very effective in improving people's attitudes with low education.

For the attitude level of highly educated people, the mean value before counseling was 87.8400, for the mean (average) value after counseling using audio-visual media was 93.1600. The difference between before and after counseling is 4.7600 and with a negative sign which means that the value of the community's level of knowledge before counseling is carried out is smaller than after counseling. Then, these results can be proven by the value of Sig. of $0.047 < 0.05$ means that environmental education using audio-visual media effectively improves the attitudes of highly educated people.

These results show that the community's initial ability to knowledge and environmental attitudes from research instruments that were carried out initial tests before counseling still tends to be low because people still have not known and studied. In providing answers to questions in the instrument, the public or respondents can only guess at the available answers and seem confused and hesitant in answering the questions given with the speed of respondents in the category of higher education in completing and answering all the questions given. This means that environmental education for the community with the higher education category is indirectly less effective in increasing environmental knowledge.

According to Plomp suggests that the influence of the media is a) technology; b) tutor or teacher; c) socializing tools; d) motivator in learning; e) tools to arouse high mentality and solve problems. The five influences of media that contain literacy will become guidelines in skills in the community (Plomp, 2013). While Bruner suggested learning more effectively and achieving maximum results, concrete media first before being formed symbolic will make it easier to connect with experience to abstract understanding (Bruner & Haste, 2010).

Audio-visual (video) are educational aids or teaching aids that are included in hearing aids. Video media is a modern instructional media following the times (advancement of science and technology), including media that can be seen and heard (Xiang, 2017). Video has better capabilities because it has media types, namely audio and visual media. There are two kinds of audio-visual characteristics, namely motion audio-visual media and silent audio-visual media. Motion audio-visual media are those that can display sound and images. In addition to entertainment media, the delivery language is apparent in language that all groups and ages easily understand (Fuady & Mutalib, 2018). Thus, the video media in question is one of the health promotion media that uses visual and audio-visual aids, a video showing related to things that will be promoted, namely washing hands, cutting toenails and hands, brushing teeth, taking care of hair, bathing is shown interestingly so that it is expected to be motivated to do so (Willmot et al., 2011).

Someone with a natural intelligence will have a strong interest in nature, indicated by a love for nature-related topics and issues (Goleman, 2001; Neisser, 1979). High naturalist intelligence will affect individuals' ability to apply their environmental knowledge in their attitude towards the environment. The attitude that emerges can be in the form of an attitude of caring for the environment. The existence of an attitude of caring for the environment will increase the role of students in protecting the environment and overcoming environmental damage that occurs. Therefore, to create an attitude of caring for the environment, it is necessary to have environmental knowledge and high naturalist intelligence to resolve environmental problems correctly. Humans get the elements needed in their lives from the environment because humans are endowed with common sense (Drath & Palus, 1994). With the grouping of individuals in society, a culture is created. Furthermore, culture manifests people's behavior embedded in life and cannot be separated from the changing times that have a positive or negative impact on survival (Santayana, 2011).

Creating a clean and healthy environment is a shared responsibility, especially for the community around the environment. There is an exciting phenomenon in society, where public awareness and concern for the environment and nature are still low (Darhamsyah, 2019). Moreover, it affects the lives of people in the neighborhood around the settlement. Full support for the use of the environment exists in environmental laws and regulations. The implementation of environmentally sound development can provide an understanding of how to manage natural resources wisely so that sustainable development can be realized to improve the quality of life of the people, generation after generation throughout the ages.

Conclusion

Every change in the environment is more determined by the attitude and protection of humans towards environmental aspects, so public awareness about the environment and its preservation is essential. Caring is an attitude of paying attention and being involved in a condition that is around. Environmental care behavior cannot be separated from the level of knowledge and attitudes about various matters relating to the environment. A person's knowledge will indirectly affect his attitudes and behavior, and knowledge will last longer than behavior that is not based on knowledge.

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References

- Akenji, L. (2014). Consumer scapegoatism and limits to green consumerism. *Journal of Cleaner Production*, 63, 13–23.
- Ali, M. I. (2019). The Consequences of Illegal Mining in the Environment: Perspective of Behavior, Knowledge, and Attitude. *International Journal of Environment, Engineering & Education*, 1(1), 25–33.
- Anderson, V. L., & McLean, R. A. (2018). *Design of experiments: a realistic approach*. Routledge.
- Berling, D. (2017). *The emerald planet: how plants changed Earth's history*. Oxford University Press.
- Bruner, J. S., & Haste, H. (2010). *Making Sense (Routledge Revivals): The Child's Construction of the World*. Routledge.
- Cairncross, S., & Feachem, R. (2018). *Environmental health engineering in the tropics: Water, sanitation and disease control*. Routledge.
- Chopra, K., & Gulati, S. C. (1997). Environmental degradation and population movements: the role of property rights. *Environmental and Resource Economics*, 9(4), 383–408.
- Chopra, K., & Gulati, S. C. (1998). Environmental degradation, property rights and population movements: hypotheses and evidence from Rajasthan (India). *Environment and Development Economics*, 3(1), 35–57.
- Chopra, R. (2016). Environmental degradation in India: causes and consequences. *International Journal of Applied Environmental Sciences*, 11(6), 1593–1601.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Darhamsyah, D. (2019). Environmental Governance Urban: Public Participation and Sustainable Development. *International Journal of Environment, Engineering and Education*, 1(1), 17–24.
- Drath, W. H., & Palus, C. J. (1994). *Making common sense: Leadership as meaning-making in a community of practice*. Center for Creative Leadership.
- Frumkin, H. (2001). Beyond toxicity: human health and the natural environment. *American Journal of Preventive Medicine*, 20(3), 234–240.
- Fuady, R., & Mutalib, A. A. (2018). Audio-Visual Media in Learning. *Journal of K6 Education and Management*, 1(2), 1–6.
- Goleman, D. (2001). Emotional intelligence: Issues in paradigm building. *The Emotionally Intelligent Workplace*, 13, 26.
- Gottlieb, R. S. (2003). *This sacred earth: Religion, nature, environment*. Routledge.
- Johnson, R. B., & Christensen, L. (2019). *Educational research: Quantitative, qualitative, and mixed*

- approaches*. SAGE Publications, Incorporated.
- Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*. Sage publications.
- Miller, G. T., & Spoolman, S. (2015). *Environmental science*. Cengage Learning.
- Moeller, D. W. (2011). *Environmental health*. Harvard University Press.
- Neisser, U. (1979). The concept of intelligence. *Intelligence*, 3(3), 217–227.
- Plomp, T. (2013). Educational design research: An introduction. *Educational Design Research*, 11–50.
- Ronny, Arif, M. I., & Notobroto, H. B. (2019). Water Pollution Index: Measurement of Shallow Well Water Quality in Urban Areas. *International Journal of Environment, Engineering & Education*, 1(3), 75–81.
- Ronny, Irfai, Mahyudin, D., & Jasman. (2019). Banana Stem Charcoal as Adsorbents Reduce Water Hardness Levels. *International Journal of Environment, Engineering and Education*, 1(1), 1–6. <https://doi.org/10.5281/zenodo.2633483>
- Ronny, R., & Mulyadi, M. (2020). The Impact of Soil Desalination on Reduction of Iron Concentration in Groundwater. *International Journal of Environment, Engineering & Education*, 2(3), 43–48.
- Santayana, G. (2011). *The life of reason: Introduction and reason in common sense* (Vol. 1). mit Press.
- Suarlin, S., & Ali, M. I. (2020). The Effect of Environmental Education Learning on Students at University. *International Journal of Environment, Engineering & Education*, 2(3), 49–56.
- Thompson, R. C., Moore, C. J., Vom Saal, F. S., & Swan, S. H. (2009). Plastics, the environment and human health: current consensus and future trends. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364(1526), 2153–2166.
- Walliman, N. (2017). *Research methods: The basics*. Routledge.
- Willmot, P., Bramhall, M., & Radley, K. (2011). Introducing audio-visual media for inspirational learning and positive engagement. *SEFI International Conference on Engineering Education*, 420–426.
- Xiang, C. H. (2017). *Cases on Audio-Visual Media in Language Education*. IGI Global.

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