

## ARTICLE

# Training to Improve Community's Knowledge, Attitude, Motivation and Behavior Related to the Building of Family Toilets in the Coastal Area

Edy Sabara <sup>1\*</sup>, Bakhrani Abdul Rauf <sup>2</sup>, Desy Safitri <sup>3</sup>, Arita Marini <sup>4</sup>, Mithen Lullulangi <sup>2</sup> 

<sup>1</sup> Department of Electrical Engineering Education, Faculty of Engineering, Universitas Negeri, Makassar 90222, Indonesia

<sup>2</sup> Department of Civil Engineering and Planning Education, Faculty of Engineering, Universitas Negeri, Makassar 90222, Indonesia

<sup>3</sup> Elementary School Teacher Education Study Program, Faculty of Education, Universitas Negeri, Jakarta 13220, Indonesia

<sup>4</sup> Social Science Education Study Program, Faculty of Education, Universitas Negeri, Jakarta 13220, Indonesia

## ABSTRACT

The purpose of this study was to examine the knowledge, attitude, motivation and behavior of the community before and after the experiment, and also to determine the effect of the experiment on increasing knowledge, attitude, motivation, and behavior related to the construction of family toilets in coastal areas. The study was conducted in Pangkep and Maros Regencies. A total of 50 heads of families were selected as participants using the purposive sampling method. 25 participants became the experimental group and 25 people became the control group. The research variables included knowledge, attitudes, motivation, and behavior of the community in building family toilets before and after the experiment. Data collection through tests, questionnaires, and observations to each participant. The research instruments were knowledge tests, questionnaires, and observations. Data analysis used descriptive and inferential statistical analysis, with the t-test. The results of the study showed that based on the experiment, knowledge had a significant effect with a correlation coefficient of 0.94, attitudes had an effect of 0.91, motivation was 0.756, and behavior was 0.865. It can be concluded that the construction of family toilets in the coastal areas of Pangkep and Maros Regencies, before the experiment, the knowledge, attitudes, motivation, and behavior of the community were in the low category, and after the experiment increased significantly to the

### \*CORRESPONDING AUTHOR:

Edy Sabara, Department of Electrical Engineering Education, Faculty of Engineering, Universitas Negeri, Makassar 90222, Indonesia;  
Email: [edysabara66@unm.ac.id](mailto:edysabara66@unm.ac.id)

### ARTICLE INFO

Received: 18 December 2024 | Revised: 7 January 2025 | Accepted: 12 February 2025 | Published Online: 28 March 2025  
DOI: <https://doi.org/10.30564/jees.v7i4.8130>

### CITATION

Sabara, E., Rauf, B.A., Safitri, D., et al., 2025. Training to Improve Community's Knowledge, Attitude, Motivation and Behavior Related to the Building of Family Toilets in the Coastal Area. *Journal of Environmental & Earth Sciences*. 7(4): 193–202. DOI: <https://doi.org/10.30564/jees.v7i4.8130>

### COPYRIGHT

Copyright © 2025 by the author(s). Published by Bilingual Publishing Group. This is an open access article under the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License (<https://creativecommons.org/licenses/by-nc/4.0/>).

high category. In addition, the results of the analysis showed that the experiment had a significant effect on increasing the knowledge, attitudes, motivation, and behavior of the community towards the construction of family toilets in coastal areas.

**Keywords:** Family Toilets; Knowledge; Attitude; Motivation; Coastal Area

## 1. Introduction

The coast is a transitional area between land and sea or the meeting between land and sea; towards the land, both dry and submerged in water, but still influenced by the characteristics of the sea such as tides, sea breezes, and seawater infiltration; while towards the sea it includes parts of the sea but is still influenced by natural processes that occur on land such as sedimentation and freshwater flow, as well as things done by humans such as deforestation and pollution<sup>[1]</sup>. Coastal Settlement Area is a settlement consisting of a residence or dwelling as a residential area along with its facilities and infrastructure; work area, in this case, in the form of a natural area where fishermen work, namely the ocean, and artificial facilities where other economic activities are carried out that support or are related to economic activities<sup>[2]</sup>.

The housing environment is human-built and needs proper maintenance to prevent environmental degradation. Environmental quality can be influenced by the knowledge, attitudes, motivation, and behavior of humans, particularly farmers. Therefore, the housing environment needs to be properly managed to support environmental sustainability. According to Law of the Republic of Indonesia Number 32 of 2009 concerning Housing and Settlements, the housing environment must be properly managed to support environmental sustainability<sup>[3]</sup>. Schuck and Rosenbaum explain that a neighborhood, residential area, (sometimes also referred to as a settlement) is a geographically localized community area within a city, town, suburb, or larger rural area<sup>[4]</sup>.

The environment is everything that exists around humans and is interconnected and dependent on one another. The environment is a system or spatial unity between living things and other abiotic components<sup>[5]</sup>. Doxiadis reported that humans had basic needs such as space, air, and temperature and that housing served as a means of providing social services<sup>[6]</sup>. Singh explained that environmental components consist of the physical environment, the biological environment, and the social, economic, or cultural environment<sup>[7]</sup>. These components are interrelated and require proper man-

agement in order to provide great benefits, especially for human life in the future.

Law of the Republic of Indonesia No. 4 of 1992 concerning Housing and Settlements explains that housing is a group of houses that function as a place of residence equipped with infrastructure and facilities<sup>[8]</sup>. The environmental infrastructure and facilities covered sanitary systems such as family toilets, garbage disposal sites, green open spaces (RTH), and others. To improve environmental quality in the coastal area, every household should have healthy and environmentally friendly family toilets. Housing is a collection of houses that are part of a residence, both in the city and in the village, which is equipped with public facilities as a result of efforts to provide habitable housing<sup>[9]</sup>.

Law Number 1 of 2011 concerning Housing and Residential Areas explains that a house is a building that functions as a place to live, a place to raise a family, and a reflection of the dignity of its owner<sup>[10]</sup>. This law also stipulates that every citizen has the right to occupy, enjoy, and own a decent house in a healthy, safe, harmonious, and orderly environment. Additionally, Law No. 32 of 2009 concerning Environmental Protection and Management stipulates that when building a house, it is necessary to use the environment responsibly, use natural resources in moderation, and ensure the sustainability of the environment<sup>[3]</sup>. Automatically, population growth has an impact on the provision of healthy and safe housing.

Novriadi explained that a house can be seen from two sides, namely from the physical building and from the psychological side. Physically, a house is a residential building that provides protection from external weather, such as rain, hot sun, and cold. Then psychologically, a house is a place where its occupants feel comfortable, peaceful, and happy. This creates a space for them to carry out daily activities and return home with a sense of calm. The psychological quality of this house is very important for the well-being of its occupants. The function of the house is very vital in human life. The main functions of the house include: a place to live, a place to take shelter from natural conditions, a place to do many activities, show the identity of the occupants, and a

place for family gatherings<sup>[11]</sup>. Proverawati and Rahmawati explained that a toilet is one of the basic sanitation facilities needed in every home to support the health of its occupants as a facility for disposing of human waste, which consists of a squatting place or sitting place with or without a gooseneck which is equipped with a waste collection unit and water to clean it<sup>[12]</sup>.

Adnil defined human behavior as the entirety of actions, thoughts, and feelings expressed by individuals<sup>[13]</sup>. Mar'at and Lieke said that behavior is a human activity that can be observed from an external perspective<sup>[14]</sup>. Veithzal and Deddy<sup>[15]</sup>, and Notoamodjo<sup>[16]</sup> stated that behavior was any action carried out by individuals. According to Hines, Hungeford and Tomera, behavior was influenced by several factors, namely the ability to act, have strategies, understand problems, personality traits, and so on, all of which contributed to responsible environmental behavior<sup>[17]</sup>. In addition, Rakhmat, Thoha, and Zulriska reported that environmental conditions or situations significantly influenced human behavior<sup>[18–20]</sup>. The writing in Wikipedia explains that in simple terms a person's behavior is an expression of that individual towards their environment<sup>[21]</sup>. Furthermore, Adventus, Jaya and Mahendra said: behavior is an action or deed of a person in reacting to something and then becomes a habit because of the values that are believed to be true. Human behavior is basically a human action or deed, both seen and unseen in human interaction with their environment which is then manifested in the form of knowledge, attitudes, and actions<sup>[22]</sup>.

Suriasumantri explained that knowledge covered everything individuals understand about a particular subject, including scientific facts<sup>[23]</sup>. Similarly, Soekanto defined it as an impression formed in the human mind through the five sensory organs<sup>[24]</sup>. Notoatmodjo also defined knowledge as the result of human perception of a particular object<sup>[16]</sup>. Furthermore, Suriasumantri stated that knowledge was composed of three components: cognitive, affective, and psychomotor<sup>[23]</sup>. Yossy said, knowledge is a result of a learning process or experience in the form of facts, truth or information<sup>[25]</sup>. Knowledge of facts, also called propositional knowledge, is often characterized as true belief that is distinct from opinion or guesswork by virtue of justification<sup>[26]</sup>. Specifically, Chen stated that environmental knowledge is a series of ecological knowledge possessed by individuals

regarding the environment<sup>[27]</sup>.

Azwar explained that attitude was the willingness to react to a particular object, comprising three components: cognitive, affective, and conative<sup>[28]</sup>. Dianto defines it as: Attitude is an individual's awareness that determines real or possible actions in social activities<sup>[29]</sup>. Ayeh further explained: Attitude is the way a person views and evaluates something or the way a person responds positively or negatively to an idea, object, another person, or responds to a situation<sup>[30]</sup>. Then, Adams and Clauw explain that: Attitude is the preparation, or frame of mind, that each participant brings to the therapeutic interaction<sup>[31]</sup>. Furthermore, Narut et al. said: Environmental care attitude is a behavior that is oriented towards awareness and feelings of love for the environment. Environmental care attitude has three important components, namely: awareness related to beliefs, ideas, and concepts; affective component (feeling) related to a person's emotions and conation component, which is a tendency to behave. So, environmental care attitude is also inseparable from habits that have been formed since childhood<sup>[32]</sup>.

Danim and Winardi defined motivation as a psychological mechanism that drove individuals or groups to achieve certain goals or achievements. Intrinsic motivation, which originated from within a group of individuals, played a significant role<sup>[33, 34]</sup>. Furthermore, Nahusona, Rahardjo and Rahrdjo reported that motivation consisted of both intrinsic and extrinsic components, with the latter being influenced by external factors<sup>[35]</sup>. Then, Salamah et al. explained that environmental motivation is the power within a person to act based on environmental motives to encourage someone to act based on environmental motives<sup>[36]</sup>.

Law of the Republic of Indonesia Number 32 of 2009 concerning Environmental Protection and Management explains that the ecosystem is a complete unit and comprehensive unity between all environmental elements<sup>[3]</sup>. These elements, both biotic and abiotic, function together as a single unit that tends not to exist independently. Both elements are interconnected, influencing, and interacting with each other in a manner that prevents them from being separated. According to Ahira, the environment consists of humans, animals, and plants<sup>[37]</sup>. Singh also reported that there are three important components in the environment, namely the physical environment, the biological environment, and the social environment<sup>[7]</sup>. Furthermore, Djanis said that the

environment is a natural condition and its contents which influence each other 100%. This definition has a broader context, namely including outer space<sup>[38]</sup>.

Wulandari, Karmilah and Yuliani said: Based on the research conducted, it was concluded that there was a change in the function of the house building in the Pemandian Street section into an economic space, the economic space was in the form of self-employed work in the tourism sector such as selling, offering services to tourists to fulfill the needs of tourists such as snacks, souvenirs of food or crafts, equipment during travel, and a place to rest in the form of lodging<sup>[39]</sup>. Thus, in certain areas, especially housing locations on strategic roadsides, houses function as a dual function as a place to live and as a place to do business. The same thing was stated by Darojah in his research results which showed that traditional houses were built from local structural materials and could be categorized as non-permanent houses. This categorization becomes the legitimacy of society to switch from traditional houses to modern houses, because factors of social and economic change trigger this phenomenon, thus threatening the existence of traditional houses<sup>[40]</sup>.

The development of vernacular architecture can be done based on traditional architecture with an adaptive approach that is adjusted to the development of contemporary philosophical views without changing the meaning of the past. Changes can be made throughout the traditional space by utilizing the structure of the space and the meaning of its function<sup>[41]</sup>. In addition, the harmony of local wisdom values of vernacular houses in responding to local geographic conditions needs to be preserved because it has many advantages, so that vernacular houses are very adaptive to respond to floods and earthquakes<sup>[42]</sup>.

## 2. Materials and Methods

The purpose of this study was to analyze the knowledge, attitudes, motivations, and behavior of the community about the construction of family toilets before and after training in the coastal areas of Pangkajene Kepulauan Regency and Barru Regency. In addition, it also aims to determine the effect of experimental interventions by providing training to improve knowledge about family toilets, environmental conservation, coastal ecosystems, and housing in order to

improve knowledge, attitudes, motivation, and behavior related to the construction of family toilets in coastal areas. This experimental study was conducted in Pangkep Regency (experimental area) and Maros Regency (control area). A total of 50 heads of families consisting of 25 people from each district were selected as participants using the purposive sampling method. Of the total number of participants, 25 people became the experimental group and the remaining 25 people became the control group. The variables measured included knowledge, attitudes, motivation, and community behavior in building family toilets before and after the training. The experiment used the Pretest-posttest Control Group Design (Borg and Gall)<sup>[43]</sup>. Data collection was conducted through tests, questionnaires, and observation guidelines given to each participant. The research instruments included knowledge tests, questionnaires, and observation guidelines. The data analysis technique used descriptive statistics and inferential statistics, with the independent t-test applied for inferential analysis.

## 3. Results

The behavior of the community in making family toilets before the experiment in the coastal settlements of South Sulawesi Province was classified as low. After the experiment was implemented, it was classified as high. The attitude of the community in making family toilets before the experiment in the coastal settlements of South Sulawesi Province was classified as low. After the experiment was implemented, it was classified as high. The motivation of the community in making family toilets before the experiment in the coastal settlements of South Sulawesi Province was classified as low. After the experiment was implemented, it was classified as high.

### 3.1. The Effect of the Experiment on Increasing Community Behavior to Build Family Toilets at the Coastal Area of South Sulawesi Province

The effect of the experiment on increasing community behavior to building family toilets at the coastal area of South Sulawesi Province, results of the dependent t-test analysis were provided in **Table 1**.

**Table 1.** T-test analysis regarding the effect of the experiment on increasing community behavior in building family toilets in the coastal area of South Sulawesi Province.

	Mean	Std. Deviation	Paired Differences		t	df	Sig. (2-Tailed)
			Std. Error Mean	95% Confidence Interval of the Difference Lower Upper			
R = 0.93	61.8	0.002	0.002	47.2 76.4	48.32	24	0.000

**Table 1** presents a significant result with  $t = 0.000$ , which was  $< \alpha = 0.05$ , and a  $t$ -value = 48.32. This indicates that the experiment significantly influenced the community behavior related to the construction of family toilets at the coastal area of South Sulawesi. The correlation coefficient was 0.93 and the determination coefficient was 0.865. This value indicates a significant influence of the experiment on the community behavior to build family toilets in the coastal area of South Sulawesi.

### 3.2. Effect of the Experiment on Increasing the Community Knowledge to Build Family Toilets at the Coastal Area of South Sulawesi

Effect of the experiment to increasing the community knowledge in building family toilets at the coastal area of South Sulawesi, results of the dependent  $t$ -test analysis were provided in **Table 2**.

**Table 2.** Results of the  $t$ -test analysis regarding effect of the experiment on increasing community knowledge to build family toilets at the coastal area of South Sulawesi.

	Mean	Std. Deviation	Paired Differences		t	df	Sig. (2-Tailed)
			Std. Error Mean	95% Confidence Interval of the Difference Lower Upper			
R = 0.94	10.95	0.001	0.002	7.3 14.6	56.82	24	0.000

**Table 2** presents a significant result with  $t = 0.000$ , which was  $< \alpha = 0.05$ , and a  $t$ -value of 56.82. This shows that the experiment had a significant effect on community knowledge about building family toilets in the coastal area of South Sulawesi. The correlation coefficient was 0.94 and the determination coefficient was 0.883. These figures indicate that there was a significant effect of the experiment on the community knowledge about building family toilets at the coastal area of South Sulawesi.

### 3.3. Effect of the Experiment on Increasing the Community Attitude Related to the Building of Family Toilets in the Coastal Area of South Sulawesi

To determine the effect of the experiment on increasing the community attitude related on the building of family toilets at the coastal area of South Sulawesi, the results of the dependent  $t$ -test analysis were presented in **Table 3**.

**Table 3.** Results of the  $t$ -test analysis regarding effect of the experiment to increasing the community attitude related to the building of family toilets at the coastal area of South Sulawesi.

	Mean	Std. Deviation	Paired Differences		t	df	Sig. (2-Tailed)
			Std. Error Mean	95% Confidence Interval of the Difference Lower Upper			
R = 0.91	64.1	0.002	0.003	47.6 80.6	57.43	24	0.000

**Table 3** presented a significant result with  $t = 0.000$ , which was  $< \alpha = 0.05$ , and a  $t$ -value of 57.43. This indicated that the experiment substantially affected the community attitude toward the building of family toilets at the coastal area of South Sulawesi. Correlation coefficient was 0.91, and

the determination coefficient was 0.828. This figure showed that there was a significant effect of the experiment on the community attitude toward the building of family toilets at the coastal area of South Sulawesi.

### 3.4. Effect of the Experiment on Increasing the Community Motivation toward the Building of Family Toilets at the Coastal Area of South Sulawesi

To determine the effect of the experiment on increasing community motivation toward the building of family toilets at the coastal area of South Sulawesi, results of the dependent t-test analysis were presented in **Table 4**.

**Table 4** provided a significant result with  $t = 0.000$ , which was  $< \alpha = 0.05$ , and a t-value of 56.82. This indicated that the experiment highly affected the community motivation regarding the building of family toilets at the coastal area of South Sulawesi. Correlation coefficient was 0.87, and the determination coefficient was 0.756. This figure showed that there was a significant effect of the experiment on the community motivation regarding the building of family toilets at the coastal area of South Sulawesi.

**Table 4.** Results of the t-test analysis regarding effect of the experiment to increasing the community motivation toward the building of family toilets at the coastal area of South Sulawesi.

	Mean	Std. Deviation	Std. Error Mean	Paired Differences		t	df	Sig. (2-Tailed)
				95% Confidence Interval of the Difference Lower	Upper			
R = 0.87	64.15	0.001	0.003	47.4	80.90	56.82	24	0.000

## 4. Discussion

Behavior of the community in making family toilets in coastal settlements in South Sulawesi Province before the experiment was in the low category. After the experiment was conducted, it was in the high category. This is due to the existence of experimental materials that can be understood by the trained community. There is a very significant difference in community behavior in making family toilets before and after the experiment. After the experiment, behavior increased and was in the high category. Results of this study are supported by research conducted by Lullulangi et al., who studied the behavior of dry land farmers in the Walanae River Basin Area, Soppeng Regency<sup>[44]</sup>. In addition, Darmawan and Fadjarajani presented the results of their research, which indicated that there is a positive relationship between knowledge and attitudes about environmental conservation<sup>[45]</sup>. Another study conducted by Saefuddin et al. found that the influence of training results and self-efficacy on behavior was relatively high<sup>[46]</sup>.

Public knowledge about the construction of family toilets in the coastal areas of South Sulawesi before the experiment was in the low category but increased to the high category after the experiment. This change was associated with public understanding of the experimental materials. Before and after the experiment there was a significant difference in public knowledge about the construction of family toilets. The same study was conducted by Abdul Rauf et al.,

which presented results of their study that provided a significant impact of this experiment on increasing the knowledge, attitudes, motivations, and behavior of low-income communities in the coastal areas of South Sulawesi<sup>[47]</sup>. Before the experiment was carried out, community attitudes regarding the construction of family latrines in the coastal areas of South Sulawesi were in the low category but increased to the high category after the experiment was carried out. This increase is related to public understanding of the existence of experimental materials. Before and after the experiment, there was a significant difference in community attitudes about building family toilets. In various studies, it was found that, in general, community knowledge in various fields will increase if an action or training is carried out. Research conducted by Elba, which examined the relationship between training and skills, concluded that there was a relationship between the frequency of training that had been attended and the skills of participants at the Posyandu in the Jatinangor Health Center working area, Sumedang Regency<sup>[48]</sup>. The results of this study explain that the more training frequencies are carried out, the better the community's knowledge of the material being trained. In addition, this study is also supported by research conducted by Ndruru, which examined the effect of basic life support training on student knowledge and skills at YAPIM Sei High School, concluding that there was a significant difference in average knowledge and skills after being given training<sup>[49]</sup>.

Community motivation towards building family toilets

in the coastal areas of South Sulawesi before the experiment was in the low category but improved to the high category after the experiment. This increase was due to community understanding of the experimental material. Before and after the experiment, there was a significant difference in community motivation towards building family toilets. Another relevant study to support the results of this study was conducted by Kurniawan, which explains that learning to understand environmental attitudes using character-based pop-up media directly in groups can improve environmental attitudes. The connection with this study is by providing education to the community about the need to improve environmental attitudes including how to build family toilets in coastal communities<sup>[50]</sup>. Fikruddin Buraerah also studied the influence of attitudes and motivation on improving environmental quality, and the results of his study found that there was a direct positive influence of attitudes and motivation on behavior to improve environmental quality<sup>[51]</sup>.

In addition, the influence of attitudes and motivation on improving environmental quality was also studied by Ardi, Faizal and Abdul Rauf on small house residents in Soppeng Regency. The results of their research concluded that experiments had a significant effect on improving knowledge, attitudes, motivation and behavior to maintain environmental quality<sup>[52]</sup>.

From the various research results presented as a comparison of the results of this study, it shows that the community in general, especially those in rural areas and coastal areas, generally have limited knowledge about environmental cleanliness, including family toilets. Therefore, with the intervention given in the form of training to increase their knowledge about environmental cleanliness, their knowledge, attitude, motivation, and behavior will automatically increase, including building family toilets if that material is taught to them. This is something new that is obtained through this research, that whatever is not yet known by the community, if given training about it, then of course the community's knowledge, attitude, motivation, and behavior will increase regarding the training material.

## 5. Conclusions

In conclusion, this research showed that:

- Before the experiment, the community's knowledge, atti-

tude, motivation, and behavior related to the building of family toilets in the coastal area of South Sulawesi were in the low category but substantially improved to a high category after the experiment.

- The experiment had a significant influence on enhancing the community's behavior, knowledge, attitude, and motivation toward the building of family toilets in the coastal area.

## Author Contributions

This research is carried out collaboratively between lecturers from Makassar State University and fellow lecturers from Jakarta State University, so that all authors in this article contribute according to their respective capacities. E.S., as the Chief Researcher, prepares the research proposal and offers it to other fellow lecturers including D.S. and A.M. from Jakarta University. Then all members of the researcher team are involved together in data collection, data analysis, report writing, and writing research articles. B.A.R. makes revisions and improvements to the report, and M.L. is tasked with translating and editing research articles, as well as assisting the main researcher in submitting to a reputable international journal and helping to revise journal articles based on instructions from the Editor and Reviewers of the Journal.

## Funding

The cost of this research comes from a grant from the government of the Republic of Indonesia through the Ministry of Education and Culture, Research and Technology, with contract number: 1225/UN36.11/LP2M/2024.

## Institutional Review Board Statement

This article does not require a Board Statement because it does not involve animals, so people are only involved as respondents to provide data.

## Informed Consent Statement

Before we carried out this research, we first conducted a legal process by obtaining a permit from the authorities. For this purpose, the permit number in question is: Permit

Number: 1739/UN36.11/LP2M/2024.

## Data Availability Statement

Regarding data availability, every study certainly has data to be analyzed. Our data is generally reflected in the research results presented in this article, so we think that there is no need for additional data to be sent specifically.

## Acknowledgments

We would like to thank the Director of DRPM, Ministry of Education and Culture, Research and Technology of the Republic of Indonesia, who has accepted and funded this research. We also thank the Rector of Universitas Negeri Makassar, and the Rector of Universitas Negeri Jakarta through their respective LP2M, who have facilitated us and given permission to carry out this research, and the Pangkep Regency Government, which has allowed us to conduct research in their area. Specifically, we thank the coastal communities who have agreed to be respondents in this research and all parties who have helped so that this research can be carried out. We also thank the Journal Management for being willing to accept and publish the results of our research.

## Conflicts of Interest

We, the authors, state that there are no conflicts of interest to declare in the research and writing of this article, so it is free from conflicts of interest.

## References

- [1] Lautetu, L.M., 2019. Characteristics of Community Settlements in the Coastal Area of Bunaken District. *Jurnal Perencanaan Wilayah dan Kota: Spasial*. 6(1), 127. (in Indonesian)
- [2] Prasasti, K.R., 2014. Settlements Above Water. *E-Journal Universitas Atma Jaya Yogyakarta*. 5(1), 75–85. (in Indonesian). Available from: <https://e-journal.uajy.ac.id/6140/3/MTA201860.pdf>
- [3] Undang-Undang Republik Indonesia Nomor 32. 2009. Regarding Environmental Protection and Management. (in Indonesian)
- [4] Schuck, A., Rosenbaum, D., 2006. Promoting safe and healthy neighborhoods: What research tells us about intervention. In: Fulbright-Anderson, K., Auspos, P. (Eds.), *Community Change: Theories, Practice, and Evidence*. The Aspen Institute: Washington. pp. 61–140.
- [5] Yulianto, G., Susanto, A., 2020. MSLK5104 – Environmental Ecoefficiency. Universitas Terbuka: Tangerang Selatan, Indonesia. pp. 1–48. (in Indonesian)
- [6] Doxiadis, C.A., 1968. *Ekistics: An introduction to the Science of Human Settlements*. Science. 170(3956), 393–404.
- [7] Singh, Y.K., 2006. *Environmental Science*. New Age International (P) Limited Publisher: New Delhi, India. 140(3–4), 339–353.
- [8] Undang-Undang Republik Indonesia Nomor 4. 1992. About Housing and Settlements. (in Indonesian).
- [9] Kementerian Pekerjaan Umum dan Perumahan Rakyat, 2016. *Rural Housing and Settlement Development Guide*. Report number, 02/Prt/M/2016. (in Indonesian)
- [10] Undang-Undang Republik Indonesia Nomor 1. 2011. About Housing and Settlement Areas. (in Indonesian).
- [11] Novriadi, 2024. Definition of House: Perspective and Function in Life. (in Indonesian). Available from: <https://www.lamudi.co.id/journal/definisi-rumah/> (cited 28 June 2024).
- [12] Proverawati, A., Rahmawati, E., 2012. *Clean and Healthy Living Behavior*. Nuha Medika: Yogyakarta, Indonesia. pp. 75–78. ISBN. 978-979-1446-80-8. (in Indonesian)
- [13] Nurdin, A.E., 2011. *Human Behavior Growth and Development*. Penerbit Buku Kedokteran EGC: Jakarta, Indonesia. pp. 95–103. (in Indonesian)
- [14] Mar'at, S., Indieningsih, L., 2010. *Human Behavior*. Refika Aditama. (in Indonesian)
- [15] Veithzal, R., Deddy, M., 2011. *Leadership and Organizational Behavior*. Rajawali Press: Jakarta, India. p. 186. (in Indonesian)
- [16] Notoatmodjo, S., 2007. *Behavioral Science and Attitudes*. Rineka Cipta: Jakarta, India. pp. 45–62. (in Indonesian)
- [17] Hines, I.M., Hungeford, H.R., Tomera, N., 2010. Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *The Journal of Environmental Education*. 1(8), 1–8. Available from: <http://www.tndfonline.com/loi/vjee20> (cited 12 February 2023).
- [18] Rakhmat, J., 2011. *Communication Psychology*. PT. Remaja Rosdakarya: Bandung, Indonesia. pp. 52–67. (in Indonesian)
- [19] Thoha, M., 2011. *Organizational Behavior Concepts and Basic Applications*. Raja Grafindo Persada: Jakarta, India. pp. 117–130 (in Indonesian)
- [20] Zulriska, I., 2012. *Environmental Psychology, Theories and Concepts*. Reflika: Bandung, Indonesia. pp. 39–48. (in Indonesian)
- [21] Sansone, C., Morf, C.C., Panter, A.T., 2004. *The Sage Handbook of Methods in Social Psychology: Lewin's equation*. Sage Publication Ltd.: London, UK. pp. 119–121.



- [22] Adventus, M.R.L., Jaya, I.M.M., Mahendra, D., 2019. Health Promotion Textbook [Thesis]. Jakarta, India: Universitas Kristen Indonesia. pp. 43–59 (in Indonesian)
- [23] Suriasumantri, J.S., 2010. Philosophy of Science A Popular Introduction. Pustaka Sinar Harapan: Jakarta, India. pp. 143–163. (in Indonesian)
- [24] Soekanto, S., 2007. Sociology an Introduction. P.T.Raja Grafindo: Jakarta, India. pp. 263–265. (in Indonesian)
- [25] Yossy, E.H., 2020. Knowledge. Available from: <https://online.binus.ac.id/computer-science/2020/06/15/pengetahuan-knowledge/> (cited 12 February 2024).
- [26] Wikipedia, 2024. Knowledge. Available from: <https://en.wikipedia.org/wiki/Knowledge#:~:text=Knowledge> (cited 12 February 2024).
- [27] Chen, Y.S., 2013. Towards green loyalty: Driving from green perceived value, green satisfaction, and green trust. *Sustainable Development*. 21(5), 294–308.
- [28] Azwar, S., 2012. Human Attitude, Theory and Measurement. Pustaka Pelajar: Yogyakarta, Indonesia. pp. 38–46. (in Indonesian)
- [29] Thomas, D.G., Sompie, S., Sugiarso, B., 2018. Virtual tour as an interactive promotional media for lodging in the Bunaken Islands. *Jurnal Teknik Informatika*. 13(1), 14–23. (in Indonesian)
- [30] Ayeh, J., Au, N., Law, R., 2013. Do we believe in tripadvisor? Examining credibility perceptions and online travelers' attitude toward using user-generated content. *Journal of Travel Research*. 52, 437–452.
- [31] Benzoni, H.T., Rathmell, J.P., Wu, C.L., et al., 2013. *Practical Management of Pain: Fifth Edition*. Elsevier.
- [32] Narut, Y.F., Nardi, M., 2019. Analysis of environmental care attitudes in grade VI elementary school students in Ruteng City. *Scholara: Jurnal Pendidikan Dan Kebudayaan*. 9(3), 259–266. (in Indonesian)
- [33] Danim, S., 2012. Leadership Motivation and Group Effectiveness. Rineka Cipta: Jakarta, India. pp. 98–103. (in Indonesian)
- [34] Winardi, J., 2011. Motivation and Motivation in Management. Raja Grafindo Persada: Jakarta, India. pp. 125–131. (in Indonesian)
- [35] Nahusona, H.C.F., Rahardjo, M., Rahrdjo, S.T., 2004. Analysis of factors that influence employee desire to move (case study at PT. Papua). *Jurnal Studi Manajemen & Organisasi*. 1(2), 2–10. (in Indonesian)
- [36] Salamah, M., Sari, R.C., 2022. The influence of economic motivation, social motivation, environmental motivation, and digital security perceivers on participation in using the sharing economy platform. *Journal Student UNY*. 10(6), 1–21. (in Indonesian)
- [37] Ahira, A., 2011. Benefits of Learning Biology. Available from: <http://www.anneahira.com/Biologi.htm> (cited 13 March 2012). (in Indonesian)
- [38] Djamin, D., 2007. Supervision and implementation of environmental laws: A social analysis. Yayasan Obor Indonesia: Jakarta, India. pp. 19–33. (in Indonesian)
- [39] Wulandari, S., Karmilah, M., Eppy, Y., 2020. Changes in the function of a house into an economic space on a section of the road in the Kartini beach tourist area. *Sultan Agung Fundamental Research Journal*. 1(1), 44–53. Available from: <http://jurnal.unissula.ac.id/index.php/safri> (in Indonesian)
- [40] Darijah, C.I., 2018. Traditional or modern: The impact of public housing policies on traditional buildings in Bada, Central Sulawesi. *KALPATARU, Majalah Arkeologi*. 27(1), 89–104. (in Indonesian)
- [41] Tarigan, R., 2016. Vernacular architecture based on traditional architecture: Towards sustainable local architecture. Case study: Houses in karangmalang village kudu district. *Tesa Arsitektur*. 14(1), 23–32. (in Indonesian)
- [42] Nursaiah, C., Izziah, Laila, Q., 2018. Recognizing local wisdom of vernacular houses through the form and building materials of houses in kuala tripa, aceh. *Jurnal Arsitektur dan Perkotaan "KORIDOR"*. 9(1), 17–23. (in Indonesian)
- [43] Borg, W.R., Gall, M.D., 1989. *Educational Research: An Introduction*, 5th ed. Longman: New York, USA; London, UK. pp. 75–77.
- [44] Lullulangi, M., Faizal, A., Abdul Rauf, B., et al., 2021. Improving environmental quality through the empowerment of dryland farmer: A case study in Walanae watershed, South Sulawesi. *International Journal of Innovation Creativity and Change*. 15(2), 626–636.
- [45] Darwis, D., Fadjarajani, S., 2016. The relationship between knowledge and attitudes of environmental conservation with tourist behavior in maintaining environmental cleanliness. (study in the natural tourist area of Mount Galunggung, Linggajati Village, Sukaratu District, Tasikmalaya Regency). *Jurnal Geografi*. 4(1), 37–49. (in Indonesian)
- [46] Saefuddin, A., Ardiwinata, J.S., Ilfiandra, et al., 2015. Training effectiveness and efficacy in improving entrepreneurial behavior in transitional societies. *MIMBAR*. 31(1), 93–102. (in Indonesian)
- [47] Abdul Rauf, B., Ardi, M., Faizal, A., et al., 2020. The application of family latrine construction model in the low economic community in the coastal area in Indonesia during Covid 19 pandemic. *Journal of Civil, Construction and Environmental Engineering*. 5(6), 161–166.
- [48] Elba, F., Ristiani, R., 2019. Relationship between Skills Training and Cadre Knowledge about the Role of the 5 Neja System Function in the Integrated Health Service Post (Posyandu) in the Jatinangor Health Center Work Area, Sumedang Regency. *JURNAL SEHAT. Jurnal Penelitian Kesehatan STikes Dharma Husada Bandung*. XIII(1), 65–73. (in Indonesian)
- [49] Ndruru, A., Tanjung, R., Tanjung, D., 2024. The Effect of Basic Life Support (BLS) Training on Students'

- Knowledge and Skills at YAPIM Gelugur Pancur Batu High School. *JURNAL NERS Research & Learning in Nursing Science*. 9(1), 67–73. (in Indonesian)
- [50] Kurniawan, W., Priadi, R., Kuswarini, P., 2020. Relationship between Motivation to Maintain Cleanliness and Environmental Cleanliness Attitudes with Principal Leadership in Environmental Cleanliness Programs in Schools. *EDUCATION: Journal of Geography Education Universitas Siliwani*. 1(1), 23–27. (in Indonesian)
- [51] Fikruddin Buraerah, M., 2023. The influence of employee attitudes and motivation on environmental quality improvement in pattene business park industrial and warehousing areas. *Jurnal Ilmiah Ecosystem*. 23(1), 91–101. (in Indonesian)
- [52] Ardi, M., Faizal, A., Abdul Rauf, Bakhрани., 2019. Improving the Quality of the Housing Environment in the Community of Small-Type House Residents in Soppeng Regency. In *Proceedings of the Peran Penelitian Dalam Menunjang Percepatan Pembangunan Berkelanjutan di Indonesia*; Makassar, Indonesia, 2019; pp. 349–353. (in Indonesian)