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PROTOTYPE OF A MARINE ANIMAL SCULPTURE FROM PLASTIC WASTE: ROLE IN PROMOTING THE IMAGE OF THAI TOURISM

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ABSTRACT

Plastic waste poses a significant threat to communities and the environment. Urban waste overflow is a direct consequence of large-scale economic, social, and industrial expansion that prioritizes the mass production of plastics for everyday use. This has led to an accumulation of plastic waste that is difficult to dispose of and has contributed to the endangerment of marine species such as sea turtles, dolphins, whales, and dugongs. Moreover, plastic pollution has caused ecological degradation due to the contamination of microplastics, which pose risks to human health and negatively impact Thailand's tourism industry. This paper aims to design and create a prototype of a marine animal sculpture made from plastic waste for installation at Cha-am Beach, Phetchaburi Province. The objectives of this study are to create and evaluate a prototype of a marine animal sculpture made from plastic waste, assess tourists' awareness of responsible tourism through viewing the sculpture illuminated with nighttime lighting, and promote tourism and environmental awareness. This research incorporates the simulacra consumption theory and reviews relevant literature on art, particularly focusing on plastic whale sculptures. It is hoped that this creative artwork will enhance Thailand's tourism image and raise awareness among tourists about the issue of marine plastic pollution, which has led to ecological degradation due to microplastic contamination and has negatively impacted the tourism industry.

Keywords: Plastic waste; plastic waste sculpture; marine animal sculpture; responsible tourism; Thailand sea beach

1. INTRODUCTION

Thailand has driven its economic growth through tourism, leveraging its rich cultural diversity and abundant natural resources, particularly its marine biodiversity. This has attracted a substantial number of international tourists each year. To accommodate this growing tourism industry, Thailand has developed the 3rd National Tourism Development Plan (2023–2027) with a vision of "Rebuilding High Value Tourism Industry with Resilience, Sustainability and Inclusive Growth" as outlined by the Tourism Authority of Thailand in 2022, (Tourism Authority of Thailand, 2022). Although Thailand has achieved remarkable success in terms of tourism revenue and increasing its number of tourists, a significant issue arising from this growth is the problem of waste in natural tourist attractions. Plastic waste, in particular, is difficult to manage and has led to the endangerment of marine animals such as sea turtles, dolphins, whales, and dugongs. Phetchaburi Province

is one of the areas in Thailand that has been significantly affected by this issue. The majority of the waste washed ashore consists of plastic bottles, plastic cups, coffee straws, snack bags, wood scraps, face masks, and fishing gear such as nets. These fishing nets have had a detrimental impact on marine animals, especially sea turtles that have washed ashore entangled in the nets, resulting in the loss of their limbs (The Government Public Relations Department, 2023).

Furthermore, plastic pollution has led to the degradation of ecosystems through microplastic contamination, posing health risks to consumers and negatively impacting Thailand's tourism industry. The Department of Marine and Coastal Resources (2022) found that the marine litter problem is increasingly severe due to the mismanagement of plastic waste, with 80% originating from land-based sources and 20% from marine sources, corroborating the findings of Li et al. (2016). Plastic debris is commonly found in water bodies and beach sediments, stemming from two main sources: land-based and oceanic. Domestic activities, industrial activities, and fishing are the most significant contributors to plastic pollution. Plastic debris in the environment has adverse effects on numerous species.

For this reason, it is necessary to raise awareness of the dangers of plastic waste that affects the environment and create awareness of responsible tourism among all stakeholders, including shop and restaurant operators, Thai tourists, and foreign tourists. The researcher communicated this problem through sculptures in the shape of marine animals made from plastic waste. It will also help promote the tourism image of Thailand and serve as a guideline for relevant public and private agencies, artists, and the general public who are interested in being inspired to create works of art from plastic waste that will help recycle waste and add value in the future.

2. OBJECTIVES OF THE RESEARCH

This research has the following objectives:

2.1 To create and examine prototypes of marine animal sculptures made from plastic waste to promote the tourism image of Thailand.

2.2 To assess tourist awareness of responsible tourism through the viewing of marine animal sculptures made from plastic waste installed at Cha-am Beach, Phetchaburi Province.

3. LITERATURE REVIEW

3.1 Responsible tourism

The creation of prototypes of marine animal sculptures from plastic waste to promote Thailand's tourism image is based on the account of Mihalic (2016) who suggested that responsible tourism behaviour promotes being responsible and aware of the damages that may occur from tourism and to try to minimize such damages. Therefore, responsible tourism may mean the following steps: 1. Awareness: tourism laissez-faire that is environmentally friendly, 2. Agenda: sustainable tourism concept, and 3. Action: responsible tourism behaviour. This is consistent with Caruana et al. (2014) who concluded that responsible tourism is commonly understood as a broad group of tourist interactions that contribute to and benefit local communities and reduce negative social and environmental impacts.

Tourist travel experiences need to include things such as knowing about social, cultural, and environmental issues. This has resulted in differences in the perception of tourism ethics among individual tourists. Tourists with travel experience are more ethical and support responsible travel behaviour more than tourists with no experience (Lee et al., 2017).

3.2 The role of art in environmental issues and responsible tourism

Studying the creation of environmental awareness through art, Lee (2021) stated that art displayed in public spaces in cities can help spread emotional feelings and togetherness. It also leads to urgent new ways of thinking that help us change behaviour and find solutions. The concept of participation is also very important in the arts.

Papavasileiou et al. (2020) studied the role of art in environmental education. It was found that using fine arts in implementing environmental projects can greatly contribute to achieving environmental goals. The role of fine arts in raising environmental awareness shows that creative use of fine arts contributes to creating an experiential learning environment that strengthens emotional connections with enriching experiences, cultivating a sense of care, development, and responsibility. According to Yuliastuti et al. (2019), the art creation process has not only economic objectives but also takes into account the environment as a driving

force. The resulting art installation is one of the answers to the problem of plastic waste that exists in everyday life as the art is not far from the life context of the community.

Asamoah et al. (2022) studied recycled art from plastic waste for environmental sustainability and aesthetics in Ghana and found that the accumulation of plastic waste harms both animals and plants in the community. Improper handling of plastic waste is an important factor that causes plastic waste pollution. Therefore, projects to create recycled art from recycled plastic waste material serves as a practical demonstration and to increase awareness of how discarded plastics can be transformed into art for environmental beauty and sustainability to reduce plastic pollution.

3.3 Arts involved in research

The skyscraper (Figure 1), a 38-foot-tall, 5-ton sculpture representing the 150 million tons of plastic waste polluting our oceans, was designed by New York-based Studio KCA and installed in Bruges' Jan Van Eyck Square in 2018. It is a work of art created from the study of the problem of plastic waste that harms humans. A survey found that every day, an amount of plastic waste equivalent to 1 car is dumped into the ocean and scattered on beaches, which causes marine animals to be contaminated and cause harm to humans when consumed. The skyscraper is a whale made from colourful plastic waste such as bleach bottles, chairs, basins, and more. These waste products are difficult to biodegrade and have been around for a long time. Most of it is plastic collected from Pacific Ocean beaches through a collaboration between the artist and an organization called the Hawaii Wildlife Fund.

Figure 1: The skyscraper (The Bruges Whale)

The sculpture from plastic waste bottles was created by collecting large amounts of trash from the sea and developing them into works of art. This is to create a work of art that reflects the concept of pollution from marine waste, which affects the lives of many aquatic animals and is a problem that must be solved and managed better. The idea behind the creation of this sculpture was to develop and create a work of art sculpture in the shape of a marine animal to be used as a model for finding ways to make Thai people more aware of environmental problems and also to manage the plastic waste problem the better way.

3.4 Consumption of sign

The theory of consumption of sign is a critical examination of the cultural contradictions of modern society, often employing irony and satire. Central to this concept is the simulacrum, a Latin term dating back to the 12th-16th centuries, originally meaning "likeness" or "illusion" but later evolving to signify "image" or "idol." Baudrillard's conception of the simulacrum posits it as a self-sufficient simulation or copy that is no longer tied to any original reality or representation (Baudrillard, 1968). The theory of consumption of sign plays a pivotal role in this research, which aims to construct symbolic meanings associated with consumption, particularly focusing on contemporary consumerism and the excessive use of plastic items. The excessive accumulation of plastic waste poses significant challenges in terms of disposal and has detrimental effects on both humans and the environment. To address this issue, this research collected plastic waste and pollutants from Cha-am Beach and transformed them into artwork. This artwork serves as a visual representation to communicate with tourists and local residents, raising awareness about the environmental problems caused by plastic waste. This issue requires the cooperation of all parties, and everyone should be informed and take responsibility for the increasing amount of waste.

3.5 Pro-environmental behaviour

The study applied the pro-environmental behaviour model to assess the tourists' awareness of responsible tourism after viewing marine animal sculptures made from plastic waste. Rooted in psychology since the 1960s, this framework proposes a linear relationship between environmental knowledge,

environmental attitude, and environmental behaviour, ultimately leading to more pro-environmental behaviours, (Burgess et al., 1998), as shown in Figure 2

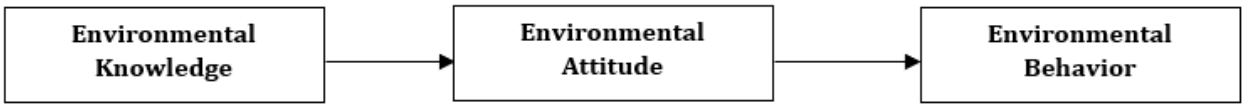

Figure 2: Models of pro-environmental behaviour

4. METHODOLOGY

4.1 Research scope

There were 7 experts involved in examining the appropriateness and feasibility of the prototypes of marine animal sculptures from plastic waste, including sculpture experts, art experts, and experts from the province of Phetchaburi. The researcher used accidental sampling to select a group of 200 people who were shop operators, restaurant operators, Thai tourists, and foreign tourists. Prototypes of marine animal sculptures made from plastic waste were installed and the data were collected at Cha-am beach, Phetchaburi Province. According to the Phetchaburi Provincial Report, waste management, particularly on Cha-am Beach, poses a significant challenge that has a widespread impact on the community. Currently, each local administrative organization manages waste based on its own capacity, lacking integration and failing to meet sanitary standards. A survey on waste quantity revealed that the 84 local administrative organizations in Phetchaburi Province generate over 100,000 tons of waste annually (Phetchaburi Provincial Office, 2021).

4.2 Data collection instruments

According to the research process, the data collection tools consist of 2 sets. The data collection tools used in the process of creating the prototypes of marine animal sculptures from plastic waste was the appropriateness and feasibility assessment form. The assessment form was checked for content validity by 5 experts. The results revealed that the Index of Item-Objective Congruence (IOC) equaled 1.00, which met the criteria. The steps to assess the tourists' awareness of responsible tourism through viewing marine animal sculptures made from plastic waste involved a questionnaire. The questionnaire was evaluated for content validity by 5 experts, with consistent Index of Item-Objective Congruence (IOC) equal to 0.60–1.00, which met the criteria. The reliability measured by Cronbach's alpha coefficient was equal to 0.89, which means that the questionnaire was appropriate and reliable.

4.3 Data collection

For the process of creating the prototype marine animal sculptures from plastic waste, the researcher gave the appropriateness and feasibility assessment form to the 7 experts to evaluate the appropriateness and feasibility. As for the procedure of assessing the tourists' awareness of responsible tourism, the researcher used the questionnaire.

4.4 Data analysis

The researcher analysed the data from the assessment using the following statistical analysis.

1. The data on the appropriateness and feasibility of creating the prototypes of marine animal sculptures were obtained from the appropriateness and feasibility assessment form. They were analysed by mean ($\bar{x}$) and standard deviation (SD) (Leekitwattana, 2015), and then compared to the criteria.

2. The data on tourist awareness of responsible tourism were obtained from the questionnaire. They were analysed by finding the mean ($\bar{x}$) and standard deviation (SD) (Leekitwattana, 2015), and then compared to the criteria.

5. RESULTS

The process of creating a sculpture sketch: The prototype sculpture design in this research took the shape of a jellyfish, a marine animal that was researched using the mucus of three types of jellyfish: Cotylorhiza tuberculata (fried egg jellyfish), Rhizostoma pulmo (barrel jellyfish), and Mnemiopsis leidy (warty comb jellyfish). These were used to capture the microplastics in seawater and led to the GoJelly project in the European Union (Javidpour & Rotter, 2018) as a model for communicating how the microplastic problem had become a marine pollution problem that affects marine and coastal ecosystems around the world. It was also a campaign to promote the reuse of plastic waste in the form of recycling by developing it into a work of art

that benefits the community and helps promote the image of tourism and increase interest. The research sketch was created by combining plastic waste collected from the Cha-am beach area to form the shape of a colourful jellyfish using multi-coloured plastic bottles. A light bulb was also installed inside to add light at night. It creates a lively tourism atmosphere with works of art full of colours, and lights, which also helps stimulate tourism. The sketch design is shown in Figures 3 and 4.

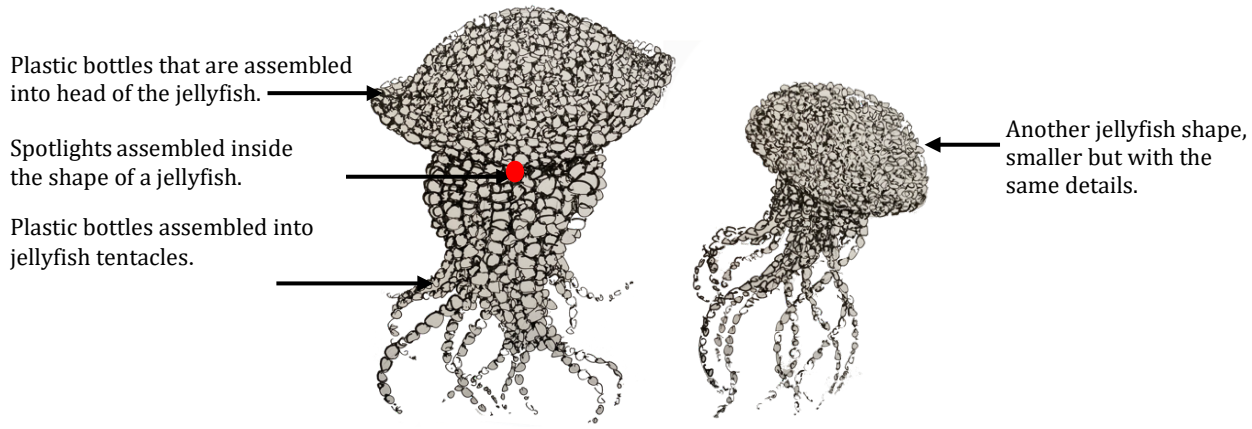

Figure 3: Detailed sketches of the two jellyfish-shaped sculptures

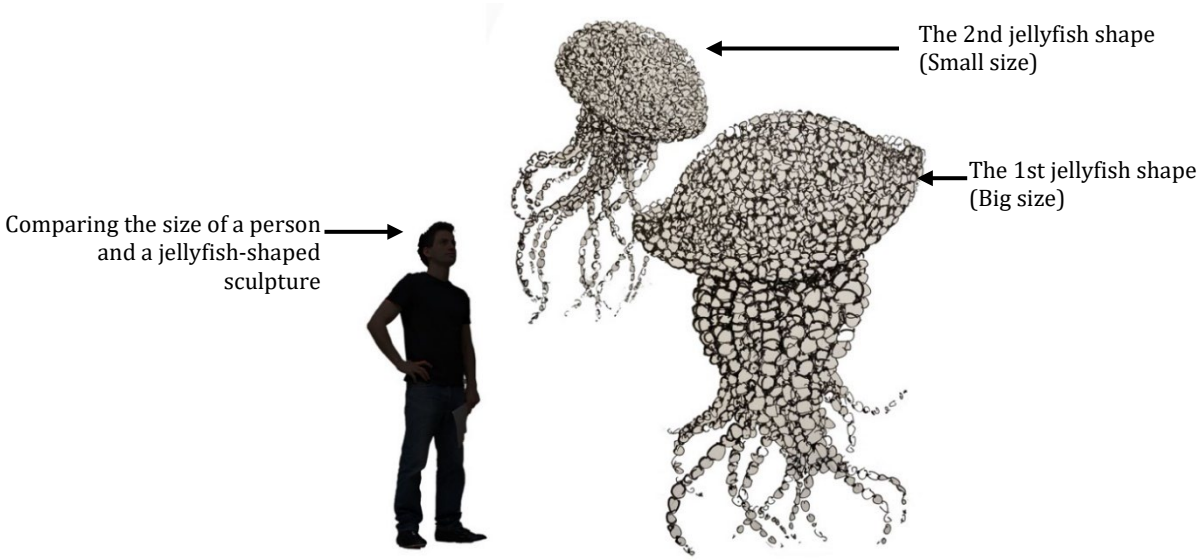

Figure 4: Comparison of jellyfish sculptures made from plastic bottles and human size

These two jellyfish-shaped installations were installed along the beach to make the jellyfish-shaped sculptures stand out and serve as a medium for tourists to easily access the meaning and understand the artwork. The materials used to create the sculpture are plastic bottles collected from Cha-am Beach in Phetchaburi Province, which reflects the problem of large amounts of plastic waste resulting from improper disposal of garbage by humans. In addition, garbage harms marine animals and the living things that live on this beach. The researcher presented a solution to this problem by recycling and transforming plastic waste into works of art that create beauty and colour at night for people to watch.

The process of creating a jellyfish-shaped sculpture

Step 1: A 2D sketch was created at a 1:10 scale using pencil or marker as a prototype for the large-scale art installation. This prototype was designed to be installed in conjunction with a research site (simulating the actual installation space). The artwork comprises two main shapes: a larger jellyfish-like form with undulating edges and a smaller, umbrella-shaped form (Figure 5).

Figure 5: Bending steel bars to make the head structure of a jellyfish

Step 2: Thea jellyfish-shaped structure was made with a rebar. The process was started by bending the steel into a circular structure to make the core of the two jellyfish shapes. Then the steel was welded on top to form a semi-circular structure on all 4 sides, along with welding additional steel in the gaps of the circle filling it by welding small pieces on to fill all sides. Welding steel in this area will strengthen the details on every side of the circle. At the same time, bent steel was added to the circular tip of the larger piece to create a detail at the tip that resembles a jellyfish's umbrella.

Step 3: The jellyfish steel frame was spray-painted white to blend seamlessly with the plastic bottles that would be attached (Figure 6). White was chosen as it provides a clean aesthetic and minimizes visual distractions. Additionally, white is a neutral colour that complements various materials and blends well with most environments.

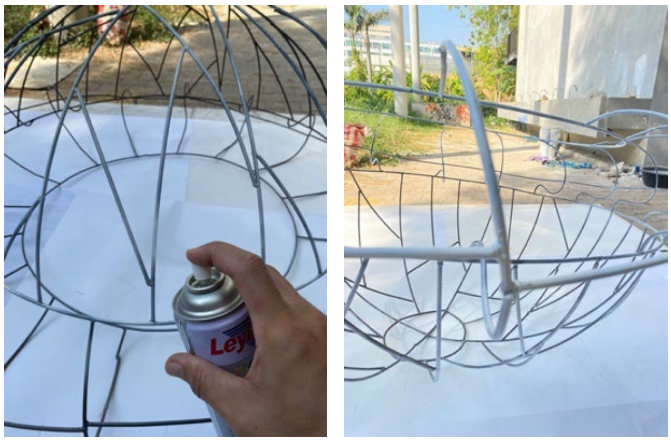

Figure 6: Spray painting the jellyfish-shaped steel frame in white

Step 4: To create the jellyfish's tentacles, plastic bottles were strung onto curved steel rods (Figure 7). This method is similar to the head construction, but with longer, more slender strands of bottles (Figure 8).

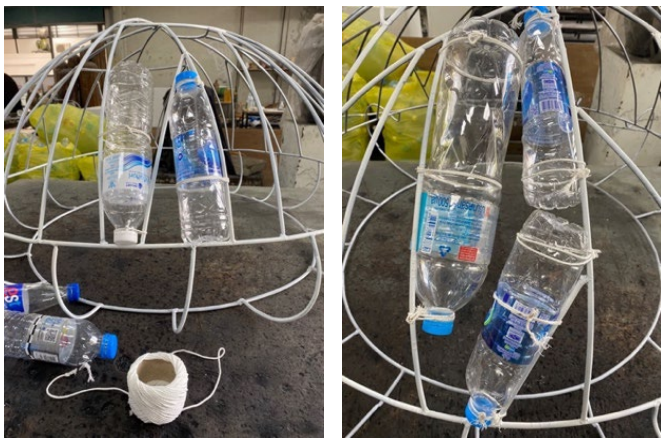

Figure 7: Tying plastic bottles to a jellyfish-shaped steel frame

Figure 8: Characteristics of the shape of each jellyfish head and jellyfish tentacles

Step 5: Spotlights were mounted inside the jellyfish's head to illuminate the plastic bottles and create a visually stunning display. The interplay of light and plastic enhances the sculpture's aesthetic and transforms it into a captivating centrepiece for the beachside installation (Figure 9).

Step 6: The jellyfish sculptures were completed by attaching the pre-made tentacles to the heads using welding techniques. To create a more realistic appearance, the attached tentacles varied in length and size. The final sculpture was carefully inspected to ensure its structural integrity and ease of transportation for installation.

Figure 9: Spotlights assembled inside the 2 jellyfish

Installing the marine animal sculptures in the research area: This step involved bringing a prototype sculpture from plastic bottles to simulate an installation in the research area. The sculptures were arranged in 2 rows, with the larger jellyfish sculptures placed in front and the smaller one placed closer to the back. The installation posture was designed to tilt to the left and to the right in order to allow the arrangement to move according to the wind waves. In the middle of the work on both sides, there was a walkway area for viewers or tourists to walk around and admire the sculptures with lights made from plastic bottles (Figure 10).

Figure 10: Simulation of the installation of marine animal sculptures made from plastic waste at Cha-am beach, type 1 and type 2

The assessment of the quality of the appropriateness of the prototypes of marine animal sculptures made from plastic waste, revealed that the overall results were at the highest level ($\bar{x}$ = 4.53, SD = 0.57). When factors were considered individually, it was found that the technical results appearing in the sculptures ($\bar{x}$ =

4.71, SD = 0.49) had the highest scores while the material's strength and durability had the lowest value ($\bar{x}$ = 4.29, SD = 0.49) (see Table 1). The feasibility of the prototypes of marine animal sculptures made from plastic waste was generally at the highest level ($\bar{x}$ = 4.56, S = 0.47). When considering each aspect individually, it was found that the basic concepts in creating the sculpture prototypes had the highest scores ($\bar{x}$ = 5.00, SD = 0.00). Suitability of materials used was the lowest ($\bar{x}$ = 4.29, SD = 0.49) (see Table 2).

Table 1: Mean ($\bar{x}$), and standard deviation (SD) of experts concerning the appropriateness of the prototypes of marine animal sculptures made from plastic waste

Assessment items	N = 7			
	$\bar{x}$	SD	Appropriateness	Assessment results
1. The material's strength and durability	4.29	0.49	High	Pass
2. Basic concepts in creating sculpture prototypes	4.57	0.53	Highest	Pass
3. Suitability of materials used	4.43	0.98	High	Pass
4. The attractiveness of the materials used	4.43	0.53	High	Pass
5. Level of interesting of the shapes that are composed it commanded	4.57	0.53	Highest	Pass
6. Effect of color of materials on visual perception	4.57	0.53	Highest	Pass
7. Beauty that affects the viewer's perception	4.57	0.53	Highest	Pass
8. Technical results appearing in sculpture	4.71	0.49	Highest	Pass
9. Appropriate size for installation with the area	4.57	0.53	Highest	Pass
10. Suitability for installation in the environment or area	4.57	0.53	Highest	Pass
Total	**4.53**	**0.57**	**Highest**	**Pass**

Table 2: Mean ($\bar{x}$), and standard deviation (SD) of experts concerning the feasibility of the prototypes of marine animal sculptures made from plastic waste

Assessment items	N = 7			
	$\bar{x}$	SD	Appropriateness	Assessment results
1. The material's strength and durability	4.43	0.53	High	Pass
2. Basic concepts in creating sculpture prototypes	5.00	0.00	Highest	Pass
3. Suitability of materials used	4.29	0.49	High	Pass
4. The attractiveness of the materials used	4.43	0.53	High	Pass
5. Level of interest the shapes that composed it commanded	4.57	0.53	Highest	Pass
6. Effect of color of materials on visual perception	4.57	0.53	Highest	Pass
7. Beauty that affects the viewer's perception	4.57	0.53	Highest	Pass
8. Technical results appearing in sculpture	4.43	0.53	High	Pass
9. Appropriate size for installation with the area	4.71	0.49	Highest	Pass
10. Suitability for installation in the environment or area	4.57	0.53	Highest	Pass
Total	**4.56**	**0.47**	**Highest**	**Pass**

The status of all respondents is shown in Figure 11. Assessing the tourists' awareness of responsible tourism through viewing sculptures of marine animals made from plastic waste involved 200 people who participated in the assessment, including 30 shop or restaurant operators in the Cha-am beach area, accounting for 15.00%, 87 Thai tourists, accounting for 43.50%, and 83 foreign tourists, accounting for 41.50%.

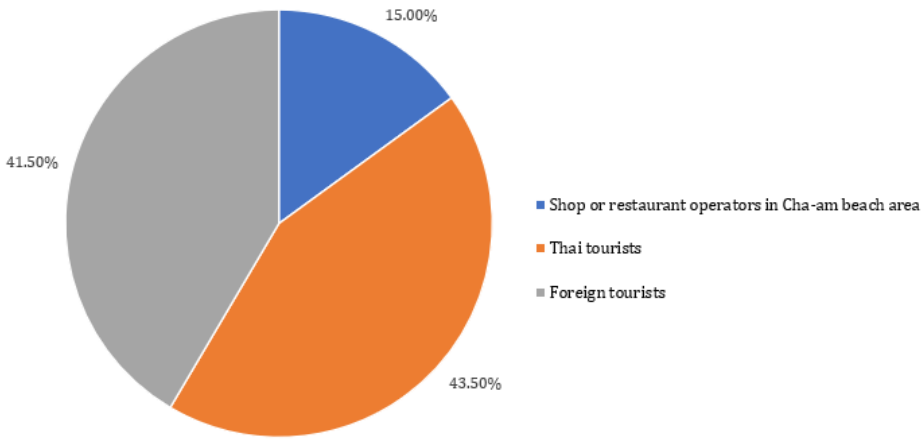

Figure 11: Percentage of respondents

The tourists' awareness of responsible tourism through viewing animal sculptures made from plastic waste is shown in Table 3. When both Thai and foreign tourists viewed the sculptures made from plastic waste, their overall awareness of responsible tourism was at a high level ($\bar{x}$ = 4.24, SD = 0.62). Moreover, the study found that all aspects were also at a high level as follows: Environmental Attitude ($\bar{x}$ = 4.15, SD = 0.63), Environmental Knowledge ($\bar{x}$ = 4.23, SD = 0.62), and Environmental Behaviour ($\bar{x}$ = 4.34, SD = 0.61).

Table 3: Mean ($\bar{x}$), standard deviation (SD) of the tourists' awareness of responsible tourism through viewing animal sculptures made from plastic waste

Responsible Tourism	$\bar{x}$	SD	Level
Environmental Knowledge	4.23	0.62	High
Environmental Attitude	4.15	0.63	High
Environmental Behaviour	4.34	0.61	High
Total	**4.24**	**0.62**	**High**

6. DISCUSSION

The assessment score for the quality of the animal sculpture prototypes made from plastic waste regarding their appropriateness was at the highest level ($\bar{x}$ = 4.53, SD = 0.57). When considering each aspect individually, it was found that the technical results appearing in the sculptures ($\bar{x}$ = 4.71, SD = 0.49) were also at the highest level. The materials' strength and durability were at the lowest ($\bar{x}$ = 4.29, SD = 0.49). The feasibility of the prototypes was generally at the highest level ($\bar{x}$ = 4.56, S = 0.47). When considering each aspect individually, it was found that the basic concepts in creating the sculpture prototypes were at the highest level ($\bar{x}$ = 5.00, SD = 0.00). As for suitability of materials used, it was at the lowest level ($\bar{x}$ = 4.29, SD = 0.49). This is consistent with Ataseven and Guven (2017) and Jin (2017). The current research also showed that knowing the shape, one of the first steps in creating the sculpture, relies on basic plastic composition and knowing how to manipulate the shape of the materials as well as knowing which materials have special properties in order to be able to create diverse and different sculptures.

The tourists' awareness of responsible tourism through viewing the animal sculptures made from plastic waste was overall at a high level ($\bar{x}$ = 4.24, SD = 0.62). When considering each aspect individually, the study revealed that all aspects were at a high level as follows: Environmental Knowledge ($\bar{x}$ = 4.23, SD = 0.62), Environmental Attitude ($\bar{x}$ = 4.15, SD = 0.63), and Environmental Behaviour ($\bar{x}$ = 4.34, SD = 0.61). This is consistent with Cheng and Wu (2015) in that tourists' environmental knowledge results in a high level of tourists' environmental awareness. In addition, the tourists' strong environmental awareness results in more environmentally responsible behaviour. This is consistent with the notion stated by Gonda and Rátz (2023) that tourists need to respect and get to know local customs as this indicates that they are more prepared and aware of the environment.

7. CONCLUSION

This study introduced sculptures that reflect the increasing problem of plastic waste in Thailand's marine tourist attractions. It affirms that the sculptures that the researcher has created are more than just an assembly of leftovers or what everyone calls "waste", to create a beautiful sculpture. The researcher wanted to communicate with the people who came to see the work and to make them aware that the plastic waste that was used to create the sculpture came from those of us who may be locals or tourists.

Further interviews revealed that in terms of environmental knowledge, the tourists understood that the environment is influenced by the actions of living organisms within it. They recognized that the pollution of Cha-am beach, for example, was a direct result of littering and improper waste disposal by tourists. Their attitude towards the environment was that tourists perceived the plastic waste problem as a serious issue. They expressed shock at the sheer amount of plastic used to create the marine animal sculptures, far more than they had previously imagined. Many also acknowledged that humans have contributed to environmental degradation due to the misconception that the Earth's resources are infinite. Consequently, they emphasized the need for campaigns to educate people about the importance of sustainable resource use, warning that if humans continue to exploit nature without changing their behaviours, our planet will face a crisis. Moreover, after viewing the marine animal sculptures made from plastic waste at Cha-am beach, many tourists expressed a desire to modify their tourism behaviour and become more environmentally responsible. This included using eco-friendly products, sorting their waste, reducing plastic bag usage or reusing plastic bags, recycling waste, and disposing waste properly. Some even mentioned that they would remind others to dispose waste properly and would actively participate in beach clean-ups.

Policy recommendations for sustainable success in promoting Thailand's tourism image. It is recommended that government sectors or related organizations implement the findings of this study to develop a strategic action plan for raising awareness of environmental protection in tourist destinations. By using sculptures as a medium to help communicate or reflect on environmental problems, tourists can increase their knowledge and understanding, which should lead to further awareness of responsible tourism.

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REFERENCES

Asamoah, S. P., Adom, D., Kquofi, S., & Nyadu-Addo, R. (2022). Recycled art from plastic waste for environmental sustainability and aesthetics in Ghana. *Research Journal in Advanced Humanities, 3*(3), 29–58. https://doi.org/10.58256/rjah.v3i3.872

Ataseven, O., & Guven, H. N. (2017). The basic plastic elements and material knowledge in sculpture art education. *Proceedings of the 10'th International Scientific Conference, 10*, 331–338.

Baudrillard, J. (1968). *The system of objects.* Verso.

Burgess, J., Harrison, C. M., & Filius, P. (1998). Environmental communication and the cultural politics of environmental citizenship. *Environment and Planning A: Economy and Space*, *30*(8), 1445–1460. https://doi.org/10.1068/a301445

Caruana, R., Glozer, S., Crane, A., & McCabe, S. (2014). Tourists' accounts of responsible tourism. *Annals of Tourism Research*, *46*, 115–129. https://doi.org/10.1016/j.annals.2014.03.006

Cheng, T.-M., & Wu, H. C. (2015). How do environmental knowledge, environmental sensitivity, and place attachment affect environmentally responsible behavior? An integrated approach for sustainable island tourism. *Journal of Sustainable Tourism, 23*(4), 557–576. https://doi.org/10.1080/09669582.2014.965177

Gonda, T., & Rátz, T. (2023). Attitudes and actions in responsible tourism–An analysis of generational differences. *GeoJournal of Tourism and Geosites, 46*(1), 234–242. https://doi.org/10.30892/gtg.46126-1020

Javidpour, J., & Rotter, A. (2018, August 18). *Go jelly*. https://gojelly.eu/

Jin, L. (2017). A comparative study on the material application of traditional sculpture and contemporary sculpture. In N. Xin, Xi'an, K. El-Hami, & Z. Kun (Eds.), *Proceedings of the 2017 7th International Conference on Social Network, Communication and Education (SNCE 2017)* (pp. 861–864). Atlantis Press. https://doi.org/10.2991/snce-17.2017.176

Lee, H. Y., Bonn, M. A., Reid, E. L., & Kim, W. G. (2017). Differences in tourist ethical judgment and responsible tourism intention: An ethical scenario approach. *Tourism Management, 60*, 298–307. https://doi.org/10.1016/j.tourman.2016.12.003

Lee, K. (2021). Urban public space as a didactic platform: Raising awareness of climate change through experiencing arts. *Sustainability, 13*(5), Article 2915. https://doi.org/10.3390/su13052915

Leekitwattana, P. (2015). *Educational research methodology* (10th ed.). King Mongkut's Institute of Technology Ladkrabang. [in Thai]

Li, W. C., Tse, H. F., & Fok, L. (2016). Plastic waste in the marine environment: A review of sources, occurrence and effects. *Science of The Total Environment, 566–567*, 333–349. https://doi.org/10.1016/j.scitotenv.2016.05.084

Mihalic, T. (2016). Sustainable-responsible tourism discourse – Towards 'responsustable' tourism. *Journal of Cleaner Production, 111*(Part B), 461–470. https://doi.org/10.1016/j.jclepro.2014.12.062

Papavasileiou, V., Nikolaou, E., Andreadakis, N., Xanthacou, Y., & Kaila, M. (2020). The role of art in environmental education*. IJAEDU-International E-Journal of Advances in Education*, *6*(18), 287–295. https://doi.org/10.18768/ijaedu.819417

Phetchaburi Provincial Office. (2021, June 13). *Phetchaburi Province summary report*. https://phetchaburi.go.th/phet2/CODE/files/1637743610_onweb.pdf [in Thai]

The Department of Marine and Coastal Resources. (2022, April 19). *Marine debris situation in 2021*. https://km.dmcr.go.th/c_260/d_19461 [in Thai]

The Government Public Relations Department. (2023, October 20). *Sustainable tourism goals*. https://thailand.go.th/issue-focus-detail/174 [in Thai]

Tourism Authority of Thailand. (2022, May 21). *Tourism enterprise plan of Thailand 2023–2027 (Revised edition 2025–2027)*. https://www.tat.or.th/th/about-tat/market-plan [in Thai]

Yuliastuti, N., Sulistyo, E. T., & Yulianto, N. (2019). Plastic as a media of installation artworks based on recycle art. In E. T. Sulistyo, T. S. Pitana, & H. Ardi (Eds.), *Proceedings of the Third International Conference of Arts, Language and Culture (ICALC 2018)* (pp. 65–71). Atlantis Press. https://doi.org/10.2991/icalc-18.2019.10