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INTERNAL RESEARCH REPORT



EVOLUTION OF ARTS VALUES AND TYPICAL OF TECHINCAL OUTRIGGER IN PANGANDARAN

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IDENTITY AND GENERAL DESCRIPTION

1. **Research topic:**

Evolution of arts values and typical of technical outrigger in Pangandaran

2. **Researchers**

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3. **Research object**

Balancing device on traditional fishing boat at Pangandaran coastal area

4. **Implementation period**

started : month: June, year: 2020

end : month: July year: 2020

5. **Proposed Cost DRPM (Ditjen Penguatan Risbang)**

- Year 1 : 24,000,000,- IDR

6. **Research location (labs/studios/fields):**

Pangandaran coastal area

7. **Other agencies involved (if any, and describe what was contributed)**

-

8. **Targeted findings**

Arts values and technical values

9. **Basic contribution in area of study**

This research is a study that can contribute to education in the field of art and practicality in the field of engineering in studying the material object of a technical engineering work from a social point of view.

10. **The target** scientific journals is international proceedings: 2nd International Conference on Humanities, Art and Philosophies (2nd ICHAP 2020), published on July 12, 2020.

11. **Output and outcome**

The evaluation result of the study is in the form of a research report that is registered as a result of copyrighted works under intellectual property and rights

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SUMMARY

Outrigger is a balancing device on a boat that is usually used by fishermen in the south coast of Java that serves as a tool so as not to capsize and will maintain stability when hit by waves and wind. Until now the general view is that outriggers are only a part of a fishing boat, whereas outriggers are not only a secondary part of a fisherman's transportation equipment, but are an important point that makes outriggers able to provide certain characteristics to coastal communities. The problems that arise are about the shape and structure of outriggers that are different from those on other coasts and the question of values contained in outrigger artiness has never been raised by researchers is a matter that deserves attention. The use of scientific aesthetic approach, namely the modern aesthetic approach and traditional aesthetic approach in uncovering the problem of values, as well as the diachronic model approach in the history of outrigger to reveal the typical characteristics of outrigger techniques is considered sufficient to analyze and conclude it. The conclusions are that the outrigger on a boat at Pangandaran can be said to have differences in characteristics and characteristics of those on the other coast due to the results of intelligence and reasoning of the craftsmen of the boating in the basis on various factors they receive, thus providing creativity stimulation to outrigger craftsmen who are ultimately able to produce value and new concepts on typical outriggers in Pangandaran.

Keywords: aesthetic, coastal, diachronic, outrigger, traditional

CHAPTER I PRELIMINARY

Problems Background

An outrigger is a balance tool on a fishing boat on the Coastal Coast. Outrigger requested by the Coastal community is a boat balancer to achieve the desired level of stability when the waves hit the boat. The boat on the south coast of Java as an object of study has a traditional boat design used on the coast using one hull. Outriggers are used on special fishing boats in the Coastal and river areas, which are used only for types of boats with passengers ranging from 4-6 people. The boat is usually called by some people on the South Coast of Java using outboard engines which require relatively little power.

Outrigger is a work of artificial boat craftsman who is the result of community culture as a target of research and needs to be reviewed from a variety of perspectives to capture the phenomena of values contained therein in addition to the value of the function itself. Why is that? Culture functions to connect humans with the natural surroundings and with where coastal communities are located, starting from the way of life, patterns of life that are regulated, established and approved by coastal communities as well. Art as a result of culture is the intended target that can be approached from the point of history, anthropology, sociology and other empirical studies.

This research will be used as a model for the study of the history of a boat and cultural studies of coastal communities. Diachronic study models in history are used to approach the study of aesthetic experiences and aesthetic values experienced by Pangandaran coastal communities based on the time dimension. The discourse on the expression of studies in the making of outriggers on this time dimension takes premodern aesthetics as a guide to epistemology in seeking knowledge about the history of style and the technicalities it uses. The use of the scientific, aesthetic approach, namely the modern aesthetic approach and the traditional aesthetic approach, in uncovering the problem of the value of the Pangandaran coastal outrigger are one of the methods chosen because it has a connection with the technical typical study starting from archeology in its search.

The History of Indonesia's Outriggers

The presence of a boat, or Prahua or proa, in Indonesia are as old as the existence of humans on the islands. When ancient humans inhabited caves, boats were part of their life. Some of the caves depict prehistoric boats that might have been used by those who painted them or perhaps their ancestors several generations earlier, Australo-Melanesians who migrated from Sunda to Wallace. Besides been found in caves, boat shapes are also found in fabric motifs, roof forms, and inscriptions, and the most phenomenal ones are found in the reliefs of the Borobudur temple. Outrigger boats are not found in cave paintings. Outrigger boat technology is associated with the wave of migration of the two Austronesians from Taiwan to Indonesia around 2000 BC, which brought technology more advanced than that of the Lapita civilization in the eastern part of the Korean archipelago. They might have started life in pillared houses on the surface of the sea or on a boat and explored the ocean before they reached Madagascar in the ninth century and spread to Polynesia until they reached Hawaii and New Zealand in the tenth century.

According to Gery Dierking in his book entitled "Building Outrigger Sailing Canoes: Modern Construction Methods for Three Fast Beautiful Boats", said that starting from Madagascar which is on the east coast of the African Continent to Easter Island in the middle of the Pacific Ocean, outrigger on fishing boats are the most useful tools for human life. Very few boats have undergone such a long development under natural conditions that demand what they are. Gary also mentioned that outrigger evolution that has spread to many countries has only a few changes that are only on the basis of its configuration. Each group of islands in the Pacific Ocean brings a variety of solutions depending on the conditions and traditions that exist in that place. Meanwhile, single outrigger and double outrigger tracks have been made more than 30 meters in length, but most fishing boats used daily today in various islands are between 16 feet (4.8 m) and 25 feet (7.6 m) which represents a practical measure for a small home-based fishing boat construction industry (Dierking 2007)

People who explore and settle on islands in the Pacific Ocean do not have written language, but rather memorize history from their cultural information. This fact makes it difficult for the initial development of a fishing boat that explored one third of the earth's surface, starting 6000 years ago, most of the valuable information available was collected by early western explorers in the form of notes and drawings and sketches. At the time of first contact with

western explorers, both double-hulled catamarans and single outrigger canoes are in use. Catamarans are preferred for transporting heavy items or many people. Single outrigger boats are faster and are used to chase flocks of fish or use for conveying purposes. In some cases, the hull can be used with a partner as a catamaran or equipped with a single outrigger, depending on the intended use. Outrigger double trimarans are generally not seen in Polynesia or Micronesia, but in Indonesia and in the Philippine Islands. Gary in his book would like to say that Indonesian architects or marine designers have long thought and experienced to build many types of outrigger. In the reliefs shown at Borobudur, outrigger construction is no different from the others. The only difference is the buoy devices on both sides of the ship whose function is to maintain balance. Borobudur ships do not show longitudinal symmetry and do not have rigs or masts that can be easily reversed. Therefore, it seems unlikely that the Borobudur ship is a single outrigger ship (Beale 2006). This case states that Indonesia has given its first contributor to the design of a double outrigger and spread to the marine world. This statement is reinforced by Gary Dierking's statement that the term proa is that the term boat originally came from Indonesia. when European explorers first saw outrigger boats from the Pacific islands, they called it Proas because of their previous experience in Indonesia where double outrigger boats were often seen. AC. Haddon in his research entitled *The Outriggers of Indonesian Canoes* said that: "The only example I know of Indonesian double-twin boats is that illustration by Hickson, this is a small model used for ceremonial purposes in the Nanusa Islands in northeast Sulawesi outside the Salibabu Islands. This canoe consists of two canoes that are close together; both of them extending their ends upside down and crossed by three bogus / booms, their ends pegged so they cannot float. Muller suggested that the idea of double canoeing might be due to the Influence of Micronesians, and asked whether outriggers might not be universally traceable to being a fused boat double (Haddon 1920a).

Pangandaran Coastal Outrigger

An archipelago traditional boat which, according to experts comes from Austronesian boats in the form of outrigger boats continues to develop slowly in accordance with the natural environment in which the boat is located. Likewise, the boats in Java Island, some areas use artificial boats and some do not. The technical differences between boats in northern Java and the south have been done by several studies, one of them by Jopie Wanganea in his article entitled *Types of Boats on the North Coast of Java, Madura*. In his research, it is stated that boats along

the north coast of Java have similarities, whereas in southern Java the characteristics of boats using outriggers are dominated except in the Port of Ratu area which is influenced by the northern regions of Java and other parts of southern Java which are more due to being in the bay areas. Boats on the south coast generally use outrigger and the engine and the size of the boat is relatively small so that in general use outrigger as a balance tool. According to Ira Adriati in his book *Perahu Sunda* said that Jukung in Pangandaran (southern West Java) has a distinctive boat shape. The distinctive shape of the boat south of West Java is its high bow and stern (angular) stance to place the boat's engine (Adriati 2004) This Pangandaran boat type is the only type found in this region, but having 2 types based on the building material, namely of resin and wood, the equation is both combined. Outrigger attached to a boat in the Pangandaran beach area has its own unique structural characteristics with outrigger in other regions of the archipelago. Outriggers are about a third the length of the boat's body / hull, while other coastal outriggers vary in size depending on the model of the boat. The installation of outrigger on buruyungan or outrigger wood support has a significant difference, namely the installation of outrigger in the back position (stern) which is packaged by the craftsman by wrapping it into a unity with the buruyungan. Another characteristic that makes a difference is the installation of outriggers on the front of the bouquets (beam) tied to the top of the bouquets and then bound. It is this difference that gives researchers problems about the evolution of outrigger shapes and structures in Pangandaran to provide a technical characteristic by enabling differences with outriggers on other coasts in the archipelago.

Art Value for Outriggers in Pangandaran

Research on outriggers has been carried out by leading researchers in fields that question exclusion or question outriggers from an engineering scientific perspective. For research that discusses the views of many viewed from the point of view of the ornaments / ornaments attached to the ship as research conducted by Ira Adriati in his book *Perahu Sunda*. Study of ornamentation in boat sculpture and sociology in the maritime community has also been carried out by K.G. Izikowitz in an article published in the journal *Mariner's Mirror*, entitled *A Canoe from Solomon Island and its Social Role*, proves the senior study of the boat. The provisional conjecture does not have a review or research on outriggers themselves about the main object of senior assessment that discusses the value aesthetic assessment (Izikowitz 1957). The basic assumption to be achieved is a research agenda to see a shift in the concept of a product of

engineering products that are loaded with efficiency, economic value, ease of operation and become a concept of works of art products that have aesthetic values containing philosophical values, symbolic values, Intrinsic value, cognitive value, life value and aesthetic value on an outrigger attached to a boat on the south coast of Java, especially on Pangandaran Beach. For this reason, a basic statement is needed as a basis for researchers in developing and revealing the values contained above. Another guess that is directly related to the topic of the aesthetic values contained in the Pangandaran outrigger is how to find value, that outriggers can be a study of aesthetics that has a social function and has a moral beauty value to the Pangandaran coastal community.



Figure 1: The Outrigger and Beams (Buruyungan)
Source: Thesis: (Rochyat 2016).

Problems Formulation

Outriggers are often seen attached to all types of boats that were not originally designed to be used in this way. The sailing boat gradually changes, and generally has poor stability of many of the design of the boat model, and in the end causes some owners or coastal marine communities to add one or two hulls (floating and outrigger parts) to their work. The results can be mixed (Haddon 1920b) The alleged difference in the shape and structure of the outrigger on the south coast of Java (Pangandaran) is different from the outrigger on the north coast of Java. The relevance is that, when viewed from a typical technical outrigger created from the results of technical experience and even the aesthetic experience of crafted boat makers. It is said that people on land make their livelihoods at sea because of the many bamboo trees in the area, residents learn to make bamboo rafts for livelihoods in coastal areas. If on an inhabited island, it is rich in bamboo plants and other wood trees that are suitable for making boats or ships, along with it then their ability at sea will increase. (Clark, Leach, and O'Connor 2008). From experiences like this they managed to overcome all difficulties until they were finally able to

cross the ocean Does geographical conditions determine the outrigger work according to the following narrative: the phenomenon of outrigger shape and structure attached to the fishing boat is different between the southern coast of Java and the north coast of Java. 1. North shore outrigger uses traditional bamboo materials while south outrigger uses material from fiberglass reinforced plastic (RFP). 2. Southern outrigger is approximately one third of the body of the boat, while the northern outrigger varies in size depending on the model of the boat. 3. Installation of outrigger on buruyungan or outrigger wood buffer has a significant difference. A. Outrigger installation in the rear position (stern) is packaged by the craftsman by wrapping it into a unity with the booms. This gives order and beauty according to the observer's view. B. Outrigger installation on the front of the bonnet (bow) is tied to the top of the page, then wrapped with a resin-based packaging. This is very different from the binding structure in the outrigger on the northern coast of Java Island. The problems of artistic values which are the main subject in this study are capturing the phenomena contained in them in addition to the value of practical / applied functions on outriggers on the coast of Pangandaran. The identification of this problem is: 1. The existence of sea rituals in the Pangandaran coastal community that uses a boat as an object, because religion and art empirically have a relationship with having the same elements, namely ritual and emotional. From this aspect, the symbolic value problem arises. 2. Outrigger work is only a secondary/complementary work of the entire boat section, so that the design review of the boat has added value to the beauty of the outrigger? 3. Outrigger has a very important role in the safety aspects of passengers and fishermen, in general, it escapes the observation of the coastal community itself, including the craftsmen of the boat, that outriggers must be appreciated as a work that can help them. From the problems that have been mentioned above are formulated into research questions, namely: First, why do outriggers on the southern coast of Java (Pangandaran) have typical technicalities that are different from other regions in the archipelago? Second, can outrigger work as a means of stability on a fishing boat give value to the philosophy of art?

Research goals

1. To reveal the evolution of the outrigger characteristics of boat in Pangandaran
2. To find the concept of artistic values contained in the outrigger boats in Pangandaran

Benefits of the research

1. For academics, to develop the art science and engineering science that is in the boat balance tool.
2. For the community, to be able to pay more attention to cultural products through appreciation of the arts and engineering fields.
3. For practitioners, to be a guide in using outrigger boats in various uses according to their capacities

Research Output

The target scientific journal is international proceedings: 2nd International Conference on Humanities, Art and Philosophies (2nd ICHAP 2020), published on July 12, 2020.

Table 1. Annual Achievement Target Plan

No	Output Type				Outcome Indicators		
	Category	Sub Categories	Required	Additional	TS	TS+1	TS+2
1	Scientific articles published in the Journal	International reputation					
		National Accredited					
		National not accredited					
2	Scientific articles were published in the proceedings	Internasional terindeks	√		publish		
		Nasional					
3	<i>Invited speaker in scientific meeting</i>	Internasional					
		National					
4	Visiting Lecturer	International					
5	Intellectual Property Rights (IPR)	Patent					
		Simple Patent					
		Copyright	√		plan		
		Trademark					
		Trade Secret					
		Industrial Product Design					
		Geographical Indication					
		Plant Variety Protection					
		Integrated Circuit Topographic Protection					
6	Appropriate technology						
7	Model / prototype / design / craftsmanship / social engineering						

8	Textbooks (ISBN)					
9	Level of Technology Readiness (TKT)					

CHAPTER II LITERATURE REVIEW

Hornell's article, entitled *The Fishing and Coastal Craft of Ceylon*, describes types of boats with outriggers called *oruwa* in the Sinhalese and *Kulla* regions of Tamil, which were built in Ceylon. Outrigger on boats is said to be one of the most distinctive handicrafts in the world, which has become a topic of conversation among many boat-craft observers. (Hornell 1943, 40). The structuralist point of view is used in this article, in which the outrigger elements of the boat are detailed and separated according to their building structures. This article aims to find out the characteristics of the boat outrigger in the area under study. This study does not provide an explanation for the reasons of the Ceylon community as the basis for forming the boat outrigger, so that the craftsmen's point of view has no comment. There is also no specific mention of the natural conditions that Hornell refers to. Apart from that, the difference with the fishing boat outrigger research in Pangandaran lies in the reality of more specific natural conditions and is accompanied by specific regional climatic conditions, so it is hoped that the findings of outrigger forms accompanied by these reasons. The most important thing in this article states that the outrigger is released when the water conditions are calm such as in canals / rivers (Hornell 1943, 46). Another study of Hornell's boat outrigger entitled *The Outrigger Canoe of Madagascar, East Africa And the Comoro Islands*, recounts a migration that occurred at intervals during the first early AD period, affecting the shape and type of boats in Madagascar - Africa. Colonization by Javanese and Sumatran immigrants to the Comoros islands, north of the large island of Madagascar. The language used by them is the same as the use of Javanese Kawi, which is one of the influences other than a few details of the sister boats which are the same as the boat carvings on the reliefs in 9th century Borobudur Temple (Hornell 1944, 3-4). This study shows that Indonesian sailors came to the west, initially with the intention of trading, but in the end they colonized so that they formed culture in the areas mentioned. The culture that influenced the colony was no exception to the boat technology of the siblings. This article provides an illustration that the outrigger technology developed by the Javanese people influenced the

maritime culture of other nations, which may be the basis for the boat craftsmen who are very skilled in making ancient boats. The weakness of this study is that Hornell only examines the structure of the sister boats and their types, but is not accompanied by any deepening of the meaning contained. The interpretation of the outrigger values as shown in the Pangandaran fishing boat outrigger research becomes a very basic differentiator. Sunani's article, entitled *Symbolic Analysis on Sandeq Boats and Local Wisdom in Polewali Mandar*, contains the meaning content in the symbols on outrigger boats that appear in the values in the Mandar Tribe. This study aims to explore the meaning and values that exist in the Sandeq boat, by showing the parts that are oriented towards identity and forms of belief. The semiotic approach by interpreting part of the structure to build the symbolic interpretation was carried out by Sunani. The sandeq boat as a local spirit becomes local knowledge of physical cultural material, it is also seen the messages of values that guide ethics and behavior in society (Sunani 2019, 45). The outrigger-forming structure is not reviewed and interpreted in this study, even though when it is reviewed separately, the outrigger and the boat will be more complete.

The Study of the Concept of Two Patterns and Aesthetics on the Slerek Boat in Jembrana, is the title of the dissertation at the Indonesian Art Institute in Denpasar. Aesthetic analysis studies on boats to see the boat as a whole from the point of view of its constituent elements, and therefore marine crafts wrapped in beauty have aesthetic values, are full of philosophy, and the meaning they contain. Research aimed at developing a two-pattern concept that is implemented in the community in the production of traditional Slerek boats (Indra Aryadi 2016). The weakness of this research is in the statement that there is no scientific scalpel in assessing the concept of meaning in traditional boats, but many similar studies such as boat decoration have emphasized this. This research on the cascade boats does not include outriggers as the object it is studying, only people's views on the interpretation of aesthetics which shape the concept of coloring this study. The difference with the Pangandaran fishing boat outrigger research is the social point of view that forms the concept of characteristic from the aesthetics of the object of study.

The article, entitled *Optimization of the 3 GT Fishing Boat Outrigger*, tells the story of an outrigger object / boat worry that focuses on engineering engineering issues. The deepening of the elements of science in research comes from the engineering field or the scientific field of

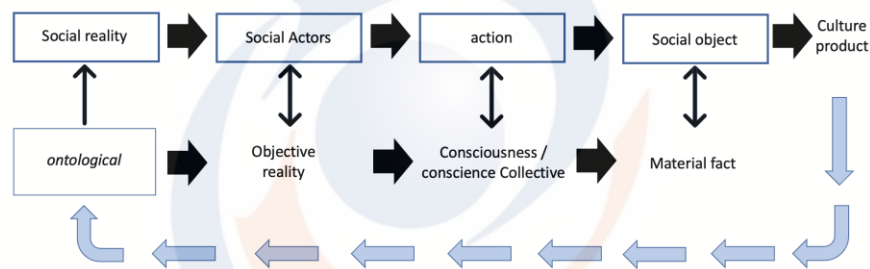
shipping. This study with an optimization perspective discusses the addition of an outrigger to a boat that can optimally increase its speed. The positivistic paradigm in this study requires experimental activities to generate a hypothesis. The experimental results of Santoso et al. explained that the difference between outrigger distances has no effect on the total resistance value because the calculation results are relatively the same. The conclusion is that the difference in outrigger distances greatly affects the formation of wave resistance (Santoso, Helmi, and Nurhasanah 2017). This article is useful in seeing the distance of the boat outrigger used in Cilacap, so that the dangers caused by its use can be minimized. Santoso study is positivistic, it is expected to deliver an explanation of the reality of the object in the Cilacap fishing boat outrigger research, as well as reinforce the differences with this Santoso study. Research on outriggers has been carried out by several researchers, especially in fields that are exact or understand outriggers from an engineering scientific point of view. For research studies that discuss art, it is seen from the point of view of ornaments / decorations attached to boats, such as the research conducted by Ira Adriati in his book *Perahu Sunda*. The study of ornaments on boat carvings and sociology in maritime society has also been carried out by K.G. Izikowitz, in an article published in the journal *Mariner's Mirror* entitled *A Canoe From The Solomon Island And Its Social Role*, proves the existence of a study of the art of tigers. The provisional assumption is that there is no study or research on the outrigger itself as the main object of art studies that discusses the disclosure of aesthetic values developed by Outrigger in Pangandaran. The basic assumption to be achieved is a research agenda to see a shift in the concept of engineering engineering product that is full of efficiency, economic value, ease of operation and becomes a concept of art product that has aesthetic values that contain philosophical, symbolic, and intrinsic value, cognitive value, life value and aesthetic value in an outrigger that is attached to a caddy boat on the south coast of Java, especially in Pangandaran Beach. For this reason, a basic statement is needed as a basis for researchers to build and reveal the values contained above. Another assumption that is directly related to the topic of aesthetic values contained in the Pangandaran outrigger is how to find value, that the outrigger can be an aesthetic study that functions socially and has a value of moral beauty on the Pangandaran coastal community.

Design research and Frameworks

To reveal the evolution of the outrigger characteristics of boat in Pangandaran, is to look at history diachronic and synchronic. The framework of thinking in revealing the realization of the

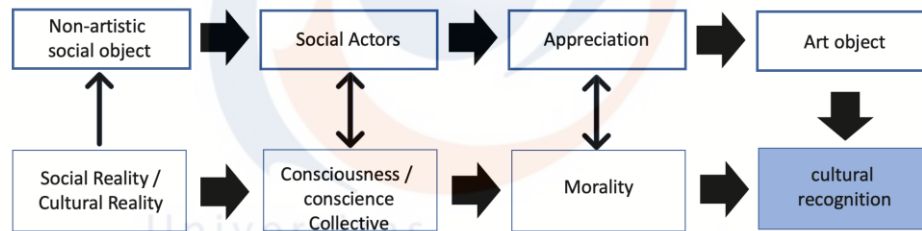
double outrigger fishing boat as a social object of the Pangandaran fishing community is to position it as a result of its social reality. The cultural realities of the past that were affected by progress have not made the fishermen and outrigger boat owners make changes. Social reality and social objects are the relationship between group knowledge which can affect the soul and knowledge of individuals in acting for their environment, which will affect the object. social reality contained in the culture of specific community groups will form mutual agreement (2) past reality as ontology, by seeing social objects taken from their development over time (history), aims to understand patterns of change in society that affect these social objects . This process is a journey of forming a social object which is objects that have a functional value for a community group. (diagram 1).

Diagram 1. Thinking framework of social reality towards the manifestation of cultural objects



To find the concept of artistic values contained in the outrigger boats in Pangandaran is the process towards the realization of social objects which are adopted by the wider community, so that the artistic values are realized. Placing non-artistic social objects that have functional value. Non-artistic social objects in the material social reality in this area are influenced by specific geographic realities, technological realities, and mythical realities. These realities form the facts of social objects as external conditions that influence individuals to act and behave, which in turn form collective agreements with strong doctrines. Giving appreciation is as if there is an element of politicization, which, without realizing it, social objects have authentic and unique values, which make them culturally legitimate art objects. (Diagram 2).

Diagram 2. Thinking Framework to embody non-artistic social objects towards cultural recognition



CHAPTER III RESEARCH METHODS

Place and time of research

In carrying out this research, it was carried out by visiting locations where data could be obtained, namely on the coast of Pangandaran. To carry out this research, the time required is from June 2020 - July 2020.

Methods

The use of empirical science called scientific aesthetics provides a descriptive picture, which seeks to find facts about art and human activities, tastes and experiences about art, explains the psychological processes associated with all of them and describes various fixed and changing portions. In this case the formal object in this research activity is to find the truth and beauty of the empirical experience explanation of the artisan boat craftsman to get and gain a complete understanding of material objects from all aspects of art and all the processes of aesthetic experience. The research model using modern aesthetic methods is to find and explain the types, tendencies or direction of causal relationships and interrelating factors related to the objectives of the study. The results of the review process are arranged in terms of theories, justifiable generalizations or general principles that apply (Liang Gie, 1983). Outrigger sensitivity by craftsmen using modern aesthetic methods will reveal aesthetic values based on the aesthetic experience of the craftsmen and fishermen and is supported by the cultural voices of the south coast of Java to strengthen the validity of the values contained.

Modern and Traditional Aesthetic Theory to find values in non-artistic social objects

The use of empirical science called scientific aesthetics provides a descriptive picture, which is trying to discover the reality of art and human activities, tastes and experiences regarding art, explaining the psychological processes associated with all of these and describing its various fixed and changing aspects. In this case the knowledge in this research activity is to discover the truth and beauty of the explanation of the empirical experience of the boat craftsmen and to obtain and obtain a complete understanding of the material object of all aspects of art and all processes of aesthetic experience. The study model using modern aesthetic theory is to find and explain the types, tendencies or direction of causal relationships and the factors that influence each other that are related to the object of the study. The results of the review process are organized in the framework of theories, justifiable generalizations or general principles that apply. (Gie, 1976: 30). Outrigger designs by craftsmen using modern aesthetic theory will reveal aesthetic values based on the aesthetic experiences of craftsmen and fishermen and are supported by the emics of the southern coast of Java to strengthen the validity of the values contained. The study model using the traditional aesthetic theory used in this study is to reveal the value of life, the symbolic value of the outrigger which is abstract about the sublime beauty (*grandeur*) of the Pangandaran outrigger work, so that this theoretical model provides a philosophical style.

Diacronic Theory

The diachronic study model in finding outrigger history is used to approach or study the evolution of shapes, structures and forces that occur in outriggers in Pangandaran coastal communities based on the time dimension. The discourse of expression of study in making outriggers in this time dimension takes pre-modern aesthetics as an epistemological guide in seeking knowledge of the typical technical evolutionary history of the Pangandaran outrigger. From the diachronic study model, there must be a common denominator in all viewpoints, intentionally or not, from events that are in direct contact with the empirical experience of Pangandaran coastal communities, so that their evolution can be revealed.

Implementation

Describing the stages or steps in carrying out to produce the required data, among others:

1. Observation:

Observation is carried out to observe directly at the research location mentioned above to obtain data and facts in the field in the form of fishing villages, ports, coastlines and the traditional boat industry.

2. Documentation

This technique is needed to collect data that comes from official documents or archives or unofficial archives from craftsmen or artists or craftsmen of traditional boats, especially from the area where the observation will be made.

3. In-depth interviews

This interview technique uses a purposive sampling technique which is expected to be able to obtain accurate data from sources that have been selected to represent the topic of this study.

Data Analysis Interaction

Interaction analysis is carried out to analyze qualitative data from the results of empirical data collection carried out to produce accurate data from sorting by classification and identification. This model was chosen because it allows to get more of a single trace that is able to capture input and exposure in a summary that is data reduction and inference. The model used to analyze qualitative data by applying a cycle system, which means that the researcher must constantly move and explore objects during the process. The interaction of qualitative data analysis consists of three activities that occur simultaneously, namely, data reduction, data presentation and conclusion drawing.

Data Triangulation

Evaluation is carried out to see the level of research success in formulating and resolving the problems that have been formulated above. The problem that the outrigger in the Pangandaran Coastal area has a characteristic resistance value to its area is different from other areas in the archipelago must be able to be answered according to the scenario of this research method. Next is the problem of how to find other aesthetic values in the outrigger as a stability tool on the outrigger fishing boats on the Pangandaran coast with modern and traditional aesthetic methods that are aligned with the presentation of data from the diachronic method,

which is expected to be able to get the desired answer. So that the results of this study can be evaluated and validated using data triangulation techniques.

CHAPTER IV DISCUSSION

The Evolution of The Outrigger Shape and Structures

Starting from when ancient Indonesian people inhabited caves, boats were part of their life. Depicts on the walls of a prehistoric boat cave that might have been used or perhaps by their ancestors several generations before, Australia-Melanesia who migrated from Sunda to Wallace. This indicates that the former Indonesian people spread out. The potential of the sea is the property of all these nations into a basic thought that continues to be believed by sea fighters of the former Indonesian people to conduct trade and other economic activities. According to (Ellis, 2005) the ship Kun Lun Po A, the Chinese name for Sumatra, or Java, are Indonesian ships that cross the Bay of Bengal and continue to sail towards the east and the southwest coast of South India. Likewise, the Sangara type ship (in Portuguese is called Jangada which means raft), is a double-constructed boat made by placing transverse boards under the two ships. Sangara was made based on twin boat designs from Indonesia, a type of fleet that was once used to transport cinnamon (cassia) to the Mediterranean. In the sense of modern architect, naval this type of boat is called a catamaran (has a double hull), which allegedly helped prove that sailors and craftsmen already had knowledge of the boat in the 1st century. Up to 200 feet long and standing out of the water up to 20 feet equipped with up to four pairs of screens. The presence of ships from foreign technology is very influential on the development of traditional boats (sailing) in the archipelago even today. (Lombard, 2000) further proposed five geographical areas as a link from a historical point of view, namely: the Malacca Strait, the Sunda Strait, the Java Sea, the Makassar Sea and the Maluku Sea. The Sunda Strait connects the Lampung region in the southern part of Sumatra and the Sunda area in the western part of Java. The union of the two occurred in the sultanate of Banten in the 16th and 17th centuries. This fact is reinforced by the occurrence of technological

transfer events such as the wave of migration of the two Austronesians from Taiwan to Indonesia around 2000 BC. The use of small canoes or outriggers by outrigger according to historian van Leur (1934) in the archipelago is caused by the trading of luxury goods (luxury and expensive) of small volumes, but of high value, small sized vessels used do not require space and are large in the transportation (Van Leur, 2008). On the other hand, is the opposite using large ships. Reconstruction of traditional community services must refer to their memories which are hardly preserved in writing (documents), so that the activities carried out are more on the repetition of experiences or emotional refinement in the process of semiosis in nature. There is a difference in geographical conditions between the north coast and the south coast in West Java. The geographical conditions of the coast on the south coast are more difficult than the geographical conditions on the north coast. As a result of this geographical condition, it has become easier to develop into a large fishing and trading area. (Adriati, 2017: 44). This is the basis of the thought of boat makers in Pangandaran beach in particular and the southern coast of Java in general in reconstructing outriggers up to their present shape and structure. The work of an outrigger as a tool of balance in the southern sea that has its own characteristics as mentioned above is indeed made in such a way for various reasons. The first reason is technical: to provide maximum balance by placing the outrigger at the stern of the boat. The second reason is the shape of an outrigger that forms like a knife curved towards the bow of the boat and by mounting it stacked on top of the bow the bow functions as a breakwheel whose function is the same as the main hull of the boat. The third reason is that the outrigger binder on both parts of the bouquet is packed by covering all parts with a layer of Fiberglass Reinforcement Plastic (RFP) material that functions to strengthen the bond and extend the life of outrigger care, in which case the change of the old binder system into a new binder is a result of reasoning crafted boat craftsman who is a combination of reason and empirical experience after the 2006 tsunami disaster as a source of knowledge. The fourth reason is the blue color used on outriggers possesses a mystical value as a form of trust and respect for the rulers of the southern seas. There are also some fishermen mentioning that the waterproof repellent available is only a certain color, however, it still gives its own characteristic outrigger design.

In Javanese society, there is a sense that humans cannot live alone and must depend on other things as life support. And humans as the center must be able to control the elements. This concept is called *sedulur papat limo pancer*, which was born from the basis of Javanese society.

The essence of this concept is a balance. Outrigger Pangandaran as a work of engineering is the result of community knowledge that is empirical on the south coast of Java to meet the additional safety equipment on the boat in his economic affairs as a fisherman. Outrigger shape in terms of product design science is a major supporter that helps the creation of all visual appeal. But there is no standard principle that determines the physical form of a product because this is usually determined by the nature of the product, mechanical considerations, other conditions. Product Design is a part that must also synergize with other knowledge in designing outriggers to sell outriggers and also to make these outriggers become ergonomic and visually appealing to the buyer and anyone who sees. Style (visual) value, ergonomic value and function value. Through reason and reasoning from the outreach practitioners' empirical practice, that the values contained in outrigger work as engineering work can be shifted into an outrigger as a product design work. First is the color element as an outrigger visual power to give a unique selling point or make an outrigger as the center of attention of the observer. The second is the outrigger shape curved upward as a breakwater function that can be metaphorically as a cleaver cleavage from the stern to the bow of the boat also gives attraction to outrigger observers.

Other parties such as engineering designers, craftsmen, designers, and even artists have the same goal in creating works, with a pleasant desire. Simply put, the beauty of engineering and design in outrigger works can be defined as an effort to create pleasant forms that are found from empirical experience on harmony or unity in the relationship of forms from the perception of craftsman awareness. The sensory experience gained from Pangandaran's exquisite nature to outrigger craftsmen provides aesthetic experience and knowledge about beauty according to his perception and awareness of natural aesthetic science. Aesthetic experience as a reference of knowledge about the beauty of these craftsmen is not obtained from formal education but from education that is very informal. This situation mentioned by Fechner in his book *Vorschule der Aesthetik* is as aesthetic of "above" because it draws conclusions from metaphysics. But instead approached 'from the bottom' because it uses empirical observations and laboratory experiments on something real.

Evolution of The Values

Outrigger shows the social value caused by the tendency to influence the behavior of southern coastal fishermen in Java in operating a boat. Another thing that shows outrigger

possesses social value is that outrigger work was created to be seen or used, especially in general situations as a fishing boat or even as a tourist boat on the south coast of Pangandaran beach. Outrigger work expresses or explains aspects of its existence which are the most important part of a fishermen's transportation mode as a result of a variety of individual and collective fishermen's experiences. Culture according to anthropological views is: described as a whole system of ideas, actions and results of human work in the context of community life that belongs to the human self by learning (Bruner, 1977). Life Values and Cognitive Values on the balance function and social function provide a theory which states that if outrigger work is carried out through a technical engineering process accompanied by an empirical experience of the craftsmen, it will provide a resistance function to the south coast community of Java, especially in disaster prone areas.

Outrigger has a symbolic value which, if marked by causing noble respect, in the sense of an experience that is "sacred". Gratitude to the Almighty is expressed by means of a celebration that is closely related to the coastal community itself. The way the ritual can be interpreted as a social control that intends to also strengthen the tradition of social ties between fellow individuals (Favazza, 1998). Most of the sea rituals in the south coast of Java that are full of the meaning of symbolism are not only an effective tool to gather communities but also to strengthen solidarity or the nature of togetherness among fishermen. However, in the outrigger case which only as part of a boat made a symbol of the overall meaning of the sea rituals of the south coast of Java. Outrigger has a symbolic meaning of natural balance implies: Javanese culture describes the balance contained in philosophy is *memayu hayuning bawana* which if interpreted as an action that is not based on sincerity and purity of heart will only foster extraordinary sense of selflessness. The archipelago's traditional boat is very interesting not only because the boat is a means to meet transportation needs in supporting the ease of movement (both to find food, trade, catch fish, pearls and other sea products), but also important in relation to the conception of trust. The boat is usually associated with the events of the soul's journey after the spirit left his body. Moral values and symbolic values provide a theory which states that if a person / group of craftsmen in a combined boat will accept every social condition that can be used in expressing his will, the creation of outrigger will become a result of the formation of symbols of the south coast community of Java.

Outrigger form which, when seen by public observers will not give any feeling because indeed the initial purpose of making outrigger is not as an art work, but if seen by art performers who have an aesthetic experience through formal education it will provide other perceptions including the assessment of artistic philosophy. The purpose of outrigger evaluation into works of art is the communication of feelings to the observer through the design elements of the shape, structure, material, color and elements of the philosophy of art, namely life values, moral values, symbolic values, social values and aesthetic values. This goal is agreed by Tolstoy by stating: "Art is a human activity which contains in this fact, that a person is conscious of the help of certain external symbols, expresses the feelings he has experienced to others and that the other person is then awakened by these feelings and also experience it. The function according to Tolstoy is the simple art function, while the real function is expressing feelings and transferring understanding. (Read, 1995, 145). The concept of evolution is to explain that outrigger as a product design work is nothing but a visual art whose capture through the five senses becomes a work of art that carries feelings and can only be captured through an understanding of artistic values through the expression of feelings.

Table 2: Evolution of The Outrigger Value

Step 1	Step 2	Step 3
Engineering Design	Product Design	Art and Craft
Space and Time		

Outrigger as a work of Engineering and Design Design

Product design is a part that must also synergize with other knowledge in designing outriggers to sell outriggers as well as to make the outrigger an ergonomic and visually attractive shape for buyers and anyone who sees it. Value of style (visual), value of ergonomics and value of function. Through reason and reasoning from the empirical practice of outrigger craftsmen, that the values contained in outrigger works as engineering designs can be shifted into an outrigger as a product design work. First is the color element as the visual power of the outrigger, which provides a unique selling point or makes the outrigger the center of attention of the observer. The second is the outrigger shape that curves upwards as a breakwater function which

can be metaphorized as a cleaver cleaving coconut fruit from the stern to the bow of the boat also provides attraction for outrigger observers. On the other hand, designers, craftsmen, outriggers, and outriggers have the same goal in creating work, which is fun. Simply put, the beauty of engineering designs and designs in outrigger works can be defined as an attempt to create pleasurable forms found from empirical experience of harmony or unity in the relationship between forms of the designer / craftsman's perceptual awareness. Sensory experiences obtained from the very beautiful Pangandaran realm to the outrigger craftsmen provide aesthetic experiences and knowledge of beauty according to their perceptions and their awareness of natural aesthetics. Aesthetic experience as a reference for knowledge about the beauty of craftsmen is not obtained from formal education but from a very informal education. This situation is mentioned by Fechner in his book *Vorschule der Aesthetik* as the aesthetic of "above" because it draws conclusions from metaphysical standards of thought. But instead it is approached "from below" because it uses empirical observations and laboratory experiments on something real.

CHAPTER V CONCLUSION

Traditional Nusantara Boat is the result of reasoning and courage in expressing the ancestors of the Indonesian people, as an effort to maintain the existence of the culture that has been built and the geographical situation which consists mainly of islands. At the time of its first appearance as a means of transport technology was still very simple, but when it arrived in the archipelago there was a surge of advanced technological expertise in the formation and development of functions and designations. Nusantara traditional boat which is based on outrigger boats is a legacy of the Austronesian people. This nation, then spreads and leaves all of its creation in the country including outrigger boats. Another opinion says the opposite, that outriggers on the boat came from the Archipelago which then spread to Austronesia. In the West Australian Maritime Museum there is a collection of double outrigger canoe originating from Lombok with an age of approximately 50,000 years (Tabrani, 2014). Indonesian ancestors were experts in engineering and art craft designs in various forms and this was possible through reasoning based on the desire to move forward and change within the scope of the Nusantara boat. Prehistoric boats depicted on caves in Indonesia still look original, but in those days there was influence outside the boat in the archipelago developed very rapidly, with strong evidence at that time were the existence of sculptured forms on the Nusantara boat in the Borobudur temple and in other temples. The boat further developed into a means of transportation in international trade.

Based on experience to give instructions on how to overcome obstacles that often occur at sea. Frequent problems occur at sea, then naturally they will think of ways to overcome the problem. The emergence of outrigger boats which is the hallmark of Indonesian boats as the researchers said before was due to the experience of Indonesian ancestors in the sea where boats without outrigger technology would be vulnerable if they were hit by large waves resulting in the boat at risk of capsizing. This experience then becomes the basis of their creative thinking in creating a boat that is not easily reversed. He installed a lot of wood or bamboo material found in Indonesia and then stretched to the right and left side of the boat in line with his boat.

The concept of space and time makes an evolution in the development of outrigger technology in such a way, especially the Pangandaran outrigger. The evolution of outrigger shapes and structures probably inspired the other south coast of Java, spread from the coastal areas of Pelabuhan Ratu, Pananjung, Cilacap, Kebumen, Kulon Progo and Pacitan. Outrigger length is only one third of the entire length of the djoekoeng, so if the djoekoeng length is about nine meters, the size of the outrigger or katir is 3 meters. Not without reason why it was made like that, unlike the length of outriggers in general. The main reason, according to observations and research experience is that djoekoeng or boats will be easily controlled, especially during big waves. If outrigger size is extended, the resistance to water is greater, because the breakwater function based on the hull of the ship is not functioning optimally. Experimental analysis shows that the position of the trimaran outriggers will have a significant effect on the ship's motion characteristics. It was found that the magnitude of the response for heave and pitch decreased with back shifting in the outrigger position. This trend consistent with the monohull range will have a reduced effect on the ship's movement characteristics. Another difference is also seen in outrigger as a counterweight to the djoekoeng / fisherman boat. Outriggers / outriggers found in Madura and Bali or other areas look longer than the stomach of the jakung itself. While outriggers found on the south coast of Java are much shorter than the hull of a boat. This happened because of consideration of efficiency and function from the material aspects and expertise of local craftsmen and according to local fishermen based on myths and the urgent needs of their ancestors who had settled in the area and after the tsunami in 2006 (Pangandaran). Spurred by the development of human consciousness, then rationality, subjectivity and freedom are the findings of awareness of coastal communities in knitting culture into its own civilization (Sutrisno, 2008).

The aesthetic values of fishing vessels on the south coast of Java especially in the outrigger are gifts for Indonesians that reflect cultural diversity through local wisdom from each local area. Relief on the walls of Borobudur provides fantastic insights about life around the 7th to 8th centuries in Indonesia. In particular, the relief provided an unparalleled study of maritime technology at the time. One of the facts that proves that Indonesia has led in the use of outrigger or many catamaran boat designs and structures as a pioneer. If carefully and correctly understood, there will be no question about the status of values and characteristics that are typical of Pangandaran outriggers as part of works of art in the coastal communities of the South Coast of Java, and they must believe in their belief that beauty in outrigger works contains the moral virtues that provide intrinsic identity and value on the outrigger.

CHAPTER VI COST AND RESEARCH SCHEDULE

4.1 Anggaran Biaya

Untuk melancarkan pelaksanaan penelitian ini ada dua skema penelitian yang dilakukan yaitu usulan biaya ke DIKTI dan biaya mandiri dengan total biaya sebesar Rp. 24.000.000.

Tabel 2. Rekapitulasi Anggaran Penelitian

No	Jenis Pengeluaran	Biaya yang Diusulkan (Rp)
1	Honorarium Pelaksana (30%)	0,-
2	Biaya habis pakai dan peralatan (60%)	14.400.000,-
3	Perjalanan (40%)	8.640.000,-
5	Lain-lain (publikasi, seminar, laporan final) (40%)	5.760.000,-
	Jumlah (100%)	24.000.000,-

4.2 Justifikasi Anggaran Biaya Penelitian

Tabel 3. Justifikasi Anggaran

Honorarium						
Honor	Honor/Jam (Rp)	Waktu (Jam/minggu)	Minggu	honor per Tahun (Rp)		
				Th 1	Th 2	Th 3
Ketua	-	14	36	-		
SUB TOTAL				0		

Bahan Habis Pakai dan Peralatan						
Material	Justifikasi Pemakaian	Kuantitas	Harga Satuan (Rp)	Biaya per Tahun (Rp)		
				Th 1	Th 2	Th 3
Kertas HVS 80 Gram	Proposal, laporan	3 rim	55.000	165.000		
Tinta Printer	Proposal, laporan	4 set	200.000	800.000		
Tinta Plotter	Proposal, laporan	4 set	1.000.000	4.000.000		
Pembelian/ fotocopy buku referensi	Referensi proposal dan laporan			1.000.000		
Meteran STANLEY Tylon Tape 5M	Pengukuran produk	2 set	80.000	160.000		
Kamera go pro xp22	Alat dokumentasi	1 unit	1.080.000	1.080.000		
SUB TOTAL				14.400.000		
Perjalanan						
Material	Justifikasi Perjalanan	Kuantitas	Harga Satuan (Rp)	Biaya per tahun (Rp)		
				Th1	Th 2	Th 3
Perjalanan ke tempat penelitian	Survei/pengambilan data	1 orang	2.000.000	2.000.000		
SUB TOTAL				2.000.000		
Lain-lain						
Kegiatan	Justifikasi Perjalanan	Kuantitas	Harga Satuan (Rp)	Biaya per tahun (Rp)		
				Th 1	Th 2	Th 3
Seminar	Biaya Seminar	2 orang	2.500.000	2.500.000		
Laporan Akhir				760.000		
SUB TOTAL				5.760.000		
				Th 1	Th 2	Th 3
TOTAL ANGGARAN YANG DIPERLUKAN SETIAP TAHUN				24.000.000		
TOTAL ANGGARAN YANG DIPERLUKAN SELURUH TAHUN				24.000.000		

4.3 Jadwal Pelaksanaan Penelitian

Rencana waktu penelitian mulai dari Maret 2020 sampai dengan November 2020. Tahap pelaksanaan penelitian meliputi:

Tabel 4. Jadwal Penelitian

No	Nama Kegiatan	Bulan
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		1	2	3	4	5	6	7	8	9	10	11	12
1	Persiapan Penelitian	X											
2	Sosialisasi dan penetapan lokasi penelitian	X											
3	Studi kelayakan penelitian	X	X										
4	Analisa data			X									
5	Agenda dan program pekerjaan			X	X								
8	Proses Pembangunan					X	X	X	X	X			
9	Evaluasi hasil penelitizn									X	X		
10	Penyusunan laporan penelitian									X	X	X	
11	Publikasi hasil dan seminar										X	X	
12	Pengiriman laporan											X	X

REFERENCES

- Barret, T, 2011, *Criticizing Art Understanding The Contemporary*, McGraw-Hill Education. London. 44
- Dierking, G, 2007, *Building Outrigger Sailing Canoes Construction: Modern Construction, Methods for Three Fast, Beautiful Boats*, International Marine/Ragged Mountain Press, McGraw Hill, 1 edition, London, 23
- Dimiyati, E, 2013, *Panduan Sang Petualang: Wisata Pesisir Ciamis Selatan*, PT. Gramedia Pustaka Utama, Jakarta.
- Endaswara, S. 2006, *Metode, Teori, Teknik Penelitian Kebudayaan*. Pustaka Widyatama. Jakarta.
- Fadhlan, I. 1997. *Geologi Situs Gua Kepulauan Kei Kecil Maluku*, Majalah Kebudayaan, Departemen Pendidikan dan Kebudayaan
- Fyson, J, 1985, *Design Of Small Fishing Vessels*, Fishing News Books Ltd., Farnham, England.
- Geldern, R. von Heine. 1945. "Prehistoric Research in the Netherlands Indie", Science and Scientist in Netherlands Indie.
- Hall, D.G.F. 1968. *A History of Southeast Asia*
- Hamid, A. R. 2013. *Sejarah Maritim Indonesia*, Penerbit Ombak (Anggota IKAPI), Yogyakarta, 2013. Hal. 4-13.
- Hawkins, W. Clifford. 1992. *Praus of Indonesia*
- Horridge, A. (1985). *The Prahau: Traditional sailing boat of Indonesia*. Singapore: Oxford University Press.
- Horridge, A. 1986. *Sailing Craft of Indonesia*. Singapore: Oxford University Press.
- Horridge, A. 1981. *The Prahau Traditional Sailing Boat of Indonesia*, Oxford University Press
- Iskandar, Tb, 2013, *Psikologi Lingkungan Metode dan Aplikasi*. Cetakan Kesatu. PT. Refika Aditama. Jakarta.

- Joedawinata, A, 2014, *Applied Aesthetics, Diktat Kuliah Magister Desain Produk*, Pasca Sarjana Universitas Trisakti. Jakarta.
- Liang Gie, T, 2000. *Garis Besar Estetik*. PT. Grafindo Pratama. Yogyakarta
- Manuaba, I.B.A. 1998. *Desain yang Aman Mencegah Kecelakaan dan Cedera*. Bunga Rampai Ergonomi. Volume 1. Denpasar: Program Studi Ergonomi - Fisiologi Kerja. Denpasar: Universitas Udayana.
- Mc Nollan ,B, 2014, *Marine Bor* , Flamingo, London
- Noertyas, C, 1989. *Perahu sebagai motif hias dan lambang pada jaman Prasejarah di Indonesia*, Fak. Sastra Udayana, Skripsi.
- Palgudani, B. 2008, *Desain Produk 2, Analisis dan Konsep Desain*. Penerbit ITB. Bandung.
- Pasaribu, B.P, 1987. *Material Kayu Utuh dan Kayu Sambungan untuk Konstruksi Kapal Penangkap Ikan*, Buletin PSP Volume I No.2. Departemen Pemanfaatan Sumberdaya Perikanan, Fakultas Perikanan dan Ilmu Kelautan, Institut Pertanian Bogor.
- Pratama, G, 2014, *Ergonomi dalam Aktivitas Penangkapan Ikan di Kapal Pancing Layur di PPN Palabuhanratu, Sukabumi*, Skripsi Program Studi : Teknologi dan Manajemen Perikanan Tangkap. Departemen Pemanfaatan Sumberdaya Perikanan dan Ilmu Kelautan IPB.
- Ramdhani, S, Bencana Tsunami Pangandaran yang Terlupakan, <http://www.tribunnews.com/regional/2011/07/18/tragedi-tsunami-pangandaran-yang-terlupakan?page=1-3>, diunduh tanggal 20 November 2015 jam 09.55 WIB.
- Read, H, 1965, *The Origins of Form in Art*, Michigan Universtiy, Horizon Press, USA, 145
- Read, R.D. 2008, *Penjelajah Bahari, Pengaruh Peradaban Nusantara di Afrika*, Penerbit Mizan, Bandung.
- Sachari, A. 2006, *Estetika - Makna, Simbol dan Daya*. Cetakan ke 3. Bandung: Penerbit ITB.
- Santoso, B, 2017, *Optimasi Panjang Cadik Kapal Nelayan 3 GT*, Jurnal Iptek Media Komunikasi Teknologi Vol. 21 no.1, Jurusan Teknik Perkapalan Politeknik Negeri Bengkalis.
- Salam. A. 2014. *Boats in Indonesia*. University of Gorontalo, Gonontalo City, Indonesia. *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures Springer Science Business Media Dordrecht*.
- Soekarsono, NA. 1995, *Bangunan Kapal dan Ilmu Kemaritiman*. PT. Pamator Pressindo, Jakarta, 56.
- Sukendar, H. 1998. *Perahu Tradisional Nusantara*. Direktorat Jenderal Kebudayaan Departemen Pendidikan dan Kebudayaan, Proyek Pengembangan Media Kebudayaan Direktorat Jenderal Kebudayaan Departemen Pendidikan dan Kebudayaan
- Sulistiyadi, K, 2003, *Perancangan Sistem Kerja dan Ergonomi*, Jakarta Universitas Sahid. Jakarta.
- Sutrisno dkk., M., 2007. *Cultural Studies, Tantangan Bagi Teori-Teori Besar Kebudayaan*. Penerbit Koekoesan, Asli Universitas Michihan, USA, 109
- Syafriadi, Z, 2000 , *Comparison Of The Stability Of The Boat With And Without The Use Of Cadik*, Student of Fisheries and Marine Science Faculty, University of Riau, Lecturer of Fisheries and Marine Science Faculty, Riau.

- Taylor, PMA, 1992. *Beyond the Java Sea, Art of Indonesia's Outer Islands*. The National Museum of Natural History, Smithsonian Institution Washington, D.C.
- Tabrani, P. 1991. *Kapal Cadik Borobudur*, Jurnal Dimensi, Fakultas Seni Rupa dan Desain, Universitas Trisakti, vol.2 - no.1, September 2004. 21
- Utomo, B. B. 1983. *Penelitian Pendahuluan Situs Arkeologi di Daerah Tepi Sungai Batanghari, PIA III*, Ciloto, Pusat Penelitian Arkeologi Nasional
- Wanganea, J, 1980. *Jenis-jenis Perahu di Pantai Utara Jawa Madura*. Direktorat Jendral Kebudayaan. Departemen Pendidikan dan Kebudayaan, Jakarta.
- Weber. M. 1978. "*Voyage Atlantis*", *the Worlds Last Mysteries*, Reader's Digest Sydney.
- Yondri, L. 1996. "*Batu cap: Temuan Awal Tinggalan seni lukis gua/ceruk di wilayah Indonesia Barat*", Jurnal Penelitian, Balai Arkeologi Bandung.
- Zohar, D, 1994, *The Quantum Society*, Flamingo, London.
- _____, 1996, *Aneka Ragam Khasanah Budaya Nusantara VII*, Tim Koordinasi Siaran Direktorat Jenderal Kebudayaan. Jakarta: Departemen Pendidikan dan Kebudayaan.

ATTACHMENTS

Lampiran 1

Susunan Organisasi tim Peneliti dan Pembagian Tugas

No	Nama/NIDN	Instansi Asal	Bidang Ilmu	Alokasi Waktu (jam/minggu)	Uraian Tugas
1	Indra G Rochyat, S.Sn., M.Ds.	Universitas Esa Unggul	Desain Produk, Desain Interior	14	Melakukan Observasi, Analsis, Pemodelan, deseminasi dan Pembuatan Laporan

Lampiran 2

Biodata Ketua dan Anggota Tim Pengusul
Ketua Peneliti

A. Identitas Diri

1	Nama Lengkap (dengan gelar)	Indra Gunara Rochyat, S.Sn.,M.Ds.
2	Jenis Kelamin	Laki laki
3	Jabatan Fungsional	Lektor 200
4	NIP	203060259
5	NIDN	0307077301
6	Tempat dan Tanggal Lahir	Bandung , 7 Juli 1973
7	E-mail	indragunara@esaunggul.ac.id

8	No HP	0812 9049 7788
9	Alamat Kantor	Universitas Esa Unggul Jalan Arjuna Utara no 9 Tol Tomang Kebon Jeruk Jakarta Barat 11510
10	Nomor Telepon	+62 21 567 4223
11	Lulusan yang telah dihasilkan	S-1 = 74 orang, S-2= 0 orang, S-3=0 orang
12	Mata Kuliah yang diampu	1. Desain Praktis
		2. Desain Produk
		3. Metodologi Penelitian
		4. Desain dan Lingkungan
		5. Ergonomi dan Antropometri
		6. Gambar Teknik

B. Riwayat Pendidikan

	S-1	S-2	S-3
Nama Perguruan Tinggi	Universitas Trisakti	Universitas Trisakti	
Bidang Ilmu	Desain Produk	Desain Produk	
Tahun Masuk-Lulus	1992-1998	2014-2016	
Judul Skripsi/Tesis/Desertasi	Isuzu Cula Sebagai Kendaraan <i>Pick-up</i> Wisata Gunung	Kajian Jukung Nelayan Bercadik Sebagai Perahu Wisata Di Pantai Pangandaran	
Nama pembimbing/Promotor	DR. Bambang Sulistyono, M.Sc	DR. Ahadiat Joedawinata, HDII	

C. Pengalaman Penelitian Dalam 5 Tahun Terakhir

No	Tahun	Judul Penelitian	Pendanaan	
			Sumber	Jml (juta Rp)
1	2014	Kajian Desain Logo Perusahaan Indikator Politik Indonesia Dalam Karakter Pembentukan Perusahaan Berbasis Politik	Univesitas	24
2	2015	Pembuatan Perahu Model Katamaran Berbahan Mutlipek	Univesitas	24
3	2016	Thesis: Kajian Jukung Nelayan Bercadik sebagai Perahu Wisata Di Pantai Pangandaran	Pribadi	-
4	2017	Kajian Penerapan Gaya Desain Klasik Pada Kapal Pesiar Buatan Grand Banks Yachts, Sdn. Bhd.	Univesitas	24
5	2017	Penambahan Fungsi Pada Kursi Anak	Pribadi	-

		Berbahan Rotan Sebagai Pengembangan Mebel Pada Industri Kreatif		
6	2018	Pemodelan Baru Kursi Membatik Tulis di Perusahaan Batik Plentong Yogyakarta Untuk Pengembangan Seni dan Industri Kreatif	Univesitas	24
7	2019	Kajian Tata Letak Ruang Perpustakaan Anak di Pulau Untung Jawa	Unibersitas	24

D. Pengalaman Pengabdian Kepada Masyarakat dalam 5 Tahun Terakhir

No	Tahun	Judul Pengabdian Kepada Masyarakat	Pendanaan	
			Sumber	Jml (juta Rp)
1	2014	Pelatihan Aplikasi Komputer Untuk Perkantoran atau Bisnis Pola 36 Jam di MTS. Al Musyarrofah	Pribadi	-
2	2014	Membuat Desain MCK di Kampung Masjid Dusun Lemah Duhur Gunung Bunder 1 - Bogor	Univesitas	12
3	2015	Memberikan Rancangan Ulang <i>Coorporate Identity</i> Rumah Makan Kancil Laut Di Pulau Untung Jawa	Univesitas	12
4	2016	Perancangan Ulang <i>Coorporate Identity</i> Rumah Makan Kancil Laut di Pulau Untung Jawa	Univesitas	12
5	2017	Kajian Pemodelan Baru Kursi Membatik Untuk Membantu Kenyamanan Pembatik Di Perusahaan Batik Plentong Yogyakarta	Univesitas	12
6	2019	PKM Ruang Perpustakaan Anak di RPTRA Amterdam Pulau Untung Jawa Kabupaten Kepulauan Seribu	Hibah Dikti	47,7

E. Publikasi Artikel Ilmiah Dalam Jurnal dalam 5 Tahun Terakhir

No	Judul Artikel Ilmiah	Nama Jurnal	Voluime/Nomor /Tahun
1	Kajian Desain Logo Perusahaan Indikator Politik Indonesia Dalam Karakter Pembentukan Perusahaan Berbasis Politik	Inosains	Volume 9 Nomor 2, Agustus 2014
2	Pembuatan Perahu Model Katamaran Berbahan Mutliplek	Inosains	Volume 10 Nomor 2, Agustus 2015
3	Pembuatan Desain MCK di Kampung Masjid Dusun Lemah Duhur Gunung Bunder 1 - Bogor	Publikasi Ilmiah Universitas Esa Unggul	Volume 1 Nomor 2, Maret 2015

4	<i>Wall Mounted Storage for Home Design Appliances Design</i>	<i>Proceeding 8th International On Industrial Engineering And Management (8th ISIEM)</i>	ISSN 1978-774X 19 March 2015
5	Kajian Penerapan Gaya Desain Klasik pada Kapal Pesiar Buatan Grandbanks Yachts Sdn Bhd	Inosains	Volume 11 Nomor 2, Agustus 2016
6	Perancangan Ulang Coorporate Identity Rumah Makan Kancil Laut di Pulau Untung Jawa	Publikasi Ilmiah Universitas Esa Unggul	Volume 3 Nomor 1, September 2016
7	<i>Making A Plywood Boat Catamarans Model For Handling of flood Emergency In Areas Of Duri Kepa</i>	<i>Proceeding 9th International Seminar on Industrial Engineering and Management. ISIEM 2016</i>	ISSN: 978-774X, 22 Sepetember 2016
8	Kajian Pemodelan Baru Kursi Membatik Untuk Membantu Kenyamanan Pembatik Di Perusahaan Batik Plenting Yogyakarta	Publikasi Ilmiah Universitas Esa Unggul	Volume 4 Nomor 1, september 2017
9	Penambahan Fungsi Pada Kursi Anak Berbahan Rotan Sebagai Pengembangan Mebel Pada Industri Kreatif	Inosains	Volume 13 Nomor 1, Februari 2018
10	PKM Ruang Perpustakaan Anak di RPTRA Amterdam Pulau Untung Jawa Kabupaten Kepulauan Seribu Jakarta	Publikasi Jurnal Abdimas Universitas Persada YAI Jakarta	Jurnal SEMNAS-IKRAITH ABDIMAS Vol 2 No 1 Bulan November 2019 pada halaman 11 – 18

F. Pemakalah Seminar Ilmiah (Oral Presentation) dalam 5 Tahun Terakhir

No .	Nama Temu Ilmiah/ Seminar	Judul Artikel Ilmiah	Waktu dan Tempat
1	<i>7th International seminar on Industrial Engineering and Management (7th. ISIEM) 2014 dengan tema “Green Technology on Industrial Engineering, Information and Management”</i>	<i>The Redesign of Bajaj Case Study For The Old Bajaj In Jakarta</i>	11-13 Maret 2014 , Sanur Paradise Hotel, Bali, Indonesia
2	<i>8th International On Industrial Engineering And Management (8th</i>	<i>Wall Mounted Storage for Home Design Appliances Design</i>	17-19 Maret 2015, Atria Hotel Malang.

	ISIEM)		
3	9 th International Seminar on Industrial Engineering and Management. ISIEM 2016, “Collaborative Innovation Towards Borderless Industrial and Economic System”	Making A Plywood Boat Catamarans Model For Handling of flood Emergency In Areas Of Duri Kepa	20-22 September 2016, Grand Inna Muara Hotel, Padang, West Sumatera, Indonesia
4	Seminar Nasional Desain dan Arsitektur 2018	Pengembangan Mainan Rocking Toy untuk Anak Usia 3-5 Tahun dengan Menerapkan Tema Tron Guna Meningkatkan Imajinasi Anak	22 Desember 2018, STD – Bali
5	2 nd International Seminar on Innovation and Creativity of Arts (ISICA #2)	The Beauty of New Outtrigger Craft Structures on Fisherman Boat After Tsunami at Pangandaran 2006	5 November 2019 – Gedung Teater Besar ISI Surakarta
6	Penang	Evolution of arts values and typical of technical outrigger in Pangandaran	

G. Karya Buku dalam 5 Tahun Terakhir

No.	Judul Buku	Tahun	Jumlah Halaman	Penerbit
1	-			
2	-			
Dst	-			

H. Perolehan HKI dalam 10 Tahun Terakhir

No.	Judul Buku	Tahun	Jenis	Nomor P/ID
1	Pembuatan Perahu Model Katamaran Berbahan Multipleks	2017	Karya Tulis	EC00201700924
2	Kajian Penerapan Gaya Desain Klasik Pada Kapal Pesiar Buatan Grand Banks Yachts, Sdn.Bhd.	2017	Karya Tulis	EC00201701518
3	Pemodelan Baru Kursi Membatik di Perusahaan Batik Plenthong Yogyakarta Untuk Pengembangan Seni dan Industri Kreatif	2019	Karya Tulis	EC00201939587

I. Pengalaman Merumuskan Kebijakan Publik/Rekayasa Sosial Lainnya dalam 10 Tahun Terakhir

No.	Judul/Tema/Jenis Rekayasa Sosial Lainnya yang Telah Diterapkan	Tahun	Tempat Penerapan	Respon Masyarakat
1	-			
2	-			
3	-			
Dst.	-			

J. Penghargaan dalam 10 Tahun Terakhir (dari pemerintah, asosiasi atau institusi lainnya)

No.	Jenis Penghargaan	Institusi pemberi penghargaan	Tahun
1	Sosialisasi Reka Baru Desain Indonesia	Ditjen Ekonomi Kreatif Berbasis Media, Desain dan Iptek – Kementerian Pariwisata dan Ekonomi Kreatif	2014
2	Partisipasi sebagai Peserta Pameran dalam rangka Visitasi Borang Akreditasi Program Magister Desain Produk FSRD Usakti	Fakultas Seni Rupa dan Desain Universitas Trisakti	2018
3	-		
Dst.	-		

Lampiran 2



Lampiran 4

SURAT PERNYATAAN

Semua data yang saya isikan dan tercantum dalam biodata ini adalah benar dan dapat dipertanggungjawabkan secara hukum. Apabila dikemudian hari ternyata dijumpai ketidaksesuaian dengan kenyataan, saya sanggup menerima sanksi.

Demikian biodata ini saya buat dengan sebenarnya untuk memenuhi salah satu persyaratan dalam pengajuan penugasan **Penelitian Dosen Internal**

Jakarta, 28 Maret 2020

PENELITI



(Indra Gunara Rochyat, S.Sn., M.Ds)

SURAT PERNYATAAN

Yang bertanda tangan dibawah ini:

Nama : Indra Gunara Rochyat, SSn., M.Ds.

NIDN : 0307077301

Pangkat/ Golongan : Penata, III/C
Jabatan Fungsional : Lektor 200

Dengan ini menyatakan bahwa penelitian dengan judul: **Evolution of arts values and typical of technical outrigger in Pangandaran**, dalam skema Penelitian Internal untuk tahun anggaran 2020-2021 **bersifat original dan untuk diajukan pada pembiayaan oleh institusi**

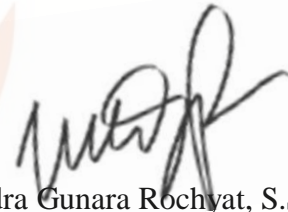
Bilamana di kemudian hari ditemukan ketidaksesuaian dengan pernyataan ini, maka saya bersedia dituntut dengan ketentuan yang berlaku dan mengembalikan seluruh biaya penelitian yang akan diterima

Demikian pernyataan ini dibuat dengan sesungguhnya dan dengan sebenar-benarnya.

Mengetahui,
Ketua Lembaga Penelitian dan
Pengabdian Kepada Masyarakat

(Dr. Erry Yudhya Mulyani, M.Sc)
NIK: 209100388

Jakarta, 28 Agustus 2020
Yang menyatakan,



(Indra Gunara Rochyat, S.Sn.,M.Ds.)
NIP: 203060259