

Research Article

Exploration into Nudibranchs Illustration as Part of The Efforts to Introduce the Wealth of Marine Biodiversity

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Abstract.

Nudibranchs have turned into highly popular marine creatures in the scuba diving world. With the aim to protect and conserve the environment, the illustration method is used as the medium because, as a visual artifact, it has quite reliable, and its broad visual communication capabilities allow for different expressions. The result is, by establishing Nudibranchs as cultural objects, the popularity of Nudibranchs can reach the wider society to greatly impact the marine conservation efforts.

Keywords: Exploration, Nudibranch, Illustration, Marine, Conservation

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1. Introduction

Nudibranchs have turned into prima donnas in the scuba diving world, especially during Macro Underwater Photography activities. The exhilarating experience of seeing a nudibranch in its nature is further strengthened and solidified through macro photography, which owing to its zooming feature can reveal a nudibranch's true form, texture and color more clearly and visibly that in the end helps create a new reality, a true aesthetical experience that can't be captured by eyes only. In that regard, macro photography has opened up a path for nudibranchs to become cultural objects. Such wonderful feat can certainly be reproduced in the wider communities, though using macro photography as the only medium of visual communication won't be enough. From our perspective, establishing nudibranchs as cultural objects must be packaged using other visual communication media, for easier access and emotional closeness to the public. A new and aesthetics reality that is inherent to macro photography is such a strong force, yet also a limitation, when used to promote nudibranchs as cultural objects, as it is the only

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power it has. If presented through macro photography, it will be quite challenging for nudibranchs when brought into the communication and socio-cultural context of the society, to attach it to the community life. Hence, we require other visual strategies. This is where Illustration can help.

Illustration, as part of the visual communication design, is presently a very fluid and rapidly-growing discipline. It has also blended itself with other disciplines; when present in a mural, it becomes a part of the interior; it takes part in various digital media applications; it grows rapidly in the social media; and so on. Illustration also has quite a broad 'playground', being in touch with nearly all aspects of the social life in this day and age. Here lies the power of illustration; here illustration can help promote nudibranchs as cultural objects, which as a result will bring indirect positive impacts to the scuba diving world and take part in protecting and conserving Indonesia's marine environment.

2. Goal and Urgency

This research seeks to explore the potentiality of nudibranchs' visual illustrations and develop related communication concept. It is expected that any created nudibranchs' illustrations can be perceived as cultural products that help promote nudibranchs to the wider communities in effort to raise the awareness on the protection and conservation of Indonesia's oceans and seas.

It is estimated that by 2030, coral reef damage will reach 60%¹; plastic pollution is still the main threat to survival of marine biota, starting from a microscopic scale of pollution to a big one, such as plastic entanglement and ingestion among fishes, sea turtles, and other types of marine life². Both things mentioned above have eventually worsened Earth's condition and directly affected human life.

3. Method

Illustration is often the medium for the development of a new visual trend. It is common for new visual approaches in the visual communication design to begin and spread out through illustration. Illustration is also very fluid in responding to any socio-cultural phenomena, helping them trend further, as in the reference of Barack Obama's Hope poster by Shepard Fairey back in 2008. The visual style introduced in the poster has eventually become a global visual trend. Therefore, we can see that illustration is not

merely some kind of tool for problem solving, but can even leap further by changing the current system, creating a new reality³.

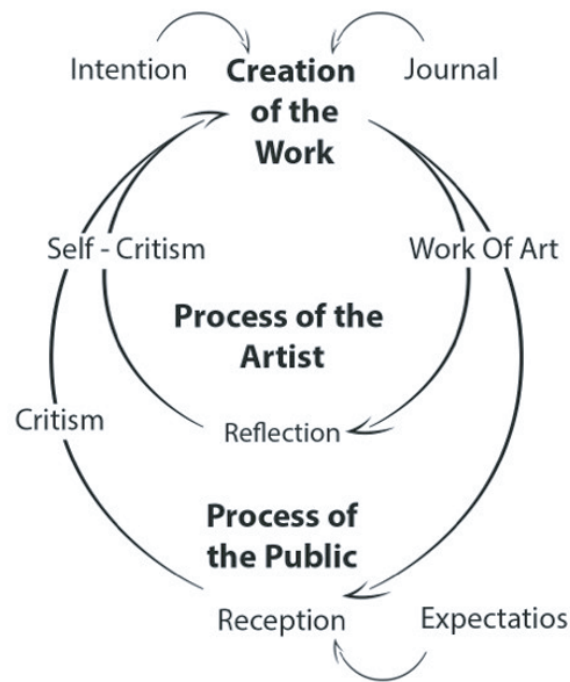


Figure 1: Creation Process Scheme.

The process of illustration itself employs an artistic research method that centers around ethnographic as well as autobiographical processes, which focus on the practice of playing around, experimenting and creating, as described in the scheme below:

4. Nudibranch and Illustration

4.1. Nudibranchs

Nudibranchs are a part of the phylum Mollusca, the class Gastropoda, which is a type of marine animal with a soft body, like snails or slugs. They belong to the family Opisthobranchia: sea slugs which shed half or all of their shell⁴. Nudibranchs are divided into two main kinds, Dorids and Eolids⁵. The main difference of their anatomy is Dorids have their branchial (gill) plume located on the posterior part of the body, while Eolids have cerata spread across their backs that work as both a respiratory and self-defense organ. Currently, there are more than 3000 species of nudibranchs that have been identified, such remarkable diversity that becomes the main source of attraction of nudibranchs. They come with thousands of variations of body shapes, starting from the diverse shapes of antenna (rhinophore), branchial plume, cerata, and mantle which

are also of various color and texture. For these reasons, nudibranchs have become prima donnas during Under Water Photography activities, and making them valuable resources in the development of tourism potential of many regions.⁶

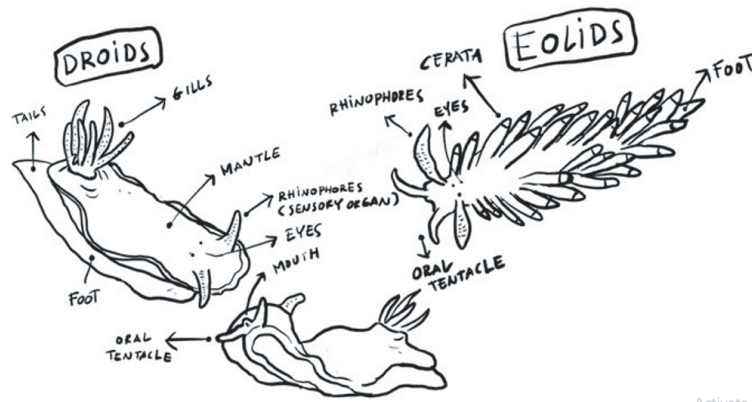


Figure 2: Differences in the anatomy of Droids and Eolids nudibranchs. Pictures by researchers.

Nudibranchs live at the bottom of the sea, crawling on sand or coral reefs by using their whole muscles on the bottom part of their body. These muscles move like sea waves and in some other kinds of nudibranchs, these muscles enable them to swim⁷.

Nudibranchs typical anatomies are:

1. Rhinophores: shaped like a pair of antennas, often mistaken as eyes or ears when in fact they are a sensory organ contained chemical substance to look for food underwater.
2. Branchial Plume: shaped like flowers. A nudibranch can have some "hairy" cone-shaped columns of branchial plume, functioning as gills to breathe.
3. Cerata: shaped like small tubes that function to process food. The tip of the cerata has poison or a stinger that works as self-defense.
4. Mantle: a blanket-like organ that covers and protect the body, where patterns and colors are visible.

4.2. Illustration

Illustration which first emerged, thrived and progressed under commercial art⁸ has gone beyond and become a very fluid discipline. It can now be found in various aspects of community life. It has also become a popular visual strategy and can be said to be quite powerful in communicating any message to convey to its target audience quickly and in ways that are entertaining. Not merely present as part of an advertisement, illustration

is also attached to the product; no longer merely exists on paper medium but now rather integrates into architecture, fashion, art, digital media, and others. When given a proper execution, it becomes a powerful tool that influences the audience's perception⁹. Despite its original functions, illustration continues to break away, with forms that are no longer bound by a certain medium; it can utilize any technique or visual styles; there are seemingly no relevant boundaries in the creation of an illustration. What matters is the creativity of the illustrator and the message that wants to be conveyed. Illustration's strong power as a communication tool (in persuasion, education, documentation, and so on) combined with its original characteristic as an aesthetic 'agent' that emphasizes on the exploration of emotion has given illustration a complete ammunition; thus, can be used for wider and more diverse groups.

As a communication tool, illustration very often adopts linguistics principles. The usage of semiotics (a science of signs, meanings) and figure of speech (a language style) are always considered when creating an illustration.

- Semiotics

Semiotics is needed in illustration as an identification tool to the meaning of an Object. It is used to construct or discover the denotative and connotative meanings of a visual object.

- Figure of Speech

Language style brings the poetic element, which can effectively attract the audience's attention with a proper implementation¹⁰. Part of semantics (metaphor, irony, hyperbole, and so on), figure of speech helps strengthening the message, making the illustration more alive and becoming a vessel that can convey ideas and emotions at the same time and as strong.

How to apply these two approaches becomes the subject of our attention and discussion in the creation of nudibranch illustrations.

5. Creative Process

5.1. Scientific approach in illustration

Early illustrations of Nudibranchs were scientific illustrations, which served as tools to communicate the teaching on the species. Scientific illustration itself is the crossroad between illustration and science. Scientific illustrator, as a profession, consistently exists

along with science since the beginning. Therefore, illustration has always been an important medium for learning and understanding a study object, starting from seeking to accurately depict an anatomy in the medical world, documenting a species in the biology science, reconstructing artifacts in the archeological world, explaining abstract concepts in physics, as well as in explaining data trends in other sciences.

A scientific illustration must possess a good visual perception quality and a perfect accuracy in order to function properly as a tool for learning and understanding that presents correct and proper information. It may possess a certain aesthetic value, but its main purpose is to convey accurate information¹¹. Therefore, through drawings, parts that are difficult to capture using photography can be easily depicted. And through images, information can be controlled, selected, managed so that they can be focused and kept from annoying 'noise', for example when showing the organ structure of a species or a certain mechanism that is difficult or even impossible to capture using a photography technique.

The goal to achieve a certain level of accuracy becomes a positive as well as a negative quality when viewing illustration as part of an artwork. It, thus, no longer functions as an aesthetic product, but rather a cultural product. It is only seen as a 'dissecting' tool to learn and understand a certain object. Therefore, this approach is specific and limited to a certain audience. The scientific illustration approach puts second the aspect of emotion, which in reality becomes an important aspect in art. Possessing a certain aesthetical value that is capable to arouse the audience's emotion is the main goal of an artwork. Feeling enchanted, delighted, and so on become the emotional responses that are expected from an artwork in order for it to be able to leave a lasting, staying impression, as well as creating a deep meaning in the mind and heart of the audience.

For that reason, creating nudibranchs illustration according to the scientific illustration approach in effort to introduce nudibranchs to the wider communities is considered still lacking. The illustration cannot merely appear as 'fact', but must feel close at heart and blend with the audience. This sense of closeness can only be built through emotions. And here is why culture becomes important. How do we, then, establish nudibranchs as part of the urban culture of Indonesian people? It must be introduced as something that possesses an emotional closeness, either something that looks cool, cute, and so on, just as in other urban culture products, such as in science fiction or fantasy movies where they are capable to depict a world with visuals that make us all amazed, which leaves us with curiosity over the facts of the cultural aspects or science that gave an inspiration to the products, similar to the science fiction works of Jules Verne, an author,

that have been further transferred into other types of popular art media: “Verne intended to educate, but at the same time to entertain and even artistically impress: “My object has been to depict the earth, and not the earth alone, but the universe,” he said. “And I have tried at the same time to realize a very high ideal of beauty of style.”¹².

5.2. Visual concept

Nudibranchs with their unique shapes actually make quite a unfamiliar visual to the public. Yet, this is normal, as nudibranchs live under the sea, far away from people’s reach and not quite the type of animals we would encounter in our daily lives. Their shapes also do not represent sea animals in general that the public recognizes. This ‘strangeness’ can become an advantage when creating a visual. ‘Strangeness’ proposes a new perspective, contrary to what has been established. It may arouse curiosity and encourage inquisitiveness.

Now the challenge is how to optimally transform that ‘strange’ perception into a positive one as previously mentioned. Prevent the visual from becoming ‘too strange/ too unrecognizable’ that it becomes avoided and ignored as a result. Thus, the design must be able to present the strange perception as something understandable, built upon interconnections of various familiar aspects, things that the audience can ‘relate’, whether it is through storytelling, emotions that emerge from it, its context, and others.

In creating illustrations as part of this research, the strangeness is amplified by drawing nudibranchs as extraordinary creatures. Applying the hyperbole approach, main body parts are emphasized, exaggerated, with the intention of making them feel even stranger, beyond our understanding, fantasy creatures. To further strengthen the fantasy characterization, the contradictive approach is also employed. A tiny creature in reality, in the illustration, nudibranchs are made to be gigantic in size; a seemingly-weak, harmless creature in reality, they turn into animals with perceptible power. By employing these two approaches, it is hoped that nudibranchs’ representation is getting closer to fantasy creatures with a strange impression to their audience, a never-before experience, as intriguing and amazing creatures.

After the strange impression is established, the next step would be how to bring the fantasy animals to a reality that connects to the audience, to establish relations that can make them exist in a ‘believable reality’ that can be understood/felt by the audience. Thus, the first thing that needs to be done is to assign a character into the fantasy animals. The nudibranchs are given a ‘face’, eyes and a mouth that are normally recognized as tools to express emotions, which can bring a further sense of closeness

to the audience. Second, create a scene that can bring out emotions by making up a situation that opens up the imagination with various settings that heighten anticipation.

Nudibranchs may be something new for most of Indonesian people, but fantasy animals are not. Indonesians have in fact already had a sense of closeness with mythological animals. Due to the onslaught of globalization as well as influences of the hindu buddha teachings on Java-Bali cultures, and as told in the local heroic epics, mythological animals continue to live on in the country through various types of art that are still performed by the locals. Thus, an illustration creation process that places nudibranchs as mythological creatures in a heroic, adventurous, quest like scene is considered the appropriate approach.

5.3. Visual creation process

After a concept is finalized, just before continuing with the visual creation process, a decision should be first made, on which species of nudibranch to choose and develop. In this research, the selected nudibranchs are of *Chomodoris lochi* species, whose color is blue dominant, and of *Rhinophores* species, which displays yellow- orange colors. Next, these nudibranch species undergo the visual observation process. Their shapes are inspected thoroughly, their anatomy structures are examined, and so on. Following these decision and observation stages, we continue with:

- Preliminary drawing
 - Rough drawing

A process to 'roughly' create a visual. It is the preliminary process in realizing a concept into a visual object, from abstract to concrete. It is a learning as well as a discovery process to determine how the illustration visual will be made. This process utilizes the key words that have been discovered during the concept process. The scenes, poses, and other aspects also start to be further explored. There are two particular things to do in this process,

First, the process to determine the layout/scene. This process aims to generate a broad visual idea that is possible to develop. It is usually done through creating a thumbnail sketch (a smaller-size sketch in proportion to the real size) in order to move fast from an idea to another, until we find the best visual idea to continue to the next stage. Second, the process to study the visual details. This process aims to recognize which elements of each selected scene to develop, in order to be visualized better. What are the details of the shape of *Rhinophores*? What kind of face and expressions

to create? Which kind of human form to visualize, and so on. This process is important in order to finally create a 'believable reality'.



Figure 3: Thumbnail sketch. An exploration sketch of a nudibranch's pose and the human's proportion in a scene. The nudibranch is positioned in a beach, on land, not underwater to be understandable. The human character is pictured to have such closeness to the nudibranch, in close distance, as part of the concept. Pictures by researchers.

- Preliminary Detail

In this stage, the scene, their poses and their shapes that have been determined are put into their final drawing. Everything is done carefully and in detail; sketch outline is thickened, and dimension and perspective are made more accurate. A research on color is also started. In this stage, the final work starts to reveal, though during the finalization there are still adjustments according to the choices of color, texture, and so on

- Finalization

At the finalization stage, elements of brightness, color and texture have all been implemented and final adjustments are made to complete the illustration. The colors of the nudibranch are developed based on the complementary color scheme to make a strong contrast, even stronger on the rhinopores and the branchial plume. The skin color of the human character is purposefully made different to further emphasize that this illustration is set in a strange yet familiar world. Lastly, texture effect is applied to give a dimension of depth, to bring a richer sensation. A final adjustment is done on

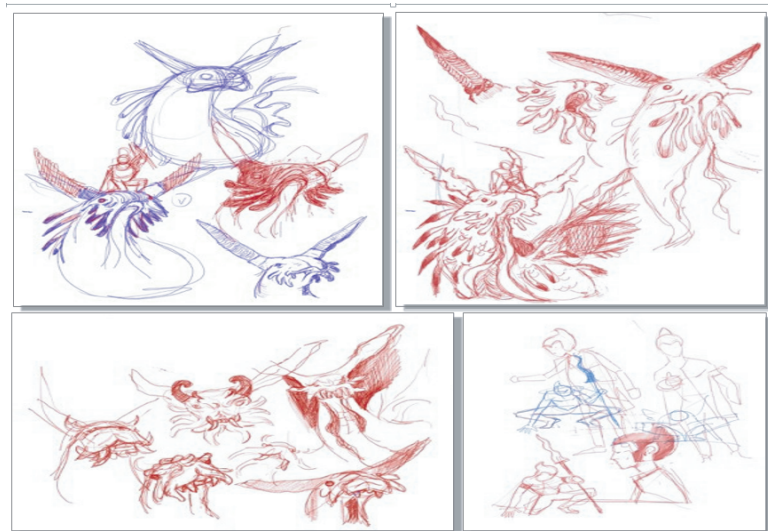


Figure 4: Visual detail research. The visual research is done by observing the shape and pose of the nudibranch, by observing its face shape, by figuring out how to add eyes to make its expressions more observable, by looking ways to modify its tentacle that is assumed as the mouth, by looking at the details of rhinopores, by observing the branchial plume, and so on. There is also an exploration into drawing the nudibranch's face by adopting the image of hindu's giant or barong. In the drawing of the human character, a research is also done related to its pose when riding the nudibranch and its costume style, which is inspired by the hair bun of Javanese wayang characters and the keris (with shapes that are uniquely Indonesian). Pictures by researchers.



Figure 5: Final Illustration Pictures by researchers.

the camera angle element, from a static angle at the beginning, it is tilted to create a more dynamic impression, further emphasizing the implied motion element so that we can feel the movement of water and the nudibranch.

6. Conclusion

This research seeks to establish an intersect between Visual Communication Design and the efforts to conserve the marine ecosystem through the creation of artworks that are expected to indirectly introduce the underwater world to the wider society.

While the research is only based on one approach, its potentials to become part of Visual Communication Design that surely creates a huge impact in the protection of underwater ecosystems are still wide open. Through a proper development of nudibrachs' characters and stories, the intellectual property of nudibrachs' illustration may expand to other media and other popular cultural artifacts.

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References

- [1] Wilkinson CR, editor. 2004 Status of coral reefs of the world. Volume 1. Australian Institute of Marine Science; 2004.
- [2] Wabnitz C, Nichols WJ. Editorial: Plastic Pollution: An Ocean Emergency. *Mar Turtle Newsl.* 2010;129:1–4.
- [3] Saidi AI. *Desain, Media dan Kebudayaan*. Bandung: Penerbit ITB; 2017.
- [4] Bergbauer M, Krischner M. *Reef Fishes of the Indo-Pacific*. Oxford: John Beaufoy Publishing Limited; 2017.
- [5] Hans B. Nudibranchss: Marine Slugs with Verve. [web-site] http://slugsite.us/bow/nudi_han.htm, accessed 22 January 2020
- [6] Arifin Z, Yulianda F, Imran Z. Analisis Keanekaragaman Biota Laut Sebagai Daya Tarik Wisata Underwater Macro Photography (UMP) di Perairan Tulamben, Bali. *J Ilmu Teknol Kelaut Trop.* 2019;11(2):335–46.
- [7] Male AC. *Illustration, A Theoretical and Contextual Perspective*. Bloomsbury Publishing; 2017.
- [8] Adi DA. *Ilustrasi Kritik Sosial dalam Bahasa Visual Metaphore pada Karya Mahasiswa Mata Kuliah Ilustrasi Desain sebagai Studi Kasus*. Humaniora;

2015. <https://doi.org/10.21512/humaniora.v6i2.3331>.

- [9] Zaimar OK. Okke Kusuma Sumantri Zaimar. Makara. Sosial Humaniora. 2002;6(2):45–57.
- [10] Elaine RS. Hodges. Scientific Illustration: A Working Relationship between the Scientist and Artist. *BioScience*. 1989;39(2):104–111. JSTOR, www.jstor.org/stable/1310910. Accessed 23 July 2021.
- [11] Marshall C. 2020 Open Culture. [website] <https://www.openculture.com/2020/02/jules-vernes-voyages-extraordinaires.html>