

Designing Infographics to Disseminate Information on Sea Turtle Conservation at Sekolah Alam of BSTC

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ABSTRACT

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Sekolah Alam represents one of Bajulmati Sea Turtle Conservation (BSTC) initiatives to disseminate knowledge through education and training regarding sea turtle conservation to a broader audience. This programme is conducted at the Bajulmati Beach conservation area, which has been developed into several ecotourism sites. Those participating in the programme will gain insight into the benefits of conservation and the importance of protecting sea turtles and their habitats. Following the site observation to the conservation area of this community service programme, it was identified that the education and training materials on sea turtle conservation in the form of posters, guidebook, and oral delivery method, represented a significant concern. Prior research has indicated that the use of infographics, or information graphics, has become a popular method of disseminating information, particularly when the subject of the information is complex. Infographics have been employed in various fields, and are even highly recommended for use in the context of learning and information dissemination. Consequently, the utilisation of infographics in addressing visual communication challenges encountered in this community service programme, in the field of ecotourism, should also be effective. This article outlines the design process of the infographics, which will serve as a supporting medium for the facilitation of learning and transfer of information about sea turtle conservation at Sekolah Alam of BSTC.

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I. INTRODUCTION

Bajulmati Sea Turtle Conservation (BSTC), located at Bajulmati Beach, Gajahrejo Village, Gedangan Subdistrict, Malang Regency, is a non-governmental institution working in the field of conservation, especially sea turtle conservation. BSTC has become the centre of sea turtle conservation in Indonesia since 2022 under the foundation Yayasan Konservasi Penyu (Irawan et al., 2022). Sea turtles are marine animals that are legally protected, as stated in Indonesia's Law No. 5 of 1990 on the Protection of Natural Resources and Ecological Systems, and Government Regulation No. 7 of 1999 on the Protection of Flora and Fauna (Siahaan & Wati, 2024). Indonesian waters are a migratory route for sea turtles as they are the crossroads between the Pacific and Indian Oceans (Bhawana, 2024). There are six species of sea turtles living in Indonesian waters, namely hawksbill (*penyu sisik*), flatback (*penyu pipih*), loggerhead (*penyu tempayan*), olive ridley (*penyu lekang*), green (*penyu hijau*), and leatherback (*penyu belimbing*). Of these six sea turtle species, all are living in Bajulmati Beach area except the loggerhead turtle (Harahab, Abidin, Muhaimin, & Sulistiyani, 2023). And it should be noted that the hawksbill turtle is listed as critically endangered, while the others are listed as endangered, based on data from the International Union for Conservation of Nature's Red List of Threatened Species (2024).

One of BSTC's conservation programmes is called Sekolah Alam (or School of Nature), which provides education and training specifically related to sea turtle conservation with real-life experiences. This programme is held at the conservation area at Bajulmati Beach which has been developed into several ecotourism sites. Visitors and tourists participating in the programme will learn about the benefits of conservation and the importance of protecting sea turtles and their habitats (Irawan et al., 2022). Education and training materials on sea turtle rescue issues, including the sea turtle nesting period on land, are delivered orally. Supporting tools

used so far are whiteboards, which are used directly while explaining the materials. Furthermore, participants can also access a digital guidebook, available in PDF format and written in Bahasa Indonesia, entitled the "Buku Saku Penyu" or translated as the "Turtle Pocket Book". This guidebook can be obtained via the "Whatsapp" chat application or email. Additionally, information dissemination is also facilitated through the use of posters.

The use of infographics or information graphics has become a popular method of disseminating information, particularly when the subject of the information is complex. The study of Hernandez-Fernandez, Morera-Vidal, and Massana in 2022 indicated that infographics can be considered boundary object facilitating learning in a manner that is more effective than that achieved through the use of plain text. It has also been demonstrated by Dunlap and Lowenthal (2016) that individuals learn and retrieve information more effectively when presented with a combination of text and visuals together than when presented with text alone. The minimal visual representation of infographics can effectively convey the maximum amount of content while maintaining precision and clarity. The visual components of an infographic can convey information rapidly, demonstrate relationships, and facilitate comprehension of the underlying structure. Spicer and Coleman (2022) noted the application of infographics in education, particularly in the context of medical education, citing their utility for a range of purposes. Educators, clinicians, and public health professionals frequently employ infographics as a means of communicating established knowledge to learners, patients, and the general public. Another research by Wimolsittichai (2024), which highlighted the efficacy and efficiency of utilising infographics as a medium for disseminating information in the context of tourism. In addition to their role in the dissemination of information, infographics can also be employed to promote cultural learning resources and cultural tourism destinations. In this case, the destination is Patum tourism village, which is located in Thailand. This was achieved through the development of the required infographics and subsequent analysis of their impact through audience testing, enabling the assessment of perceptions and satisfaction. In the context of developing high-impact infographics, Traboco, Pandian, Nikiphorou, and Gupta (2022) highlighted several key points. It is essential to define the objective of the infographics and its intended target audience with precision before embarking into the design process. When designing infographics, careful consideration of the layout, colours, fonts, and context is mandatory in order to ensure efficacy. Despite the availability of numerous online applications and emerging artificial intelligence programs for the creation of infographics, it is still recommended to seek the assistance of professional graphic designers if time and funding allow.

A review of the preceding research above indicates that infographics are an effective way to convey complex information. Infographics have been employed in various fields, and are even highly recommended for use in the context of learning and information dissemination. Consequently, the utilisation of infographics in addressing visual communication challenges encountered in this community service activity, in the field of ecotourism, should also be effective. This article describe the design process of the infographics that will serve as a supporting media for the the facilitation of learning and transfer of information about sea turtle conservation at Sekolah Alam of BSTC.

II. PROBLEM

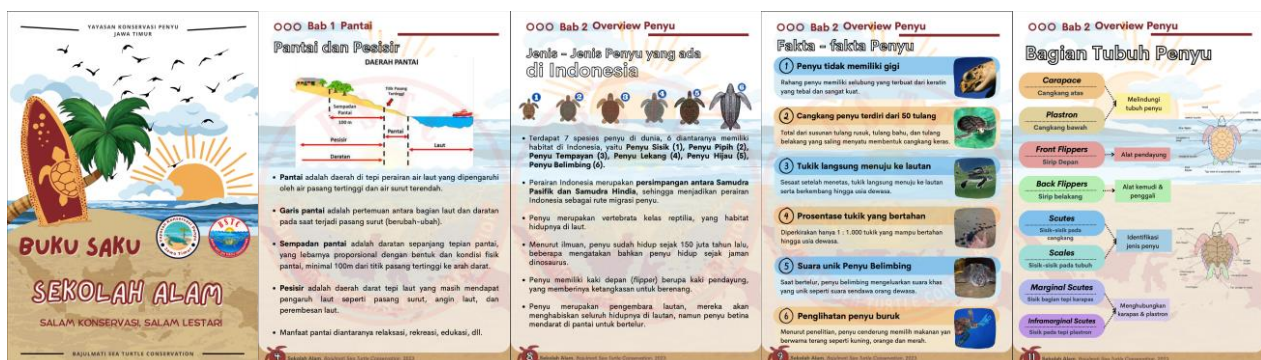
The research team conducted several site visits to BSTC between the end of 2023 and the beginning of 2024. During these visits, the team identified several issues within the visual communication context that required further investigation. Of these, the education and training materials on sea turtle conservation in the form of posters, guidebook, and also the delivery method, were identified as a significant concern.

The quality of the poster design is generally considered to be of a low standard, and many of them are already showing signs of wear. The layout design of the posters is inconsistent, lacking a coherent system that would allow a clearer visual presentation (Tondreau, 2009). The printing technique and material used for the posters do not meet the standards required for an outdoor environment (Farr, Kleinschmidt, Yarlagadda, & Mengersen, 2012). While the information displayed on the posters is relevant to the location, theme, and condition, unfortunately some of the placements are not optimal and out of place (Ryan and Hyll, 2022).



Picture 1. Series of poster design displayed at the location (source: author, 2024).

The digital guidebook, available in PDF format and entitled the "Buku Saku Sekolah Alam" or translated as the "School of Nature Pocket Book", is accessible to Sekolah Alam participants via the "Whatsapp" chat application or by email. The book provides a comprehensive overview of sea turtle biology, habitat, and conservation strategies. However the book's layout design is perceived to be of a less than optimal standard, particularly in terms of visual element management. This includes aspects such as: typography, photography and illustration, other graphic elements, and colour palette. Particularly, regard to the aspects and principles of typography, the level of readability and legibility has not been adequately fulfilled. (Carter, Meggs, Day, Maxa, & Sandra, 2014).



Picture 2. Some pages from the "Buku Saku Sekolah Alam" digital guidebook (source: BSTC, 2024).

The educational and training materials related to sea turtle rescue, which are delivered at Sekolah Alam, utilise whiteboard for the direct delivery of content. At one point, it could be argued that this traditional face-to-face method could be considered as interactive due to the flexibility it allows the tutor to write and draw while explaining (Behnke, 2023). Nevertheless, it would be optimal if the visualisation were to be rendered more comprehensive, thus ensuring consistency when disseminating information on the subject matter.



Picture 3. The use of a whiteboard as a direct delivery method for educational and training materials on sea turtle rescue issues (source: author, 2024).

III. METHOD

The design process of the infographics, which will serve as a supporting media for the facilitation of learning and transfer of information about sea turtle conservation at Sekolah Alam of BSTC, was conducted in accordance with the three stages of the design process as outlined by Lupton (2011). The stages are as follows: defining the problem, getting idea, and creating form.

Defining the Problem

In order to gain a deeper understanding of the specific challenges, specifically regarding sea turtle conservation information dissemination at Sekolah Alam of BSTC, a series of in-depth interviews with BSTC staff and students of Sekolah Alam were conducted during the site research. The objective of the interview with the staff was to ascertain their opinion of utilizing posters as a means of disseminating information about sea turtle biology, habitat, and conservation strategies. Additionally, the interview sought to identify their preferences regarding the content and visual appearance of the posters if developed into infographics. The interview with the students was both to obtain their feedback, and to ascertain their opinion of the existing educational and training materials, specifically those in the form of posters. The students were asked whether the content of the poster had been effective in disseminating the intended information and whether it had made an impact on increasing their awareness, moreover, changing behaviour. The findings of the interviews revealed that both staff and students shared a similar perspective on the subject of information dissemination. Sekolah Alam of BSTC requires well-designed information dissemination materials that function not only to educate, but also to engage the reader.

In addition to the interviews, the research also distributed questionnaires to 104 respondents, the majority of whom were between the ages of 14 and 19. In conclusion, the results indicate that 80,2 % of the respondents do not pay attention to information signage while on the beach or in the conservation area. Furthermore, 45% of the respondents indicated that they do not comprehend the information conveyed through the information signage they encounter. The data presented herewith provides a summary of the necessity for an engaging information signage at the beach and in the conservation area.

Getting Idea

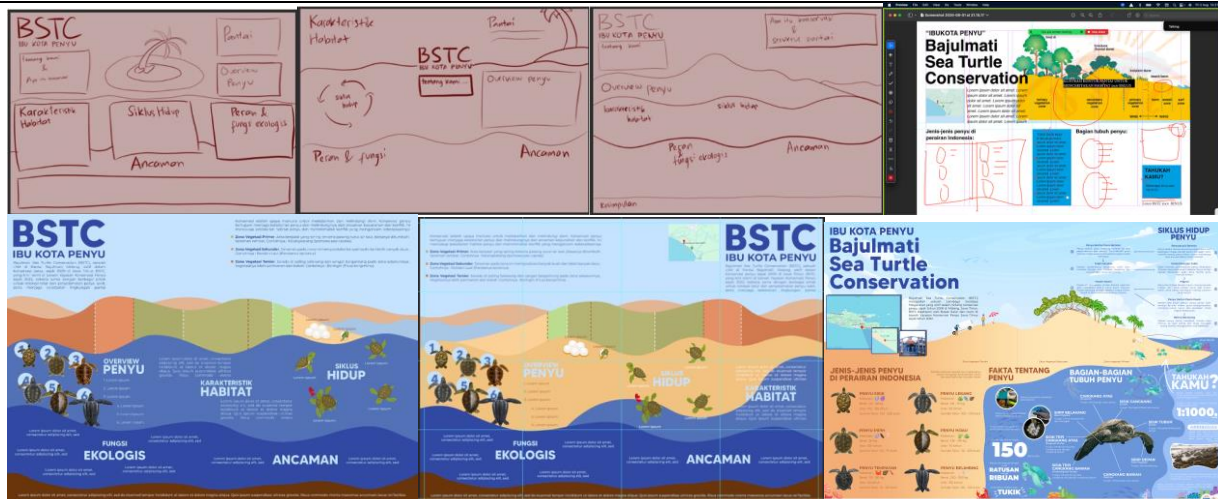
Once the problems had been identified, the next stage was to find solutions to the problems, which was to develop an information poster in the form of infographic poster, specifically narrative infographics. Narrative infographics are infographics that focus on attractive visual presentation using illustrations. In addition to their informative function, they are also designed to be entertaining (Lankow, Ritchie, & Crooks, 2002).

In order to refine the visual concept of the infographics, it was necessary to identify the target audience (Traboco et al., 2022). The target audience is defined as young people between the ages of 14 and 19 years who enjoy coastal activities and are interested in conservation issues. The final visual concept for the infographics is designed to be fun, bright, and coastal. This approach was taken to enhance the visual appeal of the infographics presentation and to integrate the insights of the target audience. The concept of fun is to represent the young age spirit of the target audience, the use of bright imagery is to represent a light feeling so that the complex information displayed can be easily understood, and the coastal theme is selected to represent the context of the location.

Creating Form

The next stage was to create the final artwork design of the infographics, which was based on the creative concept that had been developed at the preceding stage. The creative process entailed a series of stages, including rough sketches to comprehensive sketches, before the final artwork design was developed. The entire design process was conducted digitally using graphic design application.

The final artwork was presented in the format of 20RS (50 CM x 75 CM), digitally printed on canvas material, and mounted in a wooden blocked frame. It is anticipated that this final presentation may prove challenging in an outdoor setting. The following section will provide a detailed overview of the visual elements incorporated into the final artwork design of the infographics.



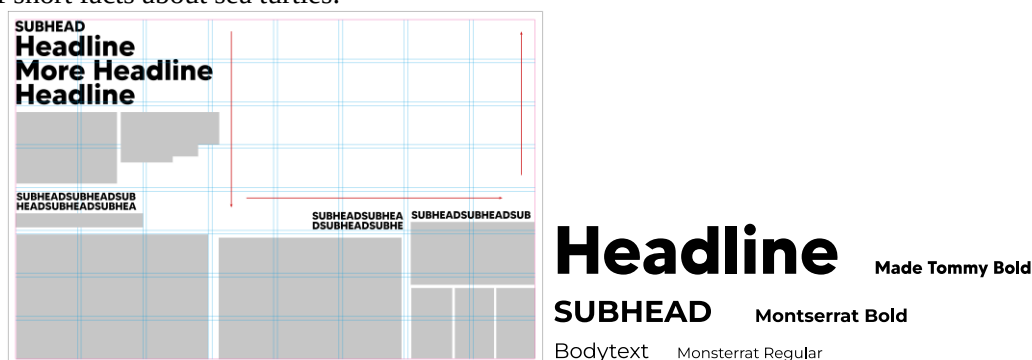
Picture 4. The design process of creating the infographics, from the initial rough sketches to the comprehensive sketches prior to the final artwork design (source: author, 2024).

IV. RESULT AND DISCUSSION

The final artwork design of the infographics was based on the final visual concept that had been determined in the preceding stage. The concept is characterised as fun, bright, and coastal. Subsequently, the visual concept was translated into the visual elements involved in the infographic design, which included the following: layout, typography, colour (Traboco et al., 2022), and illustration (Lankow et al., 2002).

Layout

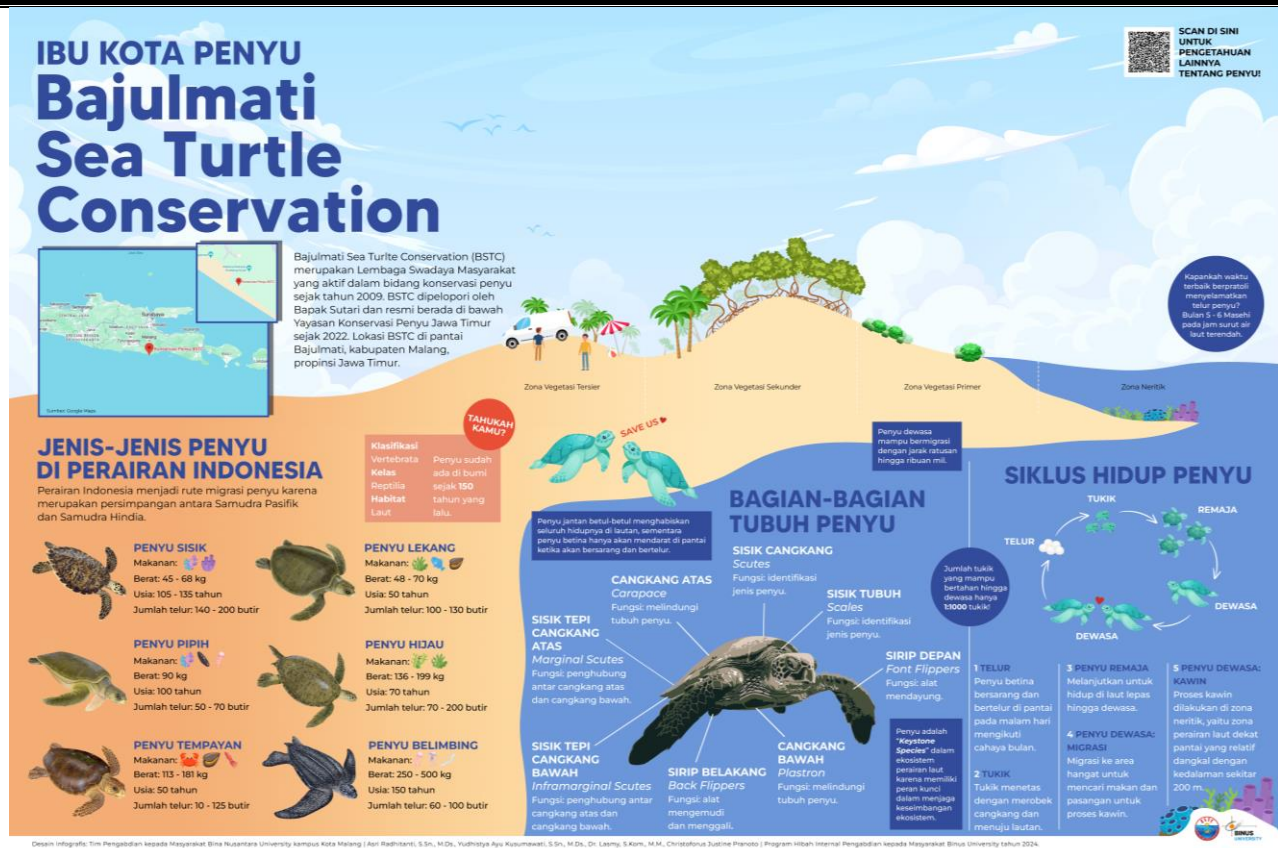
The infographic layout employed an asymmetrical composition within a multi-column grid. This is to address the necessity of displaying complex information content (Müller-Brockmann, 1996). The information hierarchy was presented in a top-down, left-to-right sequence, with the most important information displayed first and the least important information displayed last. The sequence commenced with an introduction to the BSTC, followed by a description of the various sea turtle species that inhabit Indonesian waters. This continued with a description of the anatomical features of sea turtles, information about the life cycle of sea turtles, and information about the habitats of sea turtles and the conservation zone. Additionally, the infographics presented a series of short facts about sea turtles.



Picture 5. The structure of the infographic layout (left), and the selected typeface (source: author, 2024).

Typography

The selected typeface for the infographic design was a san serif font, which was employed to convey a sense of lightness, and adjust the visual creative concept of fun and bright. The text for the headline was set in the Made Tommy font in bold, the text for the sub-headline was set in the Monsterrat font in bold, and the body text was set in the Montserrat font in regular.



Picture 6. The final artwork of the infographic design (source: author, 2024).

Illustration

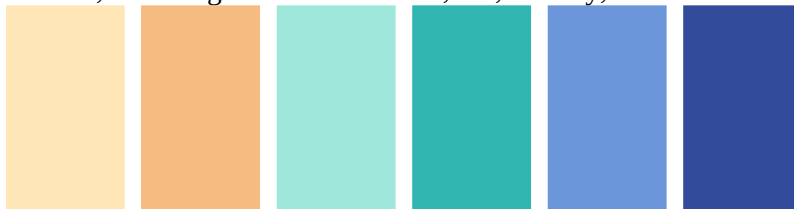
The style of illustration employed for the infographic design was digital illustration, with the objective of conveying an attractive visual presentation. The entire visualization presented a coastal area within a beach and a sea setting, captured in a sunny and bright ambience. In addition to the main illustration, some texts are accompanied by photography in order to present a more realistic representation to the subject of matter.



Picture 7. Illustration style for the infographic (source: author, 2024).

Colour

The colour scheme applied to the infographic design was intended to represent the natural colours observed in the environment, including the shades of sand, sea, and sky, and the colours of sea creatures.



Picture 7. The colour scheme applied in the infographic (source: author, 2024).

V. CONCLUSION

The development of infographics was to address the visual communication challenge encountered in this community service activity, which is information dissemination on sea turtle conservation. The final infographic design was developed with the objective of enhancing the experience of Sekolah Alam students in absorbing the information presented, thus facilitating their comprehension of the subject matter, which was

achieved through the combination of text and illustration. It is hoped that this community service programme will assist the BSTC staff in disseminating their programme to a wider audience.

With regard to the forthcoming community service activity, the research team proposed the creation of infographics pertaining to additional sub-topics within the field of sea turtle conservation, or alternatively, the development of infographics that are more interactive, utilising new media or technology.

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