

Motion Graphics to Promote Conservation of Marine Natural Resources Using Flat Design's Design Pattern

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Abstract—The objectives of this research are: 1) To design and create motion graphics media to support marine conservation using the Flat Design design pattern is the main goal of this study. 2) To research the effectiveness and viewer satisfaction of motion graphics that use the Flat Design design pattern to promote marine conservation. The sample groups for this study's sample selection procedure were split into two groups as follows: Group 1, three experts in multimedia design using a particular methodology, for thorough research 50 persons from Bang Pu Mai Subdistrict made up the second group for the satisfaction study. 1) Adobe Illustrator and Adobe After Effects were the tools used in the study. 2) Quality Assessment Form for Professional Multimedia Design 3) A survey of media audience satisfaction. The statistics used to analyze the data consisted of Mean and Standard Deviation. The study's findings are as follows: 1) The assessment of the multimedia design quality produced excellent findings. The standard deviation was 0.64, and the overall mean was 3.57. 2) The media audience's satisfaction survey scores were very high. The average value was 3.90, with a standard deviation of 0.31.

Keywords: *Design and Development, Motion Graphics, Marine Conservation, Flat Design*

I. INTRODUCTION

Nowadays, human garbage that is intentionally or accidentally deposited directly or indirectly into the water is referred to as marine litter. Waves, wind, currents, and tides carry the plastic garbage away from its source because it is portable and won't decompose over time. The majority of the plastic garbage consists of everyday items such as bags, bottles, and food containers and packaging materials, as well as industrial items like straps, plastic

sheets, and helmets, as well as fishing equipment like fishing nets. Microplastics, which are plastic beads that are smaller than 5 mm, are created when large pieces of plastic debris break down into extremely minute fragments. In addition to microplastics that come from the decomposition of large pieces of plastic, it is used as a raw material for plastic production and is also an ingredient in cosmetic products and health care products. Because it is very small, it slips into the sea in large numbers each year. According to the United Nations, in every 2.6 square mile (or 2.6 square kilometer) of the ocean, there are about 13,000 pure plastic pellets floating around. Its unique toxic-absorbing properties also allow it to accumulate PCBs (PCBs) or DDT (DDT) and other long-lasting environmental toxins in its concentration. In addition to microplastics that are granules, fibers produced by washing are also found [1].

The impacts of marine debris on the environment include:

1. Garbage will reduce and obscure the beauty of natural tourist areas. causing toxic pollution to tourist attractions such as sandy beaches, coral reefs, and so on, particularly on popular tourist beaches such as Koh Lanta in Krabi province, Patong in Phuket province, and Pattaya and Bangsaen in Chonburi province. On the beach, there will be garbage in the sea. In large quantities, especially those plastic scraps, reduce the number of tourists, thereby affecting the economic system of tourist attractions in that area.
2. Some types of waste pose a danger to humans. such as sharp waste and toxic waste. In addition, toxic waste dumped into the sea can also accumulate toxicity in the environment and food webs in the ecosystem.
3. Many animals die from eating garbage. Mistaken for food or fishnet fragments, the wrapped rope prevents mammals from coming up to breathe.
4. Coral reefs in Thailand are heavily affected by marine debris. Especially around the rocky pile far off the coast

that is fertile with schools of fish. Usually, there are fishing boats coming to fish. and found nets covering coral reefs such as coral reefs, duck coops, chicken coops, Chumphon rock formations, Chumphon province [2]

At present, there are many forms of UI design. Flat Design is the design of the User Interface (UI) by reducing the things that make it look dimensional, such as lighting, shadows, gradations, and adding textures. Pay more attention to what is needed and increase the free space to make the design more visually appealing. To be more suitable for use on smartphone and tablet screens, make the components simple and easy to use. It also loads faster [3]. The principles of flat design are: 1. Simplicity Elements in Flat Design are simple; no dimensions, no shadows, no textures, but must be able to convey the meaning to the user immediately and be easy to use. 2. Use a variety of colors. Although there is no gradation in a particular element, up to 6 to 8 colors may be used on a page, and they are vibrant. are different so that users can remember. 2. Use a variety of colors. Although there is no gradation in a particular element, up to 6 to 8 colors may be used on a page, and they are vibrant. are different so that users can remember. As a result, the researcher used Flat Design principles to create motion graphics to promote marine natural resource conservation. By focusing on benefiting people who are interested in the conservation of marine nature by applying waste data to form a motion infographic. in order for the audience to know the story of marine debris and to conserve nature.

II.OBJECTIVE

- 1) To design and develop motion graphics to promote the conservation of marine natural resources using Flat Design's design format.
- 2) To study the quality of motion graphics media to promote marine natural resource conservation using Flat Design's design pattern.
- 3) To study the satisfaction of viewers of motion graphics to promote marine natural resources conservation using Flat Design's design pattern.

III. LITERATURE REVIEW

Flat design is a style that focuses on simplicity. focus on usability and reduce unnecessary graphics. make the user focus more on the important points. Another point of design simplicity is that the use of "white space," also known as "free space," is the most important thing. Use it appropriately for the job, including using beautiful, bright images at the most important point. is intended to support the growing popularity of mobile and tablet technology and In 2012–2014 the design of user interfaces for the operating systems (OS) of desktop computers, mobile OS and mobile applications, as well as for websites, saw cardinal changes relating to the appearance of so-called flat user interface design. The first flat design appeared in the mobile OS Windows Phone 7 in 2010. It came to

prominence two years later with the OS Windows 8 for personal computers. This new approach to the design of user interfaces was enthusiastically received by the graphic design community as well as by many users, as a result of which it was adopted by two other leading software vendors, Apple and Google .

The basic flat design principle means that the computer screen represents a self-contained two-dimensional digital environment in which there is no place for anything replicating three-dimensional objects of the real world [2]. The user interface elements are simplified: abstract graphic forms are used and spaces are filled with bold colours. Text and font are especially important in flat design. In particular, this leads to a wide use of condensed, light and ultralight variations of typefaces. The density of screen information is often extraordinarily low [10].

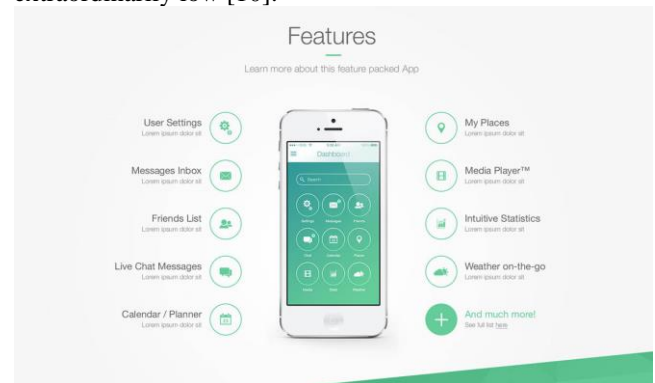


Figure 1 Flat design by Digital Science

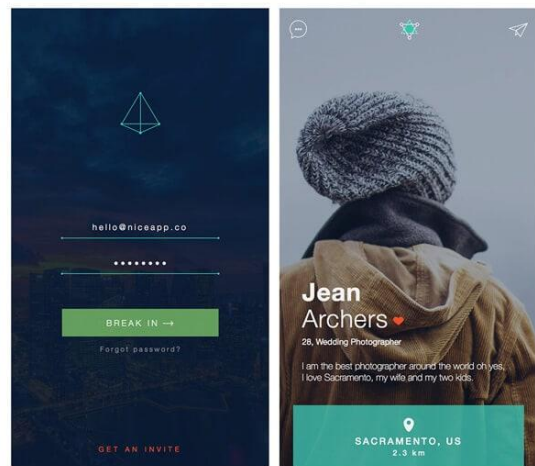


Figure 2 Flat design by Darius Dan

IV.RESEARCH METHODOLOGY

Motion Graphics Media Production Approximately 8 minutes in length Motion graphics to promote the conservation of marine natural resources using Flat Design's design patterns, including concepts and theories related to Flat Design. Technical scope of motion

graphics media production using programs: Adobe Illustrator in design; Adobe Aftereffect to create animations; Adobe Premier Pro in video editing and dubbing

The sample population used in the research were multimedia design specialists and the people of Bang Pu Mai Subdistrict. The samples used in the research using the sample selection method were divided into 2 groups. The first group consisted of 3 specialists in multimedia design with a specific method, and the second group was the people of Bang Pu Mai Sub-district. The statistics used in this study's data analysis were mean and standard deviation.

The ADDIE MODEL [6] was used by the researcher as follows:

1) Analysis: The researcher studied and analyzed the motion graphics media design process and collected information about marine debris.

2) Design: After analyzing, the characters, images, and scenes are designed to achieve the desired functionality and results. by writing a storyboard (storyboard) and providing information for further development.

3) Development: The researcher has designed the characters and the scene as well as the sound effects. by bringing the information and files already prepared and then assembling them together as designed. and developed with a computer program.

4) The implementation stage is application. from the improvement, design, and development of motion graphics media. Then, the researcher had the sample group do a media audience satisfaction assessment form, and the researcher used the results to analyze and evaluate the data further.

5) Evaluation: The researcher analyzed the data and evaluated the results obtained from the satisfaction assessment form. with a ready-made program. The following statistical principles were used: mean and standard deviation [7].

Research Tools

1) Adobe Illustrator, Adobe After Effects program for designing and developing modules infographics.

2) Quality Assessment Form for Motion Graphics Media Design and Development Garbage in the sea.

3) Motion Graphics Audience Satisfaction Assessment Form garbage in the sea. The researcher used a rating scale questionnaire [8] (Rating Scale) divided into 5 levels as follows:

- 5 means the highest level of satisfaction.
- 4 means a high level of satisfaction
- 3 means a moderate level of satisfaction
- 2 means a low level of satisfaction
- 1 means the lowest level of satisfaction

The interpretation of satisfaction scores was used by the researcher from BEST [9] to categorize the scores as follows:

- Average level of satisfaction
- 4.50-5.00 is Very High

3.50-4.49 is High

2.50-3.49 is Medium

1.50-2.49 is Low

1.00-1.49 is Very Low

V.RESEARCH RESULTS

1. Motion infographic media design and development: garbage in the sea



Figure 3 marine garbage media import scene



Figure 4 solid waste discarded by the industry or production process.



Figure 5 surveying the amount of marine debris

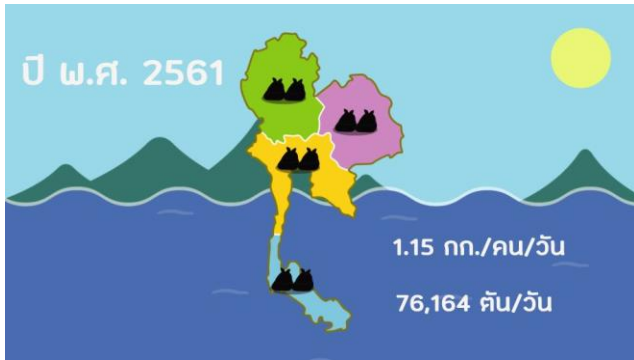


Figure 6 information on the garbage situation in Thailand in 2018

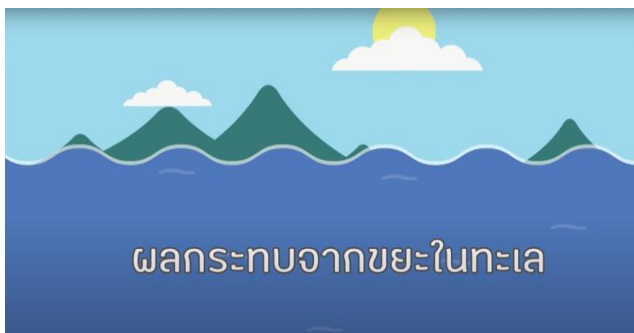


Figure 7 the impact of marine debris

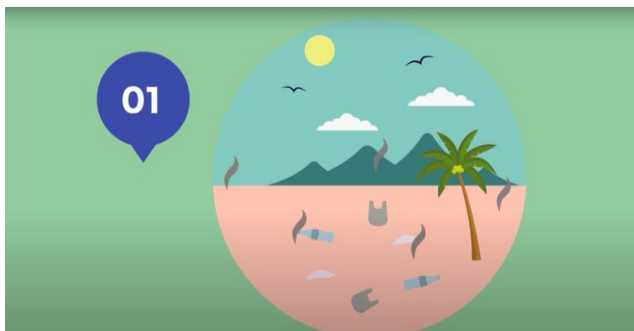


Figure 8 garbage will reduce and obscure the beauty of natural tourist areas

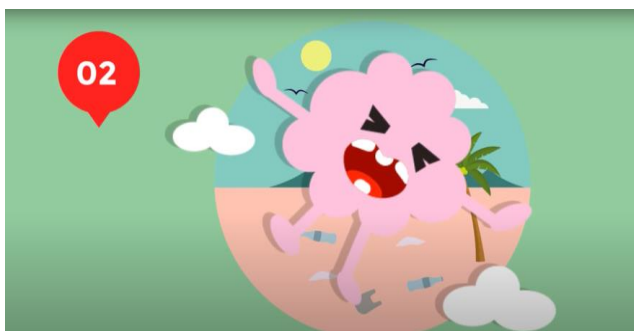


Figure 9 some types of waste pose a danger to humans

The examples from 1 to 7 are the results of the design and development of motion graphics media. Starting from the introduction scene into the story, it looks like a clip that opens with the title of marine waste media and causes various forms of waste, such as solid material discarded by industry. or production process by intentional abandonment or abandonment into the marine and coastal environment. In addition, data on the amount of marine debris generated from surveys in 2018, some of which poses a danger to humans, such as sharp waste and toxic waste. In addition, toxic waste dumped into the sea can also accumulate toxicity in the environment and food webs in the ecosystem.

2. Quality assessment results of motion graphics media Approximately 8 minute long, motion graphics to promote the conservation of marine natural resources using Flat Design's design pattern.

TABLE 1. shows the mean. standard deviation and the satisfaction level of the quality assessment of motion graphics media. garbage in the sea.

Dimension	Assessment results		
	Average	SD	Result
1) The content is appropriate and clear.	4.12	0.57	High
2) The accuracy and completeness of the content	3.80	0.67	High
3) Attractive media presentations	3.57	0.55	High
4) Proceedings in a timely manner	3.67	0.67	High
5) The media is colorful and natural.	3.33	0.53	Medium
6) The sound is clear and complete.	3.58	1.00	Medium
7) The content is consistent with the objectives of the project.	3.33	0.57	High
8) Contents are meaningful and useful and can be used in daily life.	3.39	0.69	Medium
9) Design techniques are appropriate for the media.	3.37	0.55	Medium
10) The benefits of the media to the audience are easy to understand and not complicated.	3.48	0.57	Medium
The quality of media production overview	3.57	0.64	High

From Table 1, the results of the assessment of the quality of media production techniques of experts towards the development of motion infographic media titled marine debris, it was found that the overall quality of media production techniques of experts was at a high level. The overall average was 3.57, with the top three being: the content is appropriate, clear, and the mean is 4.12. The second order is the accuracy and completeness of the content. The mean was 3.80. Third, the action was timely. The mean is 3.67.

3. The results of the satisfaction assessment of the viewers of the motion graphics media, approximately 8 minutes long, motion graphics to promote the conservation of marine natural resources using Flat Design's design pattern.

TABLE 2 shows the mean. standard deviation and the satisfaction level of the audience satisfaction assessment of motion graphics. garbage in the sea.

Dimension	Assessment results		
	Average	SD	Results
1) The operation of the story is easy to understand and easy to follow.	3.67	0.58	High
2) The composition of the picture is beautiful.	4.00	0.00	High
3) The content in the media is accurate and up to date.	3.67	0.58	High
4) Sound effects and voiceovers are appropriate.	4.00	0.00	High
5) Using symbols to convey meanings that are easy to understand.	5.00	0.00	Very High
6) The duration of the proceedings is appropriate for the content.	4.67	0.58	Very High
7) Continuity of the presented image.	4.33	0.58	High
8) Persuading to follow the story.	3.00	0.00	Medium
9) Ease of viewing infographics garbage in the sea 10) Media overview is useful to viewers.	3.67	0.58	High
	3.00	0.00	Medium
Average	3.90	0.31	High

From Table 2, the results of the satisfaction assessment of the audience of the motion infographic media titled "marine debris," it was found that the overall satisfaction of the media viewers was at a high level. The overall average was 3.90. The media viewers were satisfied in the first three categories, namely, the first place, the use of symbols to convey meanings that are easy to understand. The mean is 5.00. The second order, the duration of the story is appropriate for the content. The mean was 4.67, 3rd order, continuity of the presented image. The mean is 4.33.

DISCUSSION AND CONCLUSIONS

The design and development of motion infographics on marine debris provides an overview of the quality of media production techniques by experts. The overall average was 3.57 due to the content being appropriate, clear, accurate, complete, and timely. It is because of the design that uses the ADDIE MODEL [6] at the design stage that the characters and scenes are designed to achieve the desired functionality and results. and the issue of the evaluation of audience satisfaction of motion graphics media to promote marine conservation by using Flat Design's design model. It was found that the overall satisfaction of the media viewers was at a high level. The overall average was 3.90 due to the use of symbols that were easy to understand. The duration of the story is appropriate for the content and continuity of the images presented. This is consistent with Somchok Nianthaisong et al. [10] who said that the media is interesting. The design makes it stand out and has

concise, easy-to-understand content that should focus on the composition with proportions. It uses headless characters, bright color schemes, and cool castes. In terms of plotting, use the content presented. Straightforward, easy-to-understand facts use a sequential narrative from problem to conclusion.

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