

THE USE OF GRAPHIC ELEMENTS FOR MOBILE APPLICATION DESIGN FOR AGRICULTURAL ENTREPRENEURS IN RANONG PROVINCE

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ABSTRACT

The intention of this research is to solve Agricultural product Trading problems in southern Thailand. According to reboots the interaction habit between the sellers and the buyers based on an online marketing principle through mobile application. Application attractiveness and ease of use are the first priority to be considered in the graphic design elements. The objectives of this research study are to analyze the attractive graphic design elements for application design and suitable graphic and multimedia design elements. This research has been conducted with qualitative research. The research process started by collecting the application patterns and design elements that were evaluated by 7 graphic design experts. The methods have been laid out as followed; Graphic Design Element Evaluation, and Satisfaction Evaluation. The results are presented as followed; The features of the popular application patterns, as are; 1) Minimalism and Geometric forms, 2) Photography with graphics, and 3) Glass morphism and Gradients with Soft Shadows.

Keywords: Graphic Design Elements, Mobile Application Design, Agricultural Entrepreneurs, Ranong Province

INTRODUCTION

Electronic Commerce (E-Commerce) dates back to the late 1960s, when businesses began to use Electronic Data Interchange (EDI) to transfer documents between trading partners. In the late 1970s, the first online shopping systems were created, allowing customers to purchase items from a computer.

In the early 1990s, the internet revolutionized the way people shopped, and the first online stores began to appear. Amazon.com was one of the first online retailers, launching its website in 1995. eBay followed in 1996, and a year later, PayPal was created to facilitate online payments [1].

The late 1990s saw rapid growth in e-commerce, with the emergence of new technologies such as search engines, web browsers, and secure payment systems. In 1999, the first mobile commerce (m-commerce) applications were introduced, allowing users to shop and pay for goods and services from their mobile devices.

Today, e-commerce has become a global phenomenon, with businesses selling products and services to customers around the world. The industry has also seen the emergence of new technologies such as artificial intelligence (AI), virtual reality (VR), and blockchain.

User experience (UX) design is the process of creating products that provide meaningful and relevant experiences to users. This involves the design of the entire process of acquiring and integrating the product, including aspects of branding, design, usability, and function. UX design focuses on the user's journey and is aimed at creating a positive experience for the user. It takes into account all aspects of the user's interaction with the product, from the initial impression to the end result. UX design is an iterative process that focuses on creating a product that meets the user's needs and is enjoyable to use [2].

User interface (UI) design is the process of creating interfaces in software or computerized devices that focus on looks or style. It involves the design of graphical elements such as menus, buttons, icons, and other visual elements that enable a user to interact with a device or application. UI design is also known as user experience design, as it focuses on creating an interface that is easy to use, aesthetically pleasing, and provides a positive user experience.

Local wisdom is the collective knowledge and experience of a particular community that has been passed down through generations. It is often based on traditional beliefs and practices, and can include values, customs, beliefs, and language. Local wisdom is often used to inform decision-making and to guide behavior. It is often seen as a way to maintain harmony within a community and to ensure that everyone is respected and valued [3].

BCG Economy that it is the prototype economic pattern leading to sustainable development where the knowledge of science, technology, and innovation have been integrated to continually develop the competitive efficiency for the four targets 'S-Curve' industries, consists of: 1) Agricultural and Food Industry 2) Energy and Material Industry 3) Wellness and Medicine Industry and 4) Tourism and Service Industry

With the combination of science, technology, and innovation, the efficiency of the agricultural production process will be elevated substantially. The farmers and communities will be encouraged to be entrepreneurs of high-value products and services. Innovation will improve the production lines that help circulate the economy in a systematic way. The new economic system starts from the product's eco-design to the zero-waste process. Moreover, the reuse, refurbishment, and sharing processes will be promoted. The recycling and upcycling systems have been heavily highlighted in waste management systems from the production and consumption processes. On the other hand, the traditional linear economy focused on considerable resource use in production lines without proper waste management [4].

Agricultural product development involves the process of creating new products or improving existing products for the agricultural industry. This process involves research, development, and marketing of new products or services. It is an essential part of the agricultural industry, as it helps farmers and producers to increase their profits by introducing new products or services that meet the demands of consumers. The development of new products can also help to increase the efficiency of production processes and reduce the environmental impact of agricultural productions.

Ranong Knowledge Center of Agricultural Product Development is established by local agricultural entrepreneurs whose major income has been derived from palm products. Such

monoculture of palm trees has caused poor quality in soil, product decline, and high farming costs owing to heavy use of chemical fertilizers and a search for fresh water for the dry season. Therefore, pepper and Baegu farmings, beekeeping activities to increase pollination among trees, and using handy agricultural machines in the palm plantation are keys to reducing costs, fuel consumption, and chemical substance dependency. Food processing can be another choice to add value and extend product lives through high-technological packaging methods, including brand creation, to imprint into consumers' minds in premium markets. As well as this, marketing needs have been established upon localization through local wisdom.

RESEARCH PROBLEMS

This study has been conducted as developmental research to solve product distribution problems in the downstream phase of the agricultural industry. It is expected to boost the interaction rates between the sellers and the buyers based on an online marketing principle and serve the needs of consumers through modern lifestyle channels. Online marketing is the use of digital channels, such as search engines, social media, email, and other websites, to reach potential customers. It is the process of promoting a product or service online by using various digital marketing tactics, such as search engine optimization (SEO), content marketing, influencer marketing, search engine marketing (SEM), display advertising, e-commerce marketing, social media marketing, and more. The goal of online marketing is to reach a larger audience and increase sales and revenue. Moreover, application attractiveness and ease of use are the first priority to be considered in the design despite the difficulty in conveying the product message to the buyers. These pose the problems of this research study is: What should be included in the graphic design elements?

OBJECTIVES

1.To analyze the attractive graphic design elements for application design and suitable graphic and multimedia design elements.

METHODOLOGIES AND PROCEDURES

This research has been conducted with qualitative research. The research process started by collecting the application patterns and design elements that were evaluated by 7 graphic design experts. The methods have been laid out as followed; Graphic Design Element Evaluation, and Satisfaction Evaluation.

RESULTS AND IMPLICATIONS

The suitable application features for processed agricultural products are listed as followed.

1. Minimalism and Geometric Styles: Geometric style is a style of art that uses geometric shapes and forms to create a composition. It is characterized by clean lines, precise shapes, and a focus on balance and structure. Common elements include circles, squares, rectangles,

triangles, and other basic shapes. Geometric style can be found in many different forms of art, including painting, sculpture, architecture, and design. It is often associated with the Bauhaus movement, a modernist art movement that began in Germany in the early 20th century. Modern pattern enhances the clear simple look with visually friendly attributes. Non-headed Thai letters are used as they are suitable for the sharp edge design conveying a sense of strength, as seen in Figure 1.

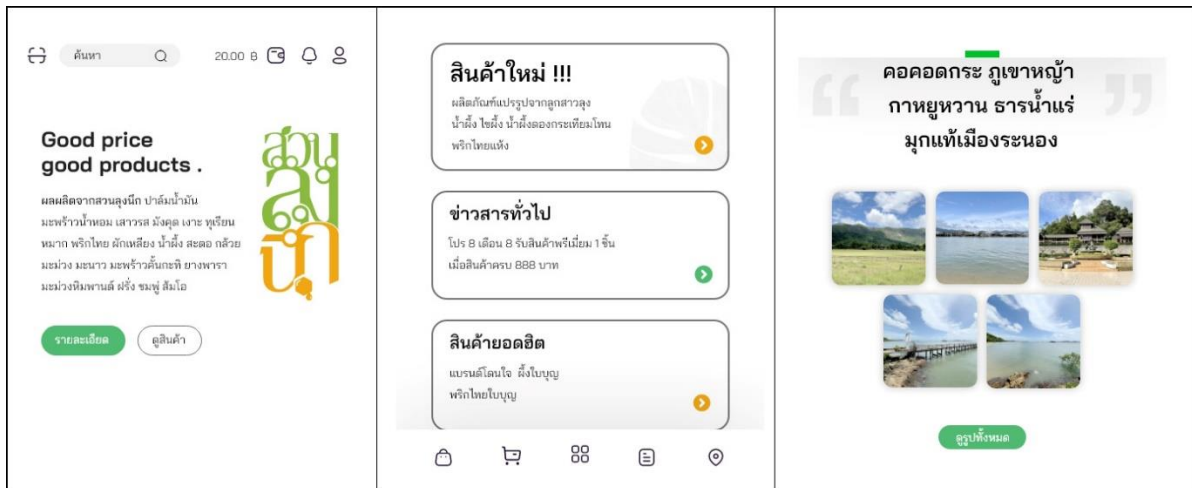


Fig. 1. The Home section of Mobile Application design with Minimalism and Geometric Styles

Source: Waijittragum, 2022

2. Photography with Graphics in Eco-conscious Style: Eco-conscious style is a fashion trend that focuses on sustainability and minimizing environmental impact. It involves using natural, recycled, and upcycled materials to create clothing, accessories, and home decor. Eco-conscious style also emphasizes reducing waste by buying fewer items and looking for items that are made to last. This style is often characterized by minimalist designs and neutral colors. Casual Style promotes the senses of relaxation, lively, and joy. Non-headed letters are used to enhance an unofficial style along with friendly and natural feelings, as seen in Figure 2.

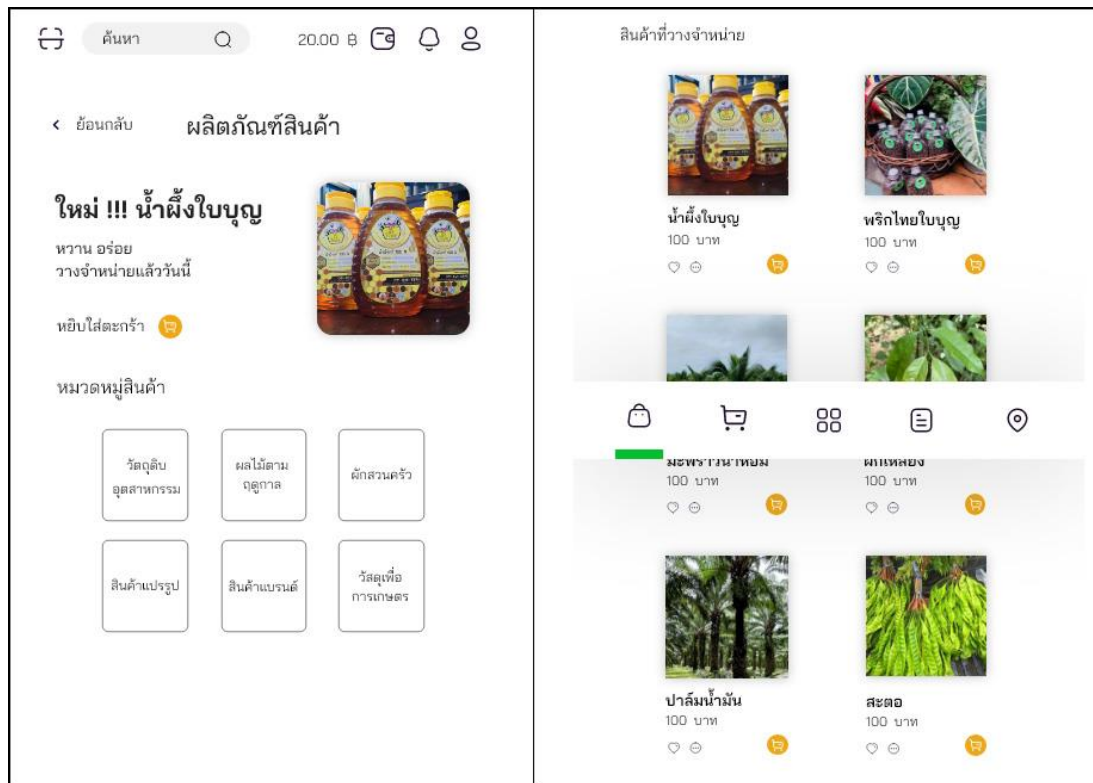


Fig. 2. The Products section of Mobile Application design with Graphics in Eco-conscious Style

Source: Waijittragum, 2022

3. Glass Morphism and Gradients with Soft Shadows: In mathematics, a glass morphism is a type of morphism between two topological spaces. It is a generalization of a homeomorphism, which is a continuous and bijective map between two topological spaces. A glass morphism is a continuous and bijective map between two topological spaces, but with the additional property that the inverse map is only continuous in a weaker sense. Specifically, the inverse map is continuous on the preimage of points that are not in the closure of the image.

Glass morphisms are useful in the study of topological spaces, as they provide a way to compare spaces that are not homeomorphic. For example, the Sierpiński space and the long line are not homeomorphic but they are glass morphic. Elegant characteristics enrich the senses of secret and delicate charming. Hand-writing letters promote impulsive, sentimental, joyful, and youthful senses, as seen in Figure 3.

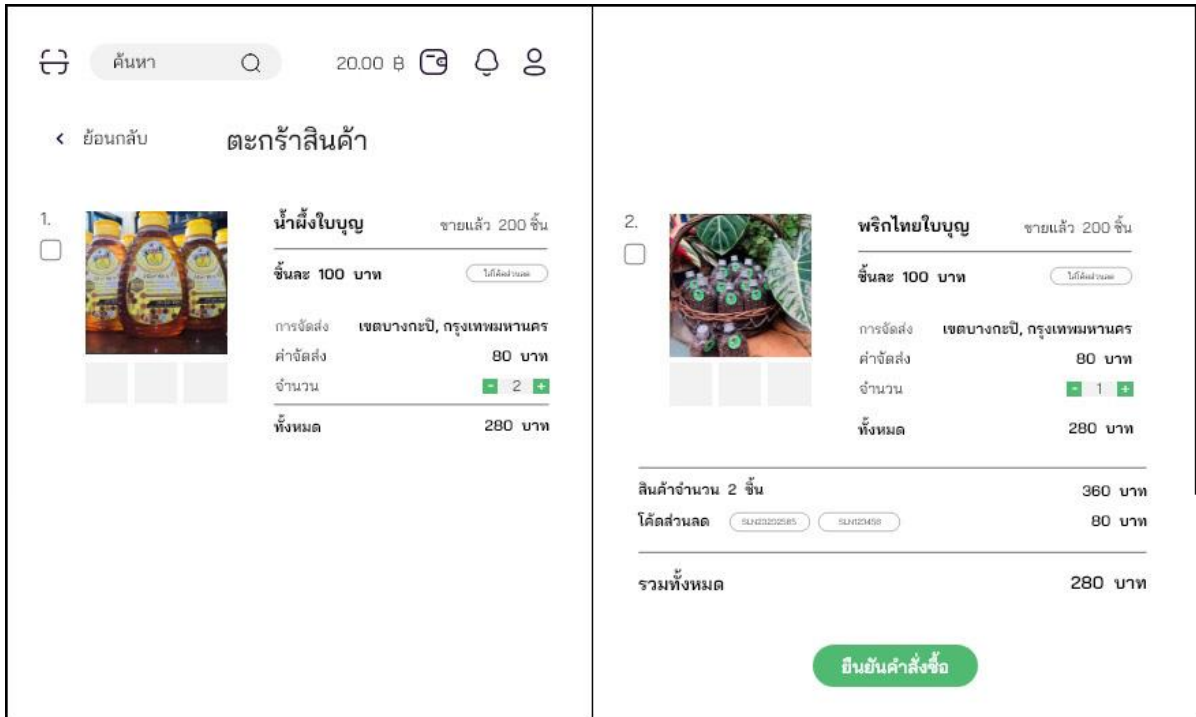


Fig. 3. The Promotions section of Mobile Application design with Glass Morphism and Gradients with Soft Shadows

Source: Waijittragum, 2022

4. The evaluation of characteristic styles categorized in application patterns as are 1) Minimalism and Geometric form consists of Modern and Romantic style, 2) Photography with graphics in Eco-conscious style consists of Modern and Casual style, and 3) Glass morphism and Gradients and soft shadows consists of Modern and Elegant style, as seen in Table 1.

Table 1: Evaluation of characteristic styles categorized in application patterns by experts

Characteristic Styles		Application Patterns					
		Minimalism and Geometric form		Photography with graphics in Eco-conscious style		Glass morphism and Gradients and soft shadows	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
1.	Casual	3.14	0.38	4.71	0.49	2.43	0.53
2.	Modern	5.00	0.00	5.00	0.00	5.00	0.00
3.	Romantic	4.43	0.53	1.86	0.38	1.86	0.38
4.	Natural	1.86	0.38	2.29	0.49	2.14	0.38
5.	Elegant	1.29	0.49	1.57	0.53	4.43	0.53
6.	Chic	1.29	0.49	2.00	0.58	1.71	0.49
7.	Classic	1.71	0.49	1.86	0.38	1.71	0.49
8.	Dandy	2.29	0.49	1.71	0.49	2.00	0.58
Total		2.63	0.14	2.62	0.22	2.66	0.21

Source: Waijittragum, 2022

5. The satisfaction levels from using those 3 selected protocol applications as are 1) Minimalism and Geometric form as high satisfaction levels, 2) Photography with graphics in Eco-conscious style as the highest satisfaction levels, and 3) Glass morphism and Gradients and soft shadows as high satisfaction levels., as seen in Table 2.

Table 2: Satisfaction levels from using the protocol application

Application Features		Satisfaction Levels		
		\bar{x}	S.D.	Level
1.	Minimalism and Geometric form	3.96	0.79	high
2.	Photography with graphics in Eco-conscious style	4.33	0.75	highest
3.	Glass morphism and Gradients and soft shadows	3.86	0.81	high
Total		4.05	0.49	high

Source: Waijittragum, 2022

CONCLUTIONS

Minimalism is an art movement and lifestyle characterized by simplicity, sparsity, and clarity. It is often associated with minimal art, which is characterized by its minimal use of materials, colors, shapes, and textures. Minimalism can also refer to a lifestyle that focuses on reducing clutter and simplifying one's life, such as by living with fewer possessions and focusing on experiences and relationships over material goods.

A gradient style is a type of design where two or more colors blend into each other in a smooth transition. This type of design is often used to create a sense of depth or texture in a design. Gradients can be used to create a variety of effects, from subtle background colors to vivid and vibrant colors. Gradients can also be used to create a sense of movement or flow in a design.

Soft shadow style is a type of lighting that uses soft shadows to create a natural and subtle look. This style is often used in portrait photography, product photography, and other types of photography where the photographer wants to create a gentle and airy atmosphere. Soft shadows can be achieved by using a combination of natural and artificial light sources, such as a combination of window light and a softbox. This style of lighting is often used to create a more natural and inviting look, as it eliminates harsh shadows and creates a softer, more even light.

Graphic design elements should focus on casual characteristics to boost the sense of relaxation and joy. Graphic design is the process of visual communication and problem-solving through the use of typography, photography, iconography, and illustration. It is used to create a visual representation of ideas and messages, and to communicate specific messages to specific audiences. Graphic design is a way of combining art and technology to communicate ideas. The informal letter can be applied while modern characteristic helps deliver the earnest and reliable feeling. Headed letters enhance the formal and urbanized looks including the present period of time. These can be supported by Kobayashi [5] and Wongtanasuporn [6] who stated that visual design needs to communicate the product characters reflected in the color tones and atmosphere.

According to the satisfaction result from the target group, the application with photography with graphics in an eco-conscious style was the favorite one because it was anticipated with their lifestyle. Eco conscious is an attitude of being aware of the environment and taking steps to reduce one's environmental impact. It may involve making conscious decisions to reduce one's consumption of resources, such as energy and water, and to recycle, reuse, and reduce waste. Eco conscious individuals may also choose to purchase environmentally friendly products and support businesses and organizations that promote sustainability. The satisfaction result corresponds to Cath [7] and Waijitragum [8] who stated that you can find out the types of audience research. Research that you conduct yourself or commission specifically for your project.

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