CHAPTER II

LITERATURE REVIEW

2.1 Elements and Principles of Graphic Design

Landa (2010) in her book Graphic Design Solutions discusses the elements and principles of graphic design. Each element and principle are presented below.

2.1.1 Graphic Design Elements

1) Line

A point is the smallest unit of a line. A line is often interpreted as the extension or path of movement from a point. A line is known for its length being greater than its width. Lines in graphic design play an instrumental role in composition and communication. The function of lines in graphic design are listed as follows:

a) Lines define shape, edges, and form.
b) Lines dictate boundaries and determine the area of a composition.
c) Lines help organize visual composition.
d) Lines help create a compositional sequence.
e) Lines help process creative expression.
f) Lines afford the existence of a line style.

Every line has direction and quality. The role played by a line in a composition is determined by its direction and quality. Lines can be straight, curved, or angular. A line can also have thickness, smoothness, regularity, and other varying qualities. Landa categorizes lines into several categories, each explained below.

a) Solid Lines

Solid lines are simply lines marked on a surface or placed in a composition.

b) Implied Lines

An implied line is a disconnected line seen by the observer as a connected line.

c) Edges

The edge(s) are points of convergence or boundaries between shapes and or colors.

d) Line of Vision

Line of vision is the movement of the observer's eyes when viewing a composition. Line of vision is often also referred to as the line of movement or guiding line.

2) Shape

Landa defines shapes as the outline or scheme of an object. Shapes is a configuration or depiction of an area on a two-dimensional surface created with lines, colors, tones, or textures, either partially or wholly. A shape can also be defined as a closed space or line. Shapes are flat and can be measured by their width and height. The quality of a shape is determined by how it is built. All forms are derivatives of three basic configurations: square, triangle, and circle. In the book, Landa defines the types of shapes as follows:

a) Geometric Shape

Geometric shapes are shapes created with precise and measurable edges, curves, and angles. Geometric shapes are also commonly called rigid shapes.

b) Organic/Biomorphic Shape

Organic/Biomorphic shapes are shapes that give a natural and organic impression. Organic shapes can be depicted precisely or freely.

c) Rectilinear Shape

Rectilinear shape are shapes made of straight lines or angles.

d) Curvilinear Shape

Curvilinear shapes are shapes made of or dominated by curves.

e) Irregular Shape

Irregular shapes are shapes made of a combination of straight and curved lines.

f) Accidental Shape

Accidental shapes are shapes made from specific materials and/or processes that occur accidentally. For instance, a shape can form from ink spillage on the surface of a paper.

g) Nonobjective/Nonrepresentational Shape

Nonobjective/Nonrepresentational shapes are shapes entirely engineered and not derived from any visual perception. In other words, these shapes are not related to natural objects and do not represent a person, a place, or a thing.

h) Abstract Shape

Abstract shapes refer to an arrangement, alteration, or distortion of a display intended to serve as a visual style differentiator and/or communication.

i) Representational Shape

Representational shapes are shapes that can be recognized and remind the observer of real objects. These shapes are also called figurative shapes.

3) Picture/Ground

The Picture or ground, better known as positive and negative space, is a fundamental principle of visual perception that refers to the relationship between shapes, figures, and space within a two-dimensional surface. The figure – or positive shape – is an absolute shape that can be seen and distinguished from its background as an independent shape. The shapes and spaces

created between existing figures are referred to as the ground or negative shape.

Landa states that the human brain tends to separate visual elements seen as a figure from the background along with its elements. This tendency makes the background of a composition appear empty and shapeless to untrained observers. The book also emphasizes that for designers, the background or negative shape must always be considered as an integral part of a composition that makes it complete.

The understanding of figure and ground can lead to the play of reversal. Landa defines it as the arrangement of figures and ground representing positive and negative shapes in balance.

4) Color

Color is a property or description of light energy. The book records two types of colors, namely subtractive and additive.

a) Subtractive Color

Subtractive color is the color visible on the surface of an object due to imperfect reflection. For example, the green color on a leaf is caused by the reflection of green light and the absorption of other colors.

b) Additive Color

Additive color comes from a light source such as a digital screen. Additive colors are colors that arise according to the wavelength of light observed. The wavelength of a beam of light determines its color. For example, the blue color on a computer screen defined as Red 0, Green 0, Blue 255 represents the actual wavelength of blue light. Additive colors can be varied by mixing light waves with different wavelengths.

The difference in properties between these two types of colors affects the primary colors of each type. Additive colors have red,

green, and blue (RGB) as primary colors because mixing these three colors in equal amounts creates white. While subtractive colors have red, blue, and yellow as primary colors because they can be mixed to create all other colors, but not vice versa. In offset printing, the basic colors used are cyan (C), magenta (M), yellow (Y), and black (K). The use of these four basic colors is called the four-color process.

Colors can be further grouped by the categorization of their elements:

a) Hue

Hue refers to the "name" of a particular color, such as "red", "green", or "blue".

b) Value

Value refers to the brightness of a color, such as light pink and dark red. Shade, tone, and tint are the three aspects of the value of a color. To adjust the intensity of a color, pure white and pure black are added. These two colors are not found in the visible spectrum of light and are considered achromatic or neutral colors.

The value of a color affects the visual and emotional effects of a composition. When a composition has a narrow range of values, it is called low contrast. Meanwhile, if the range of values in a composition is wide, the composition is said to have high contrast.

c) Saturation

Saturation refers to the intensity of a color, such as deep blue or faded blue. Color saturation is also often referred to as intensity or chroma. A fully saturated color is a color that does not contain any mixture of achromatic colors. Mixing neutral colors with a color affects its saturation due to color dilution.

A color can also be categorized as warm or cool. Warm colors include red, orange, and yellow. Meanwhile, cool colors include blue, green, and violet.

5) Texture

Texture is the tactile quality possessed – or simulated – by a surface. Landa categorizes texture into two contextual categories in visual art:

a) Tactile texture

Tactile texture has a tangible quality that can be physically felt by touching and feeling. Tactile texture is also referred to as real texture.

b) Visual texture

Visual texture is described as the illusion of real texture.

2.1.2 Principles of Design

1) Format

Format refers to the predetermined perimeter and the entire area covered – on which a design will be created – which is the outer boundary of a design. In the real world, Format is used to refer to the field or substrate that serves as the medium for the design work, such as paper, screen, banners, and other media. Designers often use Format to refer to the types of applications of the designs created. For example, posters and book covers have different perimeters, implying that designers must be able to work within any given constraints.

2) Balance

Balance, or equilibrium, is the stability/ balance created by the even distribution of visual components' weight in each part of a center point. Balance also involves the use of visual elements in the composition in equal amounts. A composition tends to be harmonious and soothing to the observer when it appears to be balanced.

Balance in a composition can be achieved by understanding three interconnected factors: visual weight, position, and arrangement. These three factors affect how the use of elements in a composition can achieve balance in different ways.

In a two-dimensional design, weight refers to visual weight, which is the relative amount of attraction, importance, and/or emphasis in a composition. Landa states that each element in a composition carries a sense of style, strength, and/or weight. Thus, visual weight becomes a variable that can be manipulated to achieve balance in a design.

The placement or position of an object also affects its visual weight. Placing an element in a corner, center, top, bottom, left, right, and other positions appears to alter the perception of the visual weight of that element. In visual perception, different areas of a page essentially carry different visual weights. This occurs because observers tend to look at certain areas first, regardless of the format being viewed.

The arrangement of elements in a composition also affects the visual weight within that composition. There are two types of arrangements: symmetric and asymmetric. Symmetry involves the arrangement and/or distribution of elements that have perfect measured reflection equivalence from a central axis. Asymmetry in the context of visual balance is the even distribution of visual weight achieved by placing one element in balance with another without perfect reflection equivalence. To achieve asymmetric balance, the building elements of the object used need to be balanced with other objects. Every element and its position affect the overall balance of the design.

3) Visual Hierarchy

Visual hierarchy is the arrangement of information communicated in a design which serves to clarify the information

for the audience. A designer uses visual hierarchy to organize all graphic elements based on their importance and/or emphasis. This arrangement determines the sequence or flow of perception for the viewer.

A designer needs to understand which elements in a composition need to be emphasized or de-emphasized. Emphasizing all elements means not adding emphasis to any element and only increasing visual clutter. Regardless of the visual style of a design, visual hierarchy aids in the effectiveness of communication.

Placing emphasis directly correlated to creating a point of focus – often called a focal point – in a composition. Attributes such as position, size, shape, direction, color, saturation, value, and texture influence the creation of a focal point. Once the focal point is determined, a designer needs to guide the viewer further by emphasizing other elements in the composition proportionally to their importance.

4) Emphasis

Emphasis, or highlighting certain elements, is a principle which requires a predetermined object to be imposed upon. To create a visual hierarchy, a designer must determine the importance of each graphic element that builds the overall composition and rank them from most important to least important. The difference in importance of each element determines which element will be seen first before others.

Isolating or separating a shape in the composition increases the level of attention on that shape. Focused attention brings greater visual weight. Isolated elements tend to need balancing with visual weight in other areas.

The placement of objects in the composition can also emphasize those objects. The observer's tendency in visual movement

through a composition in a space has long been a topic of study. Three studies have found that observers have preferences for certain areas within the space of a composition. Objects placed on the foreground, on the top left corner of a composition, and or in the middle of the page tend to easily attract the viewer's attention. The size and scale of an object in the composition play an important role in emphasis and give the illusion of depth of space. The relationship between the size of an object and the size of other objects – referred to as scale – can make an object appear to move forward or backward in the placement sequence. Large shapes tend to attract more attention, but small shapes can also become the center of attention when they contrast with larger shapes around them.

The contrast that an object has relative to its surroundings can also provide emphasis. A dark object in the middle of a bright page – aided by size, placement, and other applications of emphasis – can become a strong focal point. Contrast can be achieved by increasing the relative amount of a difference. For example, dark and light, soft and rough, and bold and faded.

Emphasis can also be achieved by providing direction and guidance. Placing arrows pointing to an object in the composition can increase the emphasis on that object. Directions within a composition determine the observer's direction to objects that require more attention.

Diagram structures can also determine emphasis. Tree diagram structures – such as family trees – place dominant elements at the top and subordinate elements below them. Nest diagram structures can be achieved through layering – which is the practice of arranging elements based on their importance in layers – or containment where important elements are configured to contain subordinate elements. Stairs diagram structures place

their main elements on top and subordinate elements below, stacked and in a logical or sequential order.

5) Rhythm

Rhythm is a term commonly used in the world of poetry and music. In design, rhythm is defined as the consistent and strong repetition of elements that create a pattern. Rhythm can manifest as the repetition of visual elements at predetermined intervals. In design, rhythm moves the observer's eye from one point to another.

To create rhythm in visual design, a designer needs to understand the difference between repetition and variation. Repetition occurs when one – or more – objects appear repeatedly with great consistency or identity. On the other hand, variation occurs when repetitive objects undergo changes in their pattern based on their visual elements. Variation can be used to accentuate specific objects and determine focal points in a composition.

6) Unity

Unity, or cohesion, is the ability of a group of objects to appear as a single entity rather than just a collection of separate objects. The principle of unity is based on Gestalt psychology, a term derived from the German language meaning form. From Gestalt psychology, several laws of perceptual organization can be derived that significantly influence the implementation of unity in design.

Gestalt Psychology is a theory discovered in the early 20th century in Austria and Germany. The theory serves as the foundation for the study of perception in the modern world and originated as a reaction to the atomistic ideas adopted by associationist and structural schools (Britannica, 2024). Gestalt theory emphasizes that the overall attribute of things cannot be

determined by analyzing its constituent parts independently (Interaction Design Foundation, 2016a).

7) Laws of Perceptual Organization

Based on Gestalt psychology, there are six laws of perceptual organization, namely similarity, proximity, continuity, closure, common fate, and continuing line. Each of these laws determines how an observer perceives a group of objects as a whole.

a) The law of similarity states that design elements that share similar properties and/or characteristics will be perceived as a unit. These elements can have similarities in shape, texture, color, and direction. Conversely, elements that lack similarity are often seen as separate or different from those that share similarities.

b) The law of proximity states that elements that are close to each other will be perceived as a unit (Interaction Design Foundation, 2016a). The law of proximity can also be applied inversely by separating elements in a composition that need to be distinguished from others (Chapman, 2024).

c) The law of continuity states that elements appearing as a continuation of previous elements are perceived as connected by observers. This often occurs when elements are arranged along an imaginary line. The law of continuity can create a sense of movement in a composition.

d) The law of closure states that humans tend to connect individual elements to create a complete shape, form, or pattern. Chapman (2024) also mentioned that even if the appearance of a design is not fully defined, the human brain naturally fills in the gaps.

e) The law of common fate states that elements moving in the same direction or appearing to move towards the same direction are perceived as a unit by observers.

f) The law of continuing line states that lines are always perceived as the simplest path. Even if there is some interruption in the line, observers tend to see the entire line as a whole. This line is also referred to as an implied line.

2.2 Digital Marketing

In order to effectively communicate a persuasive message through digital means, a theoretical basis for the campaign and persuasive communication design must be established. *Digital Marketing Excellence: Planning, Optimizing, and Integrating Online Marketing* by Dave Chaffey and PR Smith (2017) provides comprehensive guidelines for digital marketing planning and can serve as the basis for the campaign's communicational and technical development.

Digital Marketing is the activity of promoting and performing any activities pertained to marketing a particular product or service in the online world. In the same way *mainstream marketing* is a way of thinking, so is digital marketing. Digital marketing aids the efforts of building customer-business relations and enhancing communication between parties.

2.2.1 Social Media Marketing

Social media is a part of the digital world and has become a growing sector in which marketing is done. Essentially, social media affords the activity of digital marketing due to its facilitation of interactions between people, including participation and sharing of content.

Chaffey explains Social Media Marketing is the activity of utilizing consumer-to-consumer (C2C) interactions in order to create brand awareness while negating adverse reviews. In planning to use social media in marketing, Chaffey and Smith introduced a framework – called the Smart Insights RACE Planning Framework – that can be used to set the goals of social media marketing. The goals of social media marketing as the frameworks describe is presented below.

1) *Reach*

   The utilization of social media to reach new people from the growth of the brand.

2) *Act*

   Refers to the activity of encouraging the market to interact with the brand, leading more and more people into itself.

3) *Convert*

   Refers to the transformation of traffic into sales.

4) *Engage*

   Involves the activity of encouraging existing customers to promote and advocate the brand through their own efforts.

2.2.2 Online Experiences

Apart from social media, a greater, and more fundamental concept in digital marketing is online experiences, particularly through the web. Therefore, building a good online web experience is prudent. The book had also emphasized the importance of mobile web experience, stating that customers inherently carry the expectation of a good mobile web experience.

Building a good online experience involves the activity of combining several elements, including functionality, content, form, structure, and interactions. The five elements, then, can be derived into six implications:

1) Accessibility

   Refers to the capacity at which the site can be inclusive to all kinds of users from various backgrounds. Apart from the users, accessibility also refers to the easiness that users can connect to a site with.

2) User-Centered Design and Usability

   Refers to the effectiveness of the website's function and how users can easily obtain what they are seeking.

3) Information Architecture and Findability

   Refers to the organization of a site and easiness to find in between other sites.

4) Search Engine Optimization

   Refers to the activity of optimizing the site in order to allow for search engines to distinguish between relevant and irrelevant pages.

5) Web Standards

   Refers to the site's conformity to a globally agreed convention for appearance and functionality.

6) Persuasion

   Refers to the emphasizing of a particular goal within a site that brands want customers to achieve.

2.3 Carrier Bags

Environmentally friendly carrier bags as defined by the Jakarta Provincial Government in a gubernatorial regulation are reusable bags made from various materials with certain thickness, recyclable, and designed for multiple uses (Peraturan Gubernur Provinsi Daerah Khusus Ibukota Jakarta Nomor 142, 2019).

Carrier bags retain the same function regardless of their contextual use, whether it be grocery shopping, travelling, or as bin liners: it functions as a mode of material transportation.

2.2.3 Thermoplastics

Thermoplastics is a group of synthetic polymers – a molecular structure built up of multiple simpler structures (Britannica, 2023) – with a distinct property of physical reversibility. Thermoplastics preserve its chemical properties upon heating and cooling treatments, making it recyclable. It has been widely used to make various products, including sports equipment, toys, food containers, medical supplies, clothing, plastic packaging, and many other products. Among many types of thermoplastics, polyethylene (HDPE, MDPE, LLDPE, LDPE), polypropylene (PP), and

polyethylene terephthalate (PET) are commonly used as the base polymer for carrier bags both single-use and reusable (Dentis Recycling Italy, 2024; Plastics Europe, 2024; TWI, 2024a).

2.2.4 Types of Carrier Bags

Carrier bags are made from various materials. Each material type may require different raw materials to build, giving them distinct properties. The environmental impacts each type produces are also distinguishable from each other, influencing the number of reuses they require (Bisinella et al., 2018). Many reusable bags are made from synthetic polymers as mentioned in 2.3.2 and possess similar characteristics. The Danish Environmental Protection Agency categorizes carrier bags into several different types based on its building material, namely low-density polyethylene (LDPE) bags, non-woven polypropylene (PP) bags, woven polypropylene (PP) bags, recycled polyethylene terephthalate (PET) bags, polyester bags, biopolymer bags, textile bags, and composite bags. Each of the carrier bag types are described below.

1) Low-density Polyethylene bags

Low-density polyethylene (LDPE) bags are characterized by their high chemical resistance and low cost (BPF, 2024). The malleability of LDPEs allows for the polymer to be melted and molded into a bag shape.

2) Polypropylene bags

Polypropylene bags are segmented into two different groups based on their respective industrial treatments:

a) Woven

Woven PP bags are constructed by arranging polypropylene fibers into an interlacing pattern.

b) Non-woven

Non-woven PP bags are constructed by spun bonding molten polypropylene filaments. Both bags retain similar properties,

generally stronger than LDPE bags and are meant to be used multiple times.

3) Recycled Polyethylene Terephthalate bags

   Recycled PET bags are produced by processing recycled PET beads and weaving them together, creating a durable carrier bag.

4) Polyester bags

   Polyester bags are made by weaving polyester. The polymer itself is usually a combination of other polymers like polypropylene and polyethylene terephthalate. The resulting characteristics of polyester bags – acting as one of its key features – is the extremely lightweight and thin bag, easing its foldability and storage.

5) Biopolymer bags

   Biopolymer bags are carrier bags made from organic thermoplastic monomers – mainly polylactic acid (PLA) – derived from organic sources. It is popularized by its novelty as an alternative to fossil-based carrier bags which poses disposal problems (TWI, 2024). Biopolymer bags are known to be less durable than LDPE bags.

6) Paper bags

   Paper bags, as its name suggests, are carrier bags made from processed paper – whether bleached or unbleached – and joined together by using adhesives. It was widely abandoned for its unreliability to hold wet items without breaking.

7) Textile bags

   Textile bags are multiple-use carrier bags made by weaving organic cotton, non-conventional cotton or jute.

8) Composite bags

   Composite bags are characterized by the variety of materials they utilize. Different materials could be used to make different parts of the carrier bag's anatomy.

2.2.5 Environmental Impact Categories

The life cycle assessment done in Denmark lists 15 different impact categories that carrier bags – in the production, use, and disposal – contributes to, based on the International Reference Life Cycle Data System (ILCD) handbook. Each impact category is listed below.

1) Climate Change
2) Ozone Depletion
3) Human Carcinogenic Toxicity
4) Human Non-carcinogenic Toxicity
5) Particulate matter/Respiratory Inorganics
6) Ionizing Radiation
7) Photochemical Ozone Formation
8) Terrestrial Acidification
9) Terrestrial Eutrophication
10) Freshwater Eutrophication
11) Marine Eutrophication
12) Freshwater Ecotoxicity
13) Abiotic Resource & Fossil Depletion
14) Abiotic Resource & Reserve Depletion
15) Water Resource Depletion