



## GRAPHIC DESIGNING : AN CRITIQUE

### Computer Science

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### ABSTRACT

In this paper we study overall view about the graphic designing. In this paper history of graphic designing is mentioned and also its role is explained. There are six basic elements, six basic principles and six rules for graphic designing which are explained here for the learner to get the enough knowledge about the graphic designing. The main part for designing the graphic is to know about the color theory, color models and resolution for the images which are also explained in this paper. In the end we explained some of the applications of graphic designing.

### KEYWORDS

#### INTRODUCTION

Graphic design is the art of organizing various multimedia elements such as text, images/graphics, symbols and colors for communicating a particular message to the user. The idea of "Graphics Design" was conceived in the year 1922 by William Addison Dwiggins in order to describe his process of books designing as combination of text, illustration and other designs. The term "Graphic Designer" got popularity in the 20<sup>th</sup> century in both book design and general print design. Computers entered into the graphic design world in 1960's and by 1980's computers became essential for graphic designing. Now-a-days, most of the graphic designing tasks are performed using computer assisted digital editing tools for example, charts and graphs, logos, line art and so on. Graphic designing can also be expressed as the process of visual communication and problem-solving using one or more of typography, photography and illustration.

#### ROLE OF GRAPHICS DESIGNERS

Graphic designers create visual effects, using Graphics editing tools or by hand, in order to communicate ideas through designing brochures, magazines and advertisements etc., as per theme and user requirement. Graphics are usually designed for gaining users attention.

#### BASIC ELEMENTS OF GRAPHICS DESIGNING

There are six elements of graphic designing:

- 1) Line
- 2) Shape
- 3) Texture
- 4) Color
- 5) Value
- 6) Space

##### 1). The Line

Lines are considered to be essential part of designs based upon different line styles such as dashed, dotted etc. They can vary based upon their color, thickness, length (short or long), straight or curved etc. Lines are used as delimiter between different parts of a design and for bringing users attention to a specific portion in overall design. Lines are meant for creating different visual impact on users mind through various line styles such as thick, bold and dark colored lines draws attention because of its visual power as compared with the thin and light colored lines. Curved and less solid lines are used for creating fluid look to design and for bringing dynamism in art work.

##### 2). The Shape

The shape is defined as lines joined together and graphics designs generally include shapes like squares, rectangles, circles, triangles etc.. Human mind associates different shapes with different meanings like circles are used for representing movement and squares represents structured design. Similarly lines with different styles, colors, background or texture of a shape impacts viewers perception.

##### 3). The Textures

Backgrounds of single-color can be replaced with texture of different types like sand, stone, fabric, glass etc. The textures can be used intelligently in website/graphics design to give different visual effect.

##### 4). The Color

Colors play a vital role in graphics design as it leaves strong impact on human mind. They are also closely related to creation of emotions like red color indicates passion, blue color represents calmness, green color represents nature and so on. Knowledge of color theory along with hue, saturation, shade, tint, tone etc., is essential for creating a graphics with good quality.

##### 5). The Value

Value represents how dark or light a design is and it relates to mood as well. Understanding of color theory and how value works will take you to great heights of graphics design. Lighter designs have different impact and feeling than the dark ones, so, make appropriate choice as required for a particular theme.

##### 6). The Space

This space should be used effectively as it is very crucial for good design. The "white space"/ "negative space" allows the human eye to read easier and it also covers space filled with the background color. White space in web/graphics design, offers light and a feeling of openness rather than looking cluttered one.

#### Basic Principles Of Graphics Designing

There are six basic principles of graphic designing:

- 1) Balance
- 2) Dominance and Priority
- 3) proportion
- 4) Contrast
- 5) Rhythm
- 6) Harmony and Unitymm

##### 1). Balance

Balance refers to distribution of elements of a design throughout a layout. Balanced design assures stability but many designers also give preference to unbalanced designs for giving dynamicity and different perspective. Unbalanced designs are mostly preferred for designing personal pages and it is of three types:

- a) Symmetrical Balance
- b) Asymmetrical Balance
- c) Radius Balance
- a). *Symmetrical Balance*

Symmetrical Balance means both sides of a design are same in terms of shape, lines, textures and so on long a vertical or horizontal axis or both. In design, symmetry is closely tied to balance.

##### b). Asymmetrical Balance

Asymmetrical balance refers to a website with dissimilarity between its two sides but still have some elements that are similar. This style of designing is quite popular among graphics designers.

##### c). Radius Balance

The radius balance means when we place design elements in a circular pattern and it is used for giving a sense of dynamism and movement but it is comparatively difficult to design.

## 2). Dominance and Priority

The dominance level refers to prioritizing the significance of various elements such as menu, content, logo or footer and there are three main levels of priority. Headline or call to action is considered as primary element and images which are being used for navigation are considered as the secondary element. Tertiary elements like meta information on blogs, footer links or different elements are used frequently for completing the design by offering information.

## 3). Proportion

Proportion refers to size relationship between different elements and it has a strong effect on the users and helps in putting emphasis. Dominance, priority and proportion combined together are needed for increasing the information visibility to the user.

## 4). Contrast

It is considered to be important principle for designing any graphics, website or visual art. High contrast between elements is helpful in distinguishing different elements in overall design and on the other hand minimal contrast between elements helps the designers to blend elements together. As balance is created through lines and shapes, the use of typography, color and texture establishes a better contrast between elements.

## 5). Rhythm

The principle of rhythm is helpful in directing movement of human eye from one part (graphic element) to another in overall design. Rhythm is classified as the fluid and the progressive. The first type of rhythm is best demonstrated using the example of water flow which is in same direction but differ in the way it moves where as progressive rhythm means when human eye is guided to move between different elements in a particular sequence.

## 6). Harmony and Unity

Placing together set of elements without any proper linking between them does not refer to a good design but if all the elements work together properly then it refers to unity in the design. If the website is easy to the eye in terms of color and contrast, offers a good user experience through proper navigation then the design is referring to the concept of harmony.

## Basics Of Graphics Designing: Composition

There are six rules for the image composition:

- 1) Single Visual
- 2) Golden Ratio
- 3) Focal Point
- 4) Grid Design
- 5) Gestalt Laws
- 6) The 'Z' and 'F' layout

### 1). Single Visual

An image composition in which the overall design is focused on only single image is called single visual composition. For example, website starting page. This kind of composition is in fact easy to design but image should be selected intelligently to achieve the desired goal.

### 2). The Golden Ratio

The Golden ratio or the Fibonacci spiral or Phi can be used for designing web design elements in which the idea is to place the different design elements as per their importance along the lines of the spiral because or human eye works in the same manner.

### 3). Focal Point

Focal points refers to a point from where visitors can start viewing the design and it incorporates major areas of interest or importance which are being used in composition to hold viewer's attention. It can be represented through a button, text, picture or illustration etc., by keeping balance of the design/layout to achieve a specific purpose.

### 4). Grid Design

Grids based design helps in adding structure to a design. It also helps in organizing design elements as per proportion in which they are required to be placed in the overall design. Grid frameworks can be downloaded freely by beginners for designing good layouts comfortably.

### 5). Gestalt Laws

Gestalt laws are based on how human beings perceive the things and

accordingly things/elements which can create impact can be placed in the overall design. Gestalt laws can be categorized as:

- a) Law of Closure
- b) Law of Proximity
- c) Law of Similarity
- d) Law of Continuation
- e) Law of Alignment

#### a). Law of Closure

The law of closure means that human beings are capable of perceiving the things based on their imagination by considering the objects as closed which is reality are not closed as in the case of near circle which has been drawn only upto 330° but one human brain perceive or interprets it as a complete circle.

#### b). Law of Proximity

The grouping of objects on the basis of closeness from each other refers to law of proximity.

#### c). Law of Similarity

Grouping of objects/elements based on similarity in terms of shape, color and texture etc., is called as law of similarity.

#### d). Law of Continuation

Grouping of the co-linear objects or if the objects follow a specific direction is called as law of continuation.

#### e). Law of Alignment

Alignment of objects based on their edges or centerlines refers to law of alignment and it may results in overlapping of objects.

## 6). The 'Z' and 'F' layout

Designing of webpage or graphics design in a Z shape, means that we align all the elements along Z shape and directing the human eye to start viewing the design from the upper left corner and finish viewing the design in the bottom right corner. Here design elements are kept as per F layout which means user is directed to read the first line and then continue reading the second and continuing like that in a specific order as per layout.

## Module For Graphic Development

### Color Theory

White light is achieved by combining together all available colors in the spectrum. Color can be described as a sensation produced in our eye by light of different frequencies for example blue color is generated by higher frequencies and the red color is produced by the lower frequencies. An object appears to have a certain color because it absorbs the other color components from the white light and reflects only light of frequencies specific to that color to our eyes.

### Color Models

Color models represents color information using numerical values and it also helps us in recognizing and communicating color information related to any graphics. Primary colors can be mixed together for getting colors that we see and recognize around us. Generally color models defines a set of primary colors and other colors are expressed as various combinations of the primaries.

### Composite and Secondary Colors

Composite colors are produced when we mix primary colors in varying proportions. This provides us with the way to refer any arbitrary color by specifying the name and proportions of the primary colors from which it can be produced. Secondary colors are produced when two primary colors are mixed in equal proportions. So, Color model is defined as a set of primary colors along with all possible composite colors.

### Secondary Colors from Primary Colors

From the three primary colors we can create three Secondary Colors with a mixture of any two primary colors. They are orange obtained by a mixture of equal quantities of Red and Yellow, Green derived from a mixture of Yellow and Blue and Violet which is the resultant mixture of Blue with Red. The secondary colors are indicated by a capital 'S'.

### Tertiary Colors from Primary and Secondary Colors

We can further create six more colors known as Tertiary Colors which are obtained from mixtures of Primary and Secondary colors. For example we get Red-Orange, Red-Violet, Blue-Violet and Blue-Green

colors etc. Again in the color wheel the tertiary colors are indicated by the capital letter, 'T'.

### Types of Color Model

There are two types of Color models used while designing the graphics:

- 1) Device Dependent Color Models
- 2) Device Independent Color Models

#### 1). Device Dependent Color Models

These models make use of colors that are dependent on the physical properties of devices which generates them that are physical or chemical properties of CRT phosphors or inks. For example, RGB and CMYK color models. Red color is represented by RGB value (255,0,0) but red color display will vary from one computer monitor to another depending upon color space of each monitor.

#### 2). Device Independent Color Models

Device independent Color Models are based on the human perception of colors rather than device properties. For example HSB Model where hue, saturation and brightness are used as primaries. Gamut is defined as total range of colors covered by a particular color model. Different color models may have different gamuts, so, it may not always be possible to accurately convert colors from one model to another.

### Additive Colors

Red, green and blue primary colors are combined for creating colors in additive color model. For example TV and computer monitors make use of this method for generating colors. Similarly Red, Green and Blue colors are known as 'Primary' because they cannot be produced by a mixture or a combination of any other colors.

### Subtractive Colors

Colored media such as paint or ink are combined for generating a new color in subtractive color method and it absorbs some parts of the color spectrum of light and other colors are reflected back to the eyes. For example in printing we make use of subtractive colors.

### RGB Color Model for CRT Displays

When the Red, Green and Blue phosphors in CRT displays are excited with electrons, a combination of wavelengths is produced. A color image is defined as a two dimensional array of (R, G, B) integer triplets which encodes the amount of phosphors that needs to be excited in devices like monitor.

### CMY Color Model for Images

In CMY model, CMY stands for Cyan, Magenta and Yellow referred as complementary colors of RGB and these can be used as Subtractive Primaries. This model is quite popular for printing devices in which the color pigments on the paper absorb certain colors. In CMYK model, K stands for Black which is used for color printing and it is used to produce darker black color as compared to black color produced by mixing CMY Model colors.

### Limitations of CMYK and RGB Color Models

RGB designs printed using CMYK color model does not produce same output because the CMYK color space does not include all the colors in the RGB gamut but vice-versa is possible.

### Designing Modules For Graphic And Its Application

#### Resolution of Images

Resolution can be defined as a total number of pixels in an image by multiplying number of pixels in width and number of pixels in height of an image. For example, consider an image with dimensions

- Width = 2048 pixels
- Height = 1538 pixels consists of approximately 3.1 Megapixels.

So, we can think of a resolution of an image according to the width and height of an image.

#### Resolution of an Image for On Screen mode and Print Mode

Images on screen are made of colored squares called pixels. Ideal screen resolution is 72 pixels per inch otherwise the image will appear fuzzy (i.e., pixelated). Images for print should have at least 300 dpi resolution.

### Resolution of an Image for Print Mode

S. NO.	SIZE	MINIMUM RESOLUTION REQUIRED (IN PIXELS)
1	4" x 6"	640 x 80
2	5" x 7"	102 x 768
3	8" x 10"	1536 x 1024
4	16" x 20"	1600 x 1200

#### Difference between DPI and PPI

**DPI (dots per inch) and PPI (pixels per inch), refers to the resolution which also relates to clarity in a image. DPI used in printing terminology refers to the number of physical dots of ink on a printed document. PPI refers to the number of square pixels displayed in one inch of digital screen and it is generally kept between 67-300.**

#### Application of Graphics Designing

Application of Graphics Designing are as follows:

1. **Signage** It is used for various events and activities.
2. **Corporate Identity/Branding** It is used for advertising regarding company activities products and services.
3. **Packaging of Various Items** Various items like food items, electronic products etc.
4. **Designing of Layouts** Used for designing the layouts.
5. **Printed Materials** It involves
  - Graphics Designing
  - illustrations/diagrams for books
  - Magazine cover pages and graphics for various articles
  - Graphics editing for Newspapers
  - Brochures, banners and pamphlets as per need to promote events.
6. **Online advertisement of various products** It involves digital marketing.
7. **Album Covers for coverage of wedding and other event.**
8. **Collages for online portals for different theme.**
9. **T-shirts and clothing design.**
10. **Electronic and Printed Greeting Cards**
11. **Film and television titles and graphics**
12. **Templates for designing effective presentations rapidly.**
13. **Portfolios, Report designing.**
14. **Digital maps**
15. **Posters, business cards and leaflet designing.**
16. **Buttons, menu and logo designing for print mode and websites.**

### CONCLUSION

Graphics designers make use of combination of various text, symbols, and images to create a powerful visual representation for communication of some idea to viewers. Example of an Infographic which is a visual representation of data with meaningful statistics for conveying information to worldwide audience and it is quite type of social content now days.

### REFERENCES

1. Graphic design-wikipedia <https://en.wikipedia.org/wiki/Graphic-design>
2. <https://1stwebdesigner.com/graphic-design-basics-elements/>
3. <https://en.wikipedia.org/wiki/color-model>
4. <https://www.techfak.unibi.elefeld.de/ags/wbski/lehre/digiSA/WS0607/3DVRCG/vorlesung/8a.RT3DCGVR.color.pdf>
5. <https://www.rapidtables.com/convert/rgb-to-cmyk.htm>
6. <https://www.thebalance.com/what-is-graphic-design-38532>
7. <https://www.linkedin.com/pulse/application-computer-graphics-niropan-das>