CHAPTER II

LITERATURE REVIEW

2.1 Information Media

Information media is a tool to compile and recompose an information so it can be beneficial to the receiver. Sobur further described information media as graphic, photographic, or electronic tools to capture, process, and recompose visual information (Prasanti, 2018). The growth of science and technology has influenced the evolution of information media and society's awareness of the importance of information (Esyuananik et al., 2018, p. 2).

2.1.1 Function of Information Media

Information from trusted and reputable sources presented in media have the ability to assist in behavior control moderation as to control impulsive behavior and instead making more informed decisions. This can be achieved by presenting educational content, accurate information, in-depth analysis, and showcasing inspiring role models (Normasyhuri et al., 2023, pp. 250–251).

In learning spaces, McKown (Fadilah et al., 2023, pp. 9–10) listed four functions of media in learning process as:

1. Changing the emphasis of formal education from abstract to a more concrete form with instructional media, from theoretical to practical.
2. Instructional media will make students more interested and focused, thus building their motivation to learn.
3. As media offers more clarity, knowledge and experience can be told and understood easily.
4. Growing a sense of excitement especially curiosity in students, this curiosity shows whether they actually paid attention to the material.

Rowntree (Fadilah et al., 2023, p. 10) also mentioned that the use of learning media will encourage students to respond more actively in class and

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to be more eager to learn with the change from monotone to more playful learning process.

2.1.2 Types of Information Media

As media is defined as every sensed thing that functioned as medium/tool/device for learning teaching communication process, there are many types of learning media that can be used by lecturers (Fadilah et al., 2023, p. 4). Yaumi, pp. (2018, pp. 11; 132–133) categorized learning media into visual, audio, audio visual, multimedia, text, model, and realia. Visual is described as a common media in learning process. In using visual as a way of learning, visual is defined as a material in form of line, color, shape, and space that is designed to deliver a message that includes data and information from the source to the receiver, be it educational content or even general information like newspaper, television, and other media. As a learning media, visual can increase learning interest, increase memory skill, give satisfaction of learning, evoke passion and emotion in learning, and increase learning outcomes.

Visual media includes printed visual (picture, diagram, graph, poster, and cartoon), projector visual (overhead projector and PowerPoint), and display visual (whiteboard, multi-function board, and bulletin board). Printed visual is a simple media that can increase student's interest if designed with care of color display, good margin, symmetrical installation, reachable size for students, and texts directly tied to learning material. Many teachers still favor printed visual media because the design materials needed are everywhere to find (Yaumi, 2018, pp. 12; 136–137).

According to Gagne's (Pagarra et al., 2022, pp. 27–28) taxonomy of learning media, there are seven classifications of learning media based on its learning functions. In this taxonomy, Gagne compared these learning media by several functions. Below is Gagne's taxonomy of learning media.

Table 2.1 Gagne's Taxonomy of Learning Media

Function	Demonstration	Verbal Delivery	Printed Media	Still Image	Dynamic Image	Film with Sound	Learning Machine
Stimulus	Yes	Limited	Limited	Yes	Yes	Yes	Yes
Directing attention	No	Yes	Yes	No	No	Yes	Yes
Expected limited capabilities	Limited	Yes	Yes	Limited	Limited	Yes	Yes
External motion	Limited	Yes	Yes	Limited	Limited	Yes	Yes
Demanding way of thinking	No	Yes	Yes	No	No	Yes	Yes
Transfer of skills	Limited	Yes	Limited	Limited	Limited	Limited	Limited
Result grading	No	Yes	Yes	No		Yes	Yes
Feedback	Limited	Yes	Yes	No	Limited	Yes	Yes

Printed media is every form of publication, document, or notes in form of newspaper, magazine, pamphlet, book, photograph, picture, transcription of magnetic cassette recording, and other various printed materials. In outline, printed media is divided into learning aids, training materials, and informational materials. Learning aid is designed for student's self-learning purposes with guides to accomplish certain tasks and it includes a guide sheet, work aid, and serial images. Meanwhile, training material tends to be more informative rather than procedural and informational material is informative and evoke motivation (Yaumi, 2018, pp. 105–107).

The types of printed media are determined by the technology used and materials that can be used in learning, such as text book, learning module, work sheet, handout, article, newsletter, poster, and comic. According to the experiences of learning developer and the need of each environment, the variety can be added. The number of printed media varieties is always growing along with the characteristic growth of students, curriculum change, or the latest discovery from research and in-depth study (Yaumi, 2018, pp. 107–108).

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2.2 Comic

Comic is a graphic novel or graphic narration that combines picture and words to tell a story. The difference between common cartoon and illustration in education book with comic is that comic has frames, sequences of related pictures, that create a story. By its function, comic can be divided into commercial comic and educational comic.
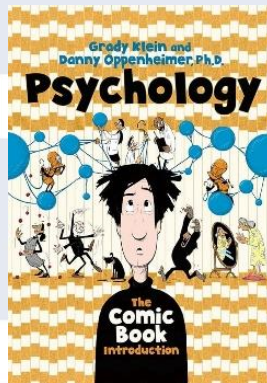

Figure 2.1 *The Comic Book Introduction*
Source: https://m.media-amazon.com/images/I/...

Commercial comic is more personal, often presents rough humor, and written in daily life dialogues or language. Meanwhile, educational comic has informative nature in the body, filled with knowledge materials. Comic uses a complex interaction between picture and text to deliver a concept and motivate students' participation effectively (Lelyani & Erman, 2021, p. 140).

2.2.1 Educational Comic

Educational comic contains educational content and information related to the subject, in addition to the general story content and comic narrative. It is suitable for social science learning media as it has the ability to include the values of a character and provide insight. Educational comic allows a more easily understood and remembered explanations of a long and complicated topic of learning (Anggito & Sartono, 2022, p. 68).
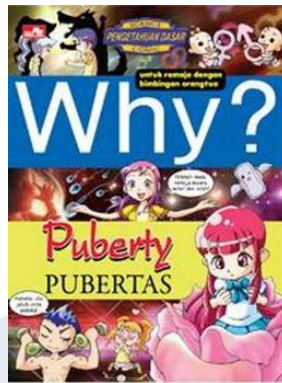
Figure 2.2 *Why? Puberty*
Source: https://www.gramedia.com/products/why-puberty

Comic can be used as an effective learning medium, improving the teaching and learning process, and making the topic more interesting to learn. Comic can improve learning outcomes in the form of students' positive responses, liveliness, and interest. Through the characters, the topic can be integrated in the values of the characters (Anggito & Sartono, 2022, p. 68).

2.2.2 Comic as Educational Tool for Adolescent

Comic can be used as an alternative teaching tool. As a media, it has humor, narrative, and visual representation to potentially communicate. The interesting form and structurally arranged pictures with easily understandable words can evoke student's motivation and interest in learning. Using comic as a learning media helps students to not feel bored during the lesson. The practical use of comic includes the ability to connect the educational material with daily life, improving thinking ability, and improving student's understanding of the learning material (Putri & Ristiono, 2021, pp. 312–313).

2.2.3 Components in Comic

Components in comic can be divided into three sections which are the front, the body, and the end. Lelyani & Erman, p. (2021, p. 141) described the component contents of each part as below:

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Table 2.2 Elements of Comic

		Elements of Comic	
1	Front	1.	Cover
2	Body	2.	Panel
		3.	Speech Bubble
		4.	Storyline
		5.	Gutter
		6.	Splash Page
		7.	Sound Effect
3	End	8.	Summary

The front part consists of the cover of the comic book. The body consists of the comic itself, which includes panel, speech bubble, storyline, gutter, splash page, and sound effect. Finally, the end part consists of the summary of the comic book (Lelyani & Erman, 2021, p. 141). Furthermore, here are the definition of each component:

1. **Cover**

Cover can be considered as the most important page in a comic. If the cover interests someone's attention and make them feel curious, there is a possibility that they will buy the comic. As the result, many ideas and works are poured in creating cover than other pages. In designing a cover, there should be enough space at the top to put logo over. A cover should be provocative enough to attract attention but it should not reveal the end of the story (Wibowo, 2022, pp. 142–144).

2. **Panel**

Panel is a single frame of picture depicting a scene. Assembly of panel is called multiple-panel sequence, usually used in comic strip and comic book. In arranging multiple-panel, a gutter is needed to create a space between each panel (Wibowo, 2022, p. 78).

Figure 2.3 Comic Panels

Source: https://i.pinimg.com/736x/e2/...

Panel is not the same as layout but are tightly tied to each other through the principles of design. The panels are arranged with principle of design and certain composition in order to create a reading flow that can be easily followed by reader (Wibowo, 2022, pp. 78–79). Here are some types of panels in comics:

a. Row Panel

Row panel is read horizontally from left to right or vice versa. The regular formats are 2x2, 2x3, 3x2, 3x3, 4x2, and many more. But the most commonly used are 3x3, 3x2, and 4x2. Irregular format refers to when the vertical arrangement is not aligned, making the amount and size of each panel different. It can only be counted by the amount of row, such as 2-rows, 3-rows, and 4-rows (Wibowo, 2022, p. 80).

b. Column Panel

Column panel is read vertically from top to bottom. Regular format of column panel can be 1x2, 1x3, 1x4, 2x2, 3x2, 2x4, and many more. The irregular format can be in 2-columns, 3-columns, and 4-columns (Wibowo, 2022, p. 80).

c. Combination Panel

Combination panel refers to a mix of row panel and column panel in one page. The characteristic of this type is in the

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irregular arrangement and various panel sizes. Some panels may be longer and some panels may be shorter than the others (Wibowo, 2022, p. 81).

d. Diagonal

Diagonal format neither follows the rule of vertical or horizontal nor row or column panel. This format is used to create deep senses of conflict (Wibowo, 2022, p. 82).

e. Caption Panel

Caption panel are made from only drawing and texts. The size of the panel tends to be smaller than other type of panels. Speech texts are placed inside of the bubbles in various sizes (Wibowo, 2022, p. 83).

f. Inset

Inset is a panel where the outer side is surrounded with other drawing, even without texts. The surrounding drawing still have correlation with the frame in the panel (Wibowo, 2022, p. 83).

g. Overlapping

Overlapping panels refer to when a panel is purposefully placed on top of other panel to create overlapping sense. For this panel, gutter is not needed (Wibowo, 2022, p. 84).

h. Broken Frames

Broken frames refer to when an element was purposefully drawn exceeding the frame. Sometimes even going into other panels. This type of panel does not require gutter (Wibowo, 2022, p. 84).

3. Speech Bubble

Speech bubble in comic is a space to present a word or sentence used to deliver a message from certain object or character. It usually has tail that is pointed to the speaking figure. Speech bubble can be used to visually amplify narration and dialogue of a figure. Therefore, the shape will be different depending on the needs (Wibowo, 2022, p. 76).
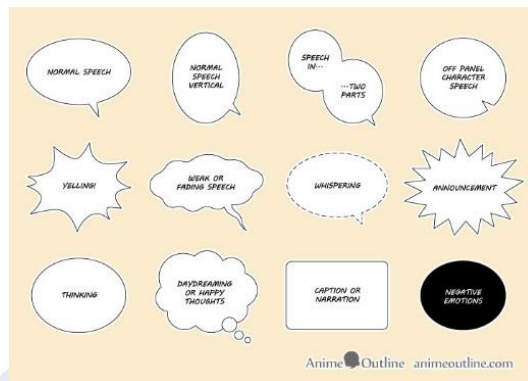
Figure 2.4 Types of Speech Bubble
Source: https://www.animeoutline.com/wp-content/...

In creating speech bubble, it is advised to pay attention to the size of the balloons and to avoid using a single ballon to represent multiple emotions. It is important to create a balance within the text and image (McCloud, 2006, pp. 142–143). Here are some types of speech bubbles:

a. Basic Bubble

Basic bubble has a simple horizontal oval shape with a tail directed to the character who was having a dialogue or anything that produced a sound. This is usually used for a scene with normal dialogue (Wibowo, 2022, p. 76).

b. Vertical Bubble

Vertical bubble has a simple vertical oval shape, similar to basic bubble. This type is also usually used for a scene with normal dialogue (Wibowo, 2022, p. 76).

c. Multi-Bubble

This type can be horizontal-shaped or vertical-shaped, depending on the free space in the frame. Multi-bubble is used to divide a dialogue in two parts. This is usually used to describe a character that is feeling embarrassed or uncertain with what they were saying (Wibowo, 2022, p. 76).

d. Inwards Pointing Tail Bubble

This type is an oval-shaped speech bubble with a tail pointing inwards the bubble. The tail inside meant to point the direction where the dialogue came from as the character was not near. For example, if the character is on the left side but the bubble is on the right side, then the inwards tail will be pointed to the direction where the character is, which is toward the left side (Wibowo, 2022, p. 77).

e. Jagged Edges Bubble

This type is shaped like an explosion to visually emphasize the loud volume from the character. This bubble is used when a character is speaking with a loud voice or shouting (Wibowo, 2022, p. 77).

f. Wavy Bubble

This type has an oval shape with wavy outline. Conversely to jagged edges bubble, wavy bubble is used to show a character that is feeling tired, sad, or mumbling with uncertainty (Wibowo, 2022, p. 77).

g. Dashed Line Bubble

This type is oval-shaped with dashed outline. It is usually used when a character is whispering. The use of dashed outline can give an unfirm sense, suitable to be used for whispering scene (Wibowo, 2022, p. 77).

h. Blast Bubble

This type is shaped like an explosion with snappy thorns to visually describe the loudness of the volume. This is usually used for announcement scene, such as through radio, speaker, and many more (Wibowo, 2022, p. 78).

i. No Tail Bubble

This type has a simple oval shape with no tail. It is usually used to visualize the inside monologue of a character (Wibowo, 2022, p. 78).

j. Cloud Like Bubble

This type has a cloud shape with multiple ovals as the tail. It has similar use with no tail bubble, but cloud like bubble is used to visualize a character's thoughts when they were happy or daydreaming (Wibowo, 2022, p. 78).

k. Rectangular Bubble

This type has rectangular shape with no tail. It is usually used to write narration describing a background, place, or time. It can tell readers about a change in setting and atmosphere felt by the character (Wibowo, 2022, p. 78).

4. Storyline

Premise is the ground idea in creating a story. Each person has their own creative process of coming up with premises. It can be a chain of words and sentences, depending on each individual's experience (Prayoga, 2021, p. 90). In creating comic storyline, it is important to think visually. There are circumstances where some complex visuals can be represented in a single panel while simple actions might need more than one (McCloud, 2006, p. 148).

a. Character

Character may start being designed during the process of developing storyline. Character design is not just about the visual looks but also the personality of the character and how they will fit into the story. Developing a character's personalities is important to make them unique. Silhouette, features, and expressions are parts of details that a character may possess (Hill, 2019, pp. 6, 24–25, 45).
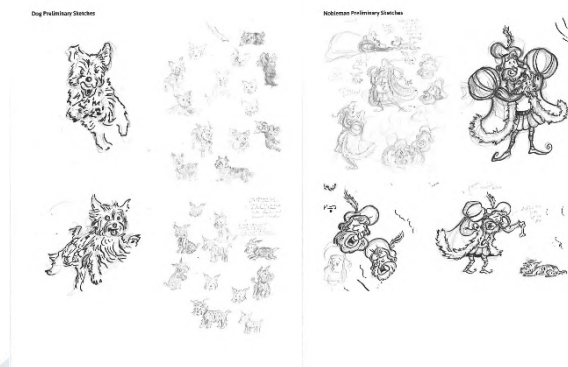
Figure 2.5 Hill's Preliminary Character Sketches
Source: Hill (2019)

A character turnaround helps to solidify the design for each character at every possible angle. Properly designed and detailed character will help character to look more consistent and easier to draw in each panel. Furthermore, it will also ease the future process of rendering (Hill, 2019, p. 25).

Figure 2.6 Hill's Character Turnaround
Source: Hill (2019)

b. Environment

Environment design or world building refers to inserting the essence of a location where the characters within exist into the comic. Environment design can be developed at the same time as the development of storyline script and character design. Environment design can make a reader feels a specific mood and engages with all five senses.
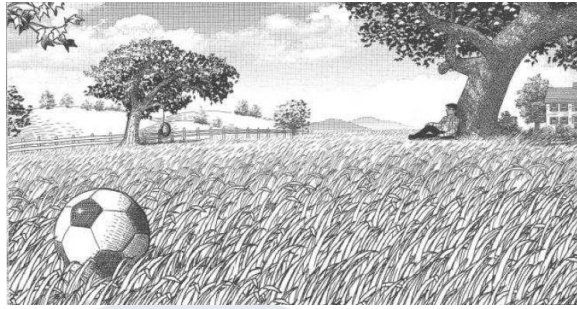
Figure 2.7 Silent Effect from Environment Design
Source: McCloud (2006)

For example, a panel without speech bubble will remove the sense of time from that panel. By doing this, a silent effect that can linger throughout a page can be created. Showing environment can also be done in several panels by splitting the scene into fragments.

Figure 2.8 Split Environment Showcase
Source: McCloud (2006)

Details in environment design may change a reader's perspective between knowing where the story takes place and being there. On the other hand, the depth of details in environment design may depends on the type of stories. Historical, fantasy, or science fiction may require constant attention on the details, modern story may only need familiar everyday setting being shown once in a while, and classic daily humor strips do not rely much on a sense of place (McCloud, 2006, pp. 158–169). A cohesive background that

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can be drawn from different angles will help the character to stay oriented at any given positioning (Hill, 2019, p. 46).

5. Gutter

Gutter refers to the space between panels in comic. Gutter evokes human imagination on what happened between two separate images and transform them into a single idea. As comic panels are fracture of time and space, they created unconnected moments. These moments are connected through gutter that allow readers to mentally construct a continuous, unified reality. Panel-to-panel transitions in comics can be divided by several categories such as moment-to-moment, action-to-action, subject-to-subject, scene-to-scene, aspect-to-aspect, and non-sequitur which offers illogical relationship of the panels (McCloud, 1994, pp. 66–67, 70–72).

Figure 2.9 Types of Panel-to-Panel Transitions
Source: McCloud (1994)

Gutter acts as an art of intervals. Gutter let comic panels to be perceived by audiences per their assumptions. The closure that gutters offer can determine how elastic the reader's interpretation is (McCloud, 1994, pp. 81–82, 85–86).

6. Splash Page

A splash page is put on the first page of the story. It refers to a page consisting of a single image. The is a large introductory illustration (Lee & Buscema, 1978, p. 15; Lowe, 2014, p. 215).

7. Sound Effect

Sound effects in comic allow reader to listen with their eyes. In comic, reproducing immersive sight and sound experience in film and television can only be done with one sense that is sight. To bridge that gap, words are given the important role to graphically describe all five senses (McCloud, 2006, p. 146).

Figure 2.10 Sound Effect Variables in Comic
Source: McCloud (2006)

Sound effects can be improvised freely as there are no right or wrong approaches. But in creating sound effects, there are some set variables that may be improvised. There are loudness, timbre, association, and graphic integration or how it mixes with the picture (McCloud, 2006, p. 147).

8. Summary

Summary is to reproduce the writer's thought but in shortened form. The essential meaning from the original text should be reflected in the summary. It can be used to help reader understand the main points and structure of the author's and to quickly present background information (Bazerman, 2010, p. 50).

2.2.4 Design Elements in Comic

Design elements are part of the functional attributes of a design. Consistent design elements may drive the flow of the design in theme (Landa, 2014, pp. 104, 336). In this design, the design elements used are color, typography, illustration, layout, and modularity.

1. Color

Color can be powerful and highly provocative as a design element (Landa, 2014, p. 23). Color wheel is a twelve segments wheel consisting of primary, secondary, and tertiary hues with each specific tints and shades. The primary hues are red, yellow, and blue which form a triangle within the circle. The secondary hues are orange, violet, and green which are located between each primary hue, then form another triangle. The six tertiary hues are created from the combination of primary and secondary hues which result in red-orange, yellow-orange, yellow-green, blue-green, blue-violet, and red-violet (Sutton, 2020, p. 6).
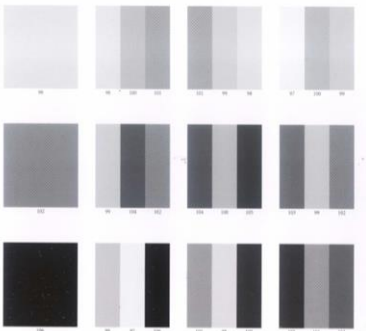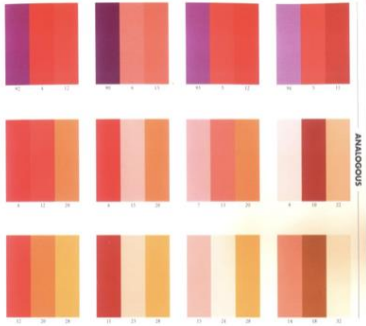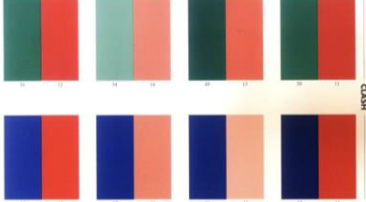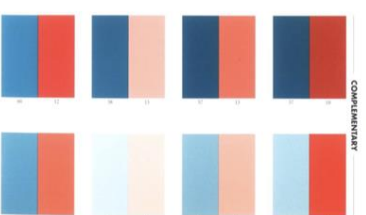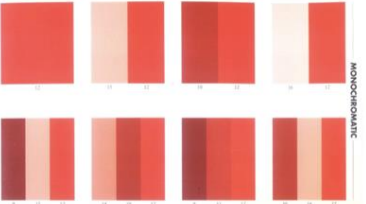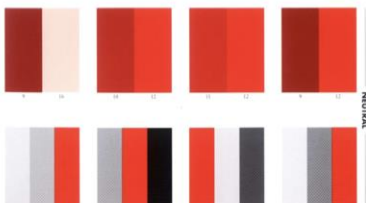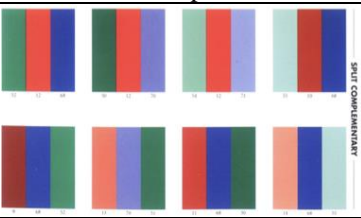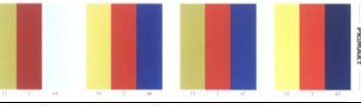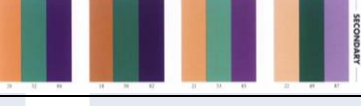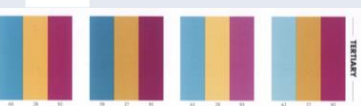

Figure 2.11 Color Wheel
Source: https://www.provenwinners.com/...

According to Sutton, pp. (2020, pp. 24–29), the effect of a color is determined by various factors, such as the light reflected from the color, the colors surrounding, and the perspective of the viewer. In using color, there are ten basic color schemes. These are called achromatic, analogous, clash, complement, monochromatic, neutral, split complement, primary, secondary, and tertiary schemes. Below is the explanation of each color scheme.

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Table 2.3 Color Schemes

Color Scheme	Example	Description
Achromatic		Uses only black, white and grays.
Analogous		Uses any three hues that are consecutive or any of their tints and shades from the color wheel.
Clash		Combination of a color with another hue to the right or left of the complement from the color wheel.
Complement		Combination of direct opposites hues from the color wheel.
Monochromatic		Uses only one hue in combination with its tints and shades.
Neutral		Uses a hue that has been neutralized by adding its complement or black.

Color Scheme	Example	Description
Split complement		Combination of a hue with the two hues on either side of complement.
Primary		Pure hues combination which are red, yellow, and blue.
Secondary		Secondary hues combination which are green, violet, and orange.
Tertiary		Tertiary hues combination which can be red-orange, yellow-green, and blue-violet or blue-green, yellow-orange, and red-violet.

2. Illustration

Illustration is a unique image that is used to accompany or complement printed, digital, or spoken text. Illustration has various uniquely identifiable styles. It has the power to clarify, enhance, illuminates, or demonstrates the message of texts (Landa, 2014, p. 4). Nurmana, pp. (2022, pp. 73–76) categorized styles of illustration into:

Table 2.4 Styles of Illustration

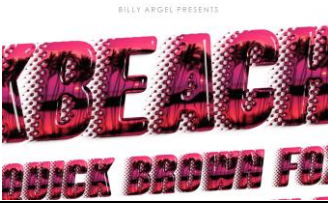| Styles	Example	Description
Cartoon		Distortion from realistic objects. Suitable with comedy genre but nowadays it can also be used for action genre.
Semi-cartoon/ Semi-realism		Proportion of character's body and environment are more realistic than cartoon style. Usually there are distortions on facial components such as the shape of eyes, jaws, and the facial structure.

Styles	Example	Description
Realism		The drawing is as similar as possible to the real object. Usually used for adult-segmented comic or serious and complicated story.
Fine Art		The characteristic is on the more abstract and artistic strokes which allow a freer way of visual expression.

3. Typography

A collection of characters such as letters, numbers, symbols, punctuation marks, et cetera is called a typeface. Typeface has a certain design that can be turned into a font. In typography, visual alignment is often what looks right is right, possibly taking over what's mechanically correct (Felici, 2012, pp. 29, 37). In comics, text may serve as dialogue, narration, sound effect, commentary, clarification, image, and more. A piece of text cannot stand alone without determining how it relates to the accompanied images (Duke Writing Studio, n.d., pp. 3–4). According to Landa, p. (2014, p. 47), below are some major classifications of typefaces.

Table 2.5 Classification of Typeface

Styles	Example	Description
Old Style	Garamond	This type is a roman typeface and most directly descended from letters drawn with a broad-edged pen. The characteristics of this type are angled and bracketed serifs and biased stress. Some examples of this type are Garamond and Times New Roman.

Styles	Example	Description
Transitional	**Baskerville**	This type is a serif typeface which represents the transition from old style to modern, thus displaying both design characteristics. Some examples are Baskerville and Century.
Modern	**Bodoni**	This type is a serif typeface that has a more geometric form construction created by the chisel-edged pen. The characteristics of this type are thick-thin stroke contrast and vertical stress, making this type the most symmetrical out of all roman typefaces. Some examples are Didot and Bodoni.
Slab Serif	**Clarendon**	This type of serif typeface is characterized by heavy, slab-like serifs. Some examples included Memphis and Clarendon.
Sans Serif	**Franklin Gothic**	This type is characterized by the absence of serifs, such as Futura and Helvetica. Grotesque and Franklin Gothic are examples of letterforms without serifs that have thick and thin strokes.
Blackletter	Fraktur	This type is based on 13th-15th century medieval manuscript letterforms, also called as gothic. The characteristics are heavy stroke weight and condensed letters with few curves. Some examples are Rotunda and Fraktur.
Script	*Brush Script*	This type most resembles handwriting with letters usually slant and often are joined. This type can emulate the writing of chisel-edged pen, flexible pen, pointed pen, pencil, or brush. Some examples are Brush Script and Allegro Script.
Display	BEACH QUICK BROWN FO	This type is primarily used for larger sizes such as headlines and titles. The design is often more decorated, handmade, and elaborated.

4. Texture and Pattern

Texture is a tactile quality of a surface or the simulation or representation of a surface quality. There are two types of textures in visual arts, tactile texture and visual texture. Tactile textures, also called as actual textures, refer to textures that can be physically touched and felt (Landa, 2014, p. 28).

Figure 2.12 Difference between tactile and visual textures
Source: https://blogger.googleusercontent.com/img/...

Some printing techniques that can produce tactile textures on a printed design are embossing and debossing, stamping, engraving, and letterpress. Meanwhile, visual textures refer to illusions of real textures created by hand, scanned from actual textures, or photographed. This result can be achieved through skill in drawing, painting, photography, and more (Landa, 2014, p. 28).

Figure 2.13 Pattern
Source: https://www.deviantart.com/asifalittlezonked/...
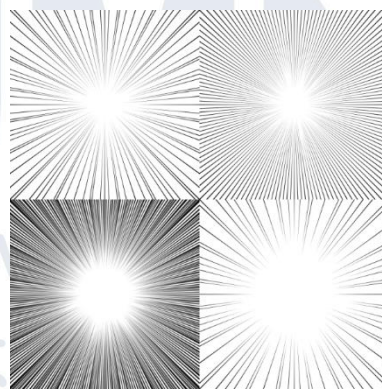
Pattern refers to a consistent repetition of a single visual unit or element within an area. In creating a pattern, there must be a systematic repetition with obvious directional movement. The structure of a pattern relies on three basic building blocks which are dots, lines, and grids.

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Within a pattern, any individual small unit can be based on the dot, whether it is a nonobjective or representational shape. Any moving path based on lines are also called as stripes (Landa, 2014, p. 28).

Figure 2.14 Halftone Texture
Source: https://tips.clip-studio.com/en-us/articles/1258

Halftone is an illusion of continuous tone gradations done by reprographic techniques. A range from black to white alone theoretically contains an infinite amount of different shades of grey, which gets translated into an infinite amount of differentiations between these tones. Halftone technique reduces the visual reproductions to a binary differentiation, using only two colors. The human eye is unable to distinguish the individual dots from a certain distance. This results in getting tricked into seeing multiple shades of grey. The illusion is created through size, arrangement, and proximity of very small black dots on a white page (Domsch, 2013, pp. 12–13).

5. Layout

Layout can be referred as an arrangement of visual elements in a page. In arranging comic layout, principles of graphic design and certain composition will be used to produce a flow that is easy to read by reader. This arrangement is closely tied to principles of graphic design such as balance, emphasis, rhythm, and many more (Wibowo, 2022, p. 79).

6. Grid

Grid refers to a guide that divide a format into columns and margins by a compositional structure of verticals and horizontals. Grid

helps the construction of print or digital pages by organizing types and images. Grids can help provide continuity, unity, and visual flow across pages. There are several types of grids, such as single-column grid, multi-column grids, and modular grid (Landa, 2014, pp. 174–175).

Single-column grid is the most basic page structure. This structure has a single column of text surrounded by margins which function as the proportional frame around the content. Single-column grid is also called a manuscript grid (Landa, 2014, pp. 174–175).

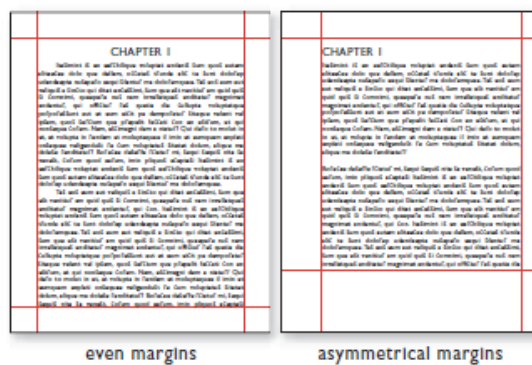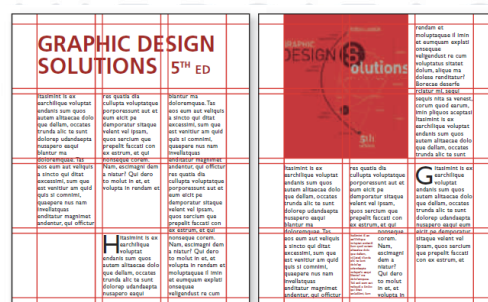Figure 2.15 Single-column Grid
Source: Landa (2014)

Multi-column grids can be modified depending on the size and proportions of the format. The modifications may be the number of columns, whether to accommodate headings and large visual, or dividing the grid for captions and smaller visuals. The columns can be even or uneven (Landa, 2014, p. 179).

Figure 2.16 Multi-column Grid
Source: Landa (2014)

Modularity refers to a structural principle to subdivide a format to manageable parts. A module is a fixed unit combined with others to form larger structures. Modularity in grids helps creating complexity of contents (Landa, 2014, p. 173).

Figure 2.17 Modular Grid
Source: Landa (2014)

Modular grid is a composition of modules, individual units created with the intersection of columns and flowlines. The functional benefit of this is how information can be either inserted into individual modules or grouped together into zones. The zones should produce a clear visual hierarchy. In designing heavy illustrated content, modular grid allows the most flexibility (Landa, 2014, p. 181).

2.2.5 Design Principles in Comic

When different types of elements come together to form a composition, it can make an attractive sight. A unique design is born from the combination of elements and principles (Kumar & Naaz, 2023, p. 106). Below are the design principles used in comic.

1. Alignment

Alignment is defined as the positioning of visual elements that are relative to each other in order that their edges or axes being lined up. To set up guides for alignment, grid can be used to organize the placements of elements. This arrangement should have visual flow that create a movement from one to another element through the design (Landa, 2014, p. 39).

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2. Balance

Balance refers to stability created by an equally distributed visual weight on each side of a central axis. Balance can also refer to when all the elements of a composition is evenly distributed of weight. Visual weight is defined as the relative amount of visual attraction, emphasis, importance that an element has on a composition. Visual weight can be determined by size, shape, value, color, and texture (Landa, 2014, pp. 30–31).

The principle of balance is to equal visual forces, or elements, in a work of art. In visual art, balance is seen rather than weighed. A dividing line called central axis becomes a point of balance be it a vertical axis or a horizontal axis with equal visual weight on both sides of the line. Depending on the composition on opposite sides of a central axis, balance can be divided into two. Balance created by elements that are equal or very similar is referred as formal balance which can be categorized again into symmetry and radial balance. Meanwhile, balance created by unlike objects is referred as informal balance. In arranging unlike objects to appear balanced, all visual weight factors must be considered and be put together correctly (Ragans, 2005, pp. 228–234).

3. Emphasis

Emphasis is when a part of an art dominated over the other parts and is often used to unify the art. Emphasis can be created by focusing on an element or an area. A dominant element will affect how viewers perceive the art. A dominant area, or a focal point, is where viewer's eyes are first attracted to. Some techniques to create focal point are creating contrast through visual elements, isolating objects, positioning the object in predictable location like nearing the center, creating convergence with very obvious radial arrangement of lines or subtle arrangement of elements, and creating an unusual visual object that is unexpected (Ragans, 2005, pp. 290–295).

4. Rhythm

Rhythm is created by repetition of similar or different shapes and lines through predictable manner. Rhythm is often being confused with repetition but the difference lies on the way of replication. While rhythm generated a sense of predictability and pacing using repetition by relying on precise replication on elements, repetition itself is a pattern created by simply duplicating lines and shapes (Kumar & Naaz, 2023, pp. 117–118).

5. Unity

Unity is when elements and principles of art are used effectively to achieve a quality of wholeness or oneness. Unity helps viewer to concentrate on a design as a whole. It acts like an invisible glue that makes separate parts look as if they belong together. Unity can be created through simplicity by having fewer variants of elements, repetition of objects and elements, and having proximity by limiting the negative space between shapes (Ragans, 2005, pp. 296–301).

6. Space

A negative space manipulation defines the relationship between elements, creating a sense of clarity in design. Meanwhile, positive space is where the composition is. When arranged strategically, space can influence viewer engagement and comprehension, as it provided visual breaks and readability enhancement (Kumar & Naaz, 2023, pp. 112–113).

2.3 Sexualities

Sexuality is a lifelong process that involves various domains of experience including emotions, urges, motivations, feelings, forms of attention, interpersonal relationships, and social interactions (Hegde et al., 2022, p. 1). In the large part of psychological, medical, and epidemiological research, sexualities for adolescent and adult are cleanly differenced, as many elements of sexual experience are assumed to be inappropriate for adolescents and should be preserved until

adulthood. During adolescence phase, sexuality is portrayed as something that are tentative, experimental, confused, inept, and innately dangerous. Hence, the experience and expression of adult maturity is seen to be needed when regarding sexuality domain (Fortenberry, 2013, p. 1).

2.3.1 Sexual Change in Puberty

Adolescent experience a complex array of development consisting of physical, emotional, social, and cognitive changes during puberty. Puberty and its effects on sexual activity are the most significant changes that happened in this phase. The physical changes during puberty are a primary component of sexual development, in which a child's body develops into an adult's body. While a child's body is only sexually distinguished based on the genitals, an adult's body develops secondary characteristics (Scott & Walsh, 2014, p. 24).

For females, changes in puberty include the maturation of ovaries, development of breasts, pubic and axillary hair growth, a growth spurt, and changing body shape. Additionally, menarche or menstruation occurs late in puberty where the first two years are often irregular and painful. For males, changes in puberty can be first signed by an increase in testicular volume, meanwhile the process includes maturation of testes, pubic and axillary hair growth, a growth spurt, changing body shape, genital enlargement, and voice breaking and dropping. For males, spermarche or ejaculation may occur in early puberty phase. Other pubertal changes that are experienced by both females and males include acne, mood changes, and adult body odor onset (Scott & Walsh, 2014, p. 24).

2.3.2 Sexual Response Cycle

When the body becomes aroused and engage in sexual activity in a structured series of changes through psychologically, emotionally, and physically, it is called the human sexual response cycle. Most modern sexual response cycle is composed of sexual desire, arousal, and orgasm. In Rosemary Basson's model of sexual response cycle, a circular model was proposed as opposed to the previously linear models. A circular model defines a state of

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sexual neutrality as the beginning for the individual, who later may seek or respond to sexual stimuli, then advanced to sexual arousal and desire stage. This pattern supports the influence of each stage towards another regardless of the starting point, as desire can increase arousal and seeking sexual stimuli can lead to increase desire and arousal. Emotional intimacy led by psychological and physical satisfaction is the focal point and the final aspect of this cycle (Rowland & Gutierrez, 2017, pp. 1–4).
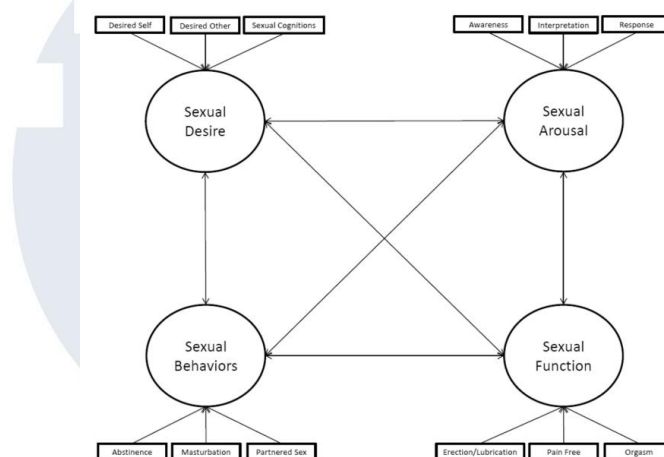

Figure 2.18 Puberty and Adolescent Sexuality Framework
Source: Fortenberry (2013)

In order to understand the linkage of adolescent and adult sexuality, Fortenberry, p. (2013, p. 2) introduced a framework depicting the foundations of them. This modified model supports both linear and circular flow of the elements supported by the evidence. The evidence is a sexual response cycle model composed of four domains of the sexual response cycle which are sexual desire, sexual arousal, sexual behaviors, and sexual function.

1. **Sexual Desire**

During adolescence, sexual self-efficacy development may be centered in recognition and expression of desire. Desire refers to a motivational state that led to increased attention to sexual stimuli, and variable subjective and physiologic arousal. This motivational state develops along with the capacity for self-regulation. The tension between motivation and control is referred as dilemmas of desire. The three

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elements of sexual desire are sexual cognitions, objectified desire for others, and objectified desire by others. Between desire and arousal, there is no clear distinction that drawing distinction itself may be misleading (Fortenberry, 2013, p. 2).

2. Sexual Arousal

The capacitation of adult sexual arousal which includes hormonal, neuropsychological, interpersonal, and physiologic attributes happened during puberty and early adolescence. Sexual stimuli associated with complex psychological and physiologic activation summarized sexual arousal. It is assumed in many adult sexual response models that sexual arousal is generated from sexual desire but these models perhaps could not more accurately reflect on the link between desire and behavior for women. (Fortenberry, 2013, pp. 4–5).

3. Sexual Behaviors

Sexual behavior mainly begins from autoerotic behavior, starting from curiosity and enjoying individual sex experience. This behavior is also always related to erotic fantasy. As adolescent grows older, it will shift from autoerotic behavior to sociosexual behavior where adolescent has involved other people who mostly are their same-age friends (Wardhani, 2012, p. 189). Sexual behaviors in adolescent are divided into three stages:

a. Abstinence

In adolescence period, abstinence is an act of refraining from oral, vaginal, or anal partnered sexual behaviors. This view is distinctive from younger children as they are being influenced by their developmental experiences. For young adolescents, abstinence is a part of a continuum where it is a standard to be developmentally ready to transition from sexual abstinence to active sexual interactions (Hegde et al., 2022, p. 239).

b. Masturbation

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Despite the widely subjected stigma and societal condemnation, masturbation is considered to be developmentally normal behavior in the medical field. This sexual behavior may mean that one's gaining familiarity and comfort with their sexual responses and genitals. Men tends to engage in masturbation at earlier age than women. As for young women who engage in this and noncoital orgasm, they show high levels of sexual self-awareness, higher effectiveness in reaching sexual satisfaction, and higher resistance to the sexual double standard (Hegde et al., 2022, p. 239).

c. Partnered Sexual Behavior

Behaviors in this stage area kissing, touching erogenous body parts, partner-assisted masturbation, fellatio, cunnilingus, penile-vaginal intercourse, and penile-anal intercourse. In modern days, there is a contemporary form of sexual exchange that is done via electronic media, known as phone sex or sexting. An adolescent's perspectives on motivations, social attitudes, and results of their sexual relations define the focus of partnered sex (Hegde et al., 2022, p. 239).

4. Sexual Functioning

The six domains of sexual function include desire, arousal, lubrication, orgasm, satisfaction, and pain or discomfort. In a study regarding the sexual functioning of women, it was recorded that those who occasionally experienced orgasm had high desire, arousal, satisfaction and overall sexual functioning compared to those who always orgasm. This indicate that sexual satisfaction may not be determined by orgasm alone. As for pain-related problems, it was seen less in those with good sex knowledge. While the lack thereof may contribute to sexual dysfunctions. It was also found that self-image influenced one's sexual function as those with low self-image also scored low on lubrication domain (Agustus et al., 2017, p. 219).

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2.3.3 Sexual Self-Regulation

Self-regulation is defined as a process on how one manages their mind, emotion, and behavior and it is the core of many sexual delinquency behavior conceptualization. Self-regulation is heavily influenced by environment depending on the norm, value, and certain standard to behave compelling to community needs especially in risky sexual behavior. Several studies have found that self-regulation is a significant longitudinal indicator whether young people will engage in risky sexual behavior (Lestari et al., 2023, pp. 607; 610).

1. Self-Regulation Model

Self-regulation model developed by Leventhal is used to understand the perception of an illness and provides a framework on the perceptions about health, illness, and outcomes. It describes cognitive process, emotional responses, and consequences of behaviors related to health and illness. This model posits the five dimensions of people's cognitive perceptions on illness which are beliefs about identity, causes, consequences, timelines, and treatment or control. The lack of awareness toward one's illness can develop into vulnerability, which can cause anxiety about the treatment process. On the other side, education based on self-regulation model can raise awareness, which can result in reducing the level of anxiety and concerns (Asgari et al., 2020, p. 747).

Using self-regulation, there are various ways for people to modify their thoughts, feelings, and behaviors in favor of a personal goal, engaging in effortful self-control. Self-control itself is defined as all means of conflicts solving between competing goals, while self-regulation refers to the broader process of achieving one's desired end state which can be conflict-free (Inzlicht et al., 2021, pp. 321–322). Self-regulation characteristics are primarily shaped during childhood through an inter-play including children's socialization experience and temperament, influenced by their social environment. As children grow

older, interpersonal self-regulation become increasingly important in order to achieve social goals (Pokhrel et al., 2018, pp. 3–4).

2. Impacts of Sexual Self-Regulation

Low level of self-regulation is reported to be related to poor dispositional sexual restraint (Gailliot & Baumeister, 2007, p. 26). Furthermore, the lack of this ability and sex education have been associated with risky sexual behaviors such as sexual violence and an increased risk of teenage pregnancy (Zhao et al., 2023, p. 191). Meanwhile, a good self-regulation is directly tied to low number of risky sexual behavior (Pokhrel et al., 2018, pp. 8–9).

3. Sexual Self-Regulation for Adolescent

During puberty, sexual aspects are developing rapidly along with the children's mental state. Good sexual cognition will result in healthy sexual behavior and correct sexual attitude. Sexual adaptation is an important piece of this development. It means that adolescents can accept their sexual changes happily and consciously constrain and adjust their desires and behaviors with social and cultural norms appropriately. Sexual adaptation consists of identification of their own gender, adaptation to social, moral, and cultural norms, and being able to regulate and control their sexual behavior and activities. Sexual adaptation itself is influenced by genders and family environment. Girls' overall sexual adaptability was found to be more susceptible to various dimensions from family environment (Zhao et al., 2023, p. 191).

Stability in self-control has an important factor in influencing the sexual behavior in adolescent to early adult phase. Adolescent with effective regulation level will have a decided goal which is to prevent sexual behavior. In order to achieve this, adolescent have to develop a strategy such as deciding the line between what kind of behavior is allowed and not allowed in a relationship and rejecting sexual behavior invitation from their partner. Adolescent who is able to resist such

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temptation and act toward a goal can control their sexual behavior to avoid negative sexual consequences that can ruin their goal in the long term, such as postpone doing sexual behavior in order to complete school without having unplanned pregnancy (Lestari et al., 2023, pp. 609–611).

2.4 Relevant Studies

In order to understand the current available and held research on the topic, the author does relevant studies. This includes similar design topic and the result. Here are relevant studies that can be used as benchmark for this design.

Table 2.6 Relevant Studies

No.	Research Title	Authors	Research Result	Novelty
1	Reproductive Health Education for Students SMP N 137 Jakarta	Damayanti et al. (2019)	After the sex education session, most students scored better in the post-test than the pre-test, showing an improvement in knowledge.	Topics that will be covered are not only about risky sexual behavior but also how to regulate their developing sexualities.
2	*Edukasi Kesehatan Reproduksi pada Remaja*	Hutapea et al. (2023b)	The sex education was held as webinar with the purposes to introduce students in decision making regarding self-control in protecting with introduction to sex education and reproductive health complications; to build commitment to behave healthily and smartly regarding technology growth that affects adolescent sexual behavior.	Designing a learning media for sex education in form of an educational comic.
3	*Pengembangan Video Kesehatan Reproduksi sebagai Media Edukasi Siswa SMP*	Utami (2023)	Teaching about changes in puberty, reproductive health care, and the importance of reproduction health through educational video.	In addition to education on reproductive organs and puberty, designed media will teach readers about sexual self-regulation.

From the table above, it can be concluded that the most of current available studies have yet to use learning media to teach students about sexual topics, especially about sexual self-regulation. Most sex education session were still

held verbally and only a few used learning media. Therefore, this solidifies the need of designing learning media, or in this design an educational comic, about sexual self-regulation.