



Motion graphic Design on Safe Boundaries of Digital Relations and Child grooming in Teenagers

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Abstract

The rapid growth of social media use among teenagers has increased the risk of digital exploitation, including *child grooming*. A lack of understanding regarding safe boundaries in digital relationships causes many teenagers to be unable to recognize emotional manipulation, excessive attention patterns, and the risks associated with sharing personal information online. This research aims to design an educational *motion graphic* about safe boundaries in digital relationships and *child grooming* among teenagers. The method used in this research is *Design thinking*, which consists of the stages of *empathize*, *define*, *ideate*, *prototype*, and *test*. Data were collected through observation, literature review, and analysis of references related to teenagers' digital behavior and online exploitation issues. The result of this research is an educational *motion graphic* in a vertical video format that combines digital illustrations, typography, animation, audio narration, and a storytelling approach to deliver messages in a communicative and engaging manner. The visual concept employs a cartoon-inspired illustration style with a dominant purple color scheme to create an approachable and engaging learning experience for teenagers. In addition, supporting media in the form of *Instagram carousels* were designed to strengthen audience awareness and understanding. The *motion graphic* and supporting media were subsequently utilized by Yayasan Anantaka through Instagram and are also maintained as educational resources for future outreach activities. These media are expected to increase teenagers' awareness of the importance of maintaining safe boundaries in digital relationships and recognizing the risks of *child grooming*.

Keywords: *Motion graphics*, *Child grooming*, Digital Relationships, Teenagers, Digital Campaigns, Social Media.

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1. Introduction

The development of digital technology over the past two decades has significantly transformed patterns of communication and social interaction. The internet and social media are no longer simply entertainment, but have become primary platforms for building relationships, sharing information, and establishing identity, particularly among the younger generation. This transformation presents both opportunities and challenges for the dynamics of adolescent social life.

Adolescence is a transitional period from childhood to adulthood, marked by physical, emotional, and social changes. The most obvious sign of adolescence is puberty, the stage leading to sexual maturity when hormones begin to function optimally and attraction to the opposite sex emerges [1]. Social media has become

an effective medium for meeting these needs because it allows for fast, broad communication, and is relatively free from the constraints of space and time.

APJII (Asosiasi Penyelenggara Jasa Internet Indonesia) released data that by 2025, the number of internet users in Indonesia will reach 229,428,417 out of a total population of 284,438,900. Based on education level, the largest number of internet users are elementary school students (34.85%), junior high school students (17.46%), high school students (32.90%), and university students (12.86%) [2]. This data shows that school-age groups, including teenagers in junior high and high school, constitute a large portion of active internet users in Indonesia. According to the Digital 2026 Indonesia report by [DataReportal](#), Kepios analysis shows that there are around 180 million active social media user identities in Indonesia by October

2025. This number is equivalent to 62.9% of Indonesia's total population by the end of 2025 [3]. The high number of social media users in Indonesia shows that digital space has become an important part of people's daily communication activities, including interactions and relationship building among teenagers.

However, teenagers' high level of digital engagement also increases the potential risks of online relationships. The nature of digital communication, which allows for anonymity, false identities, and unsupervised private conversations, creates opportunities for manipulation. Globally, [4] also reported that nearly thirty-one percent (30.8%) of children have saved a contact they don't know personally, and nearly a quarter (24%) of children have met someone they first met online in person. Two-thirds of these encounters occurred in the 15-17 age group, with the highest number in the 17-year-old age group.

One of the most serious risks in digital relationships is the practice of *child grooming*. Grooming is a form of sexual exploitation carried out slowly and covertly, utilizing psychological manipulation, and often taking place in digital spaces with minimal supervision [5]. According to [6] *Child grooming* is a form of sexual abuse against children that involves gradually building trust and emotional closeness to facilitate manipulation and exploitation. This process is often subtle and covert, making it difficult to recognize in its early stages.

According to data from the Indonesian Child Protection Commission (KPAI), 859 cases of *child grooming* were recorded in Indonesia in 2021 [7]. Child sexual exploitation in the digital space is showing increasingly alarming conditions. A 2024 report ranked Indonesia third in the world with 1,450,403 cases of online child sexual exploitation. This high figure indicates that the digital space remains vulnerable to various forms of violence and sexual exploitation of children and adolescents [8].

This problem is exacerbated by adolescents' lack of understanding of safe boundaries in digital relationships. Many teens are unable to recognize the signs of emotional manipulation, the perpetrator's strategies for building closeness, or the risks of oversharing personal information on social media. This leaves them more vulnerable to digital exploitation, including *child grooming* practices. [9] states that children generally recognize explicit forms of sexual violence more easily than covert emotional manipulation. Furthermore, information about digital safety on social media platforms like TikTok and YouTube is often presented in a superficial and sensational manner, preventing comprehensive understanding. A lack of specific education and inadequate communication with parents also increase adolescents' vulnerability to *child grooming* practices.

Efforts to educate about digital relationship safety are currently considered not yet fully effective in reaching the characteristics of teenagers. Most of the information is still conveyed through conventional approaches such as informative texts, formal counseling, or one-way seminars that are less in line with the media consumption patterns of the younger generation. This is reinforced by [10] who stated that audio-visual media has a higher information retention rate compared to media based solely on audio or visual. According to [11], audio-visual media is effective in the learning process because it is able to combine sound and image elements simultaneously, making information easier to understand. [12] also mentioned that audio-visual media can be an effective learning alternative because its delivery is more engaging, communicative, and able to increase audience involvement.

In the context of visual communication design, animation-based media has great potential in simplifying complex issues into messages that are easier to understand. One type of animation that is rapidly developing today is *motion graphics*, which is increasingly popular and widely used in various media, such as news, films, social media content, logo creation, and digital marketing needs, thus becoming an important part of modern visual communication [13]. *Motion graphics*, as a form of graphic animation that combines illustration, typography, motion, and audio, can present information dynamically and structurally. According to [14] *motion graphics* are widely used because they combine audio and visual elements that can attract attention, facilitate understanding, and enhance audience memory. These characteristics make it possible to deliver educational messages that are not only informative but also engaging and memorable.

Although research on digital literacy and internet security has been widely conducted, most studies still focus on the analysis of behavior or social phenomena. Research that specifically designs and develops *motion graphics* as preventive educational media related to safe digital relationship boundaries and *child grooming* among adolescents is still limited. There are not many studies that examine how the process of visual design, narrative strategy, and message structure in *motion graphics* can be optimized for educational purposes.

Based on these issues, this research focuses on the design of educational *motion graphics* about the safe boundaries of digital relationships and *child grooming* among adolescents. *Motion graphics* were chosen as a medium because they can combine visual, narrative, and audio elements into a structured message. Through a visual communication approach that is adaptive to adolescent characteristics, it is hoped that this media can become one of the preventive efforts to increase awareness and understanding of adolescents regarding

the risks of digital relationships. Thus, the contribution of this research is not only in strengthening digital literacy but also in developing design works that are responsive to social problems in the digital era.

Methods

In designing educational *motion graphics* about safe boundaries in digital relationships and *child grooming* for teenagers, this study applies the *Design thinking* approach as a design development method. This approach is chosen because it is problem-solving oriented, starting from social phenomena and then developed into relevant solutions centered on user needs. *Design thinking* helps individuals generate creative solutions to real problems through an approach that emphasizes empathy, collaboration, exploration of various perspectives, and step-by-step and iterative idea development [15]. There are five stages in the *design thinking* method described by [16] : *empathize, define, ideate, prototype, and test*, which are carried out systematically but remain iterative.

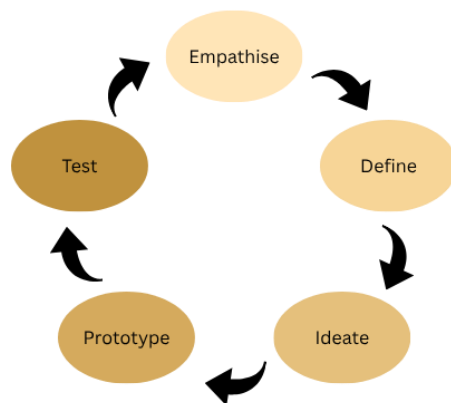


Figure 1. Stages of the *Design thinking* Method

2.1 Empathize

This stage focuses on a deeper understanding of adolescents' interactions in the digital space. In this phase, researchers gathered information through literature studies on digital relationships and *child grooming*, and observations of adolescent communication patterns on social media. The data obtained was analyzed to identify behavioral patterns, levels of understanding, and potential vulnerabilities experienced by adolescents in online relationships. The results of this analysis served as the basis for determining the direction of media design.

2.2 Define

At this stage, the core problem is formulated based on the results of the previous analysis. The issues raised in this research are adolescents' limited understanding of safe boundaries in digital relationships and their lack of awareness of *child grooming* practices. At this

stage, the target audience, communication objectives, and key messages to be conveyed through *motion graphics* are also determined to ensure they are targeted and contextual.

2.3 Ideate

The ideate stage explores various possible creative solutions. This process involves *brainstorming*, creating idea maps, and developing narrative and visual concepts. Researchers design a communicative *storyline*, determine an illustration style that suits the adolescent character, and consider aspects of color, typography, and visual tone that can build emotional connection while conveying the message clearly. At this stage, *motion graphics* were chosen as the medium because they were deemed effective in combining visual, text, and audio elements to enhance information retention.

2.4 Prototype

The *prototype* stage is the process of translating concepts into more concrete visual forms. The formulated ideas are realized through character designs, graphic element illustrations, *storyboard*, and initial animation production. Additionally, narration and audio elements are processed to support the atmosphere and clarify the educational message.

2.5 Test

The testing phase was conducted to assess the feasibility of the designed *motion graphics* before they were implemented on the Anantaka Foundation's social media platforms, a partner in the educational campaign. This process involved validators with expertise in child protection and visual communication media to assess the suitability of the material, message clarity, and visual quality of the *motion graphics*. The testing focused on information comprehension, media suitability to adolescent characteristics, and the effectiveness of delivering educational messages regarding safe digital boundaries and *child grooming* through social media.

3. Results and Discussions

3.1 Design Concept

The design of an educational *motion graphic* about safe boundaries in digital relationships and *child grooming* among teenagers was conducted using a *Design thinking* approach, oriented towards solving problems based on audience needs. The design process began with identifying the phenomenon of increasing adolescent interaction in digital spaces, accompanied by a low understanding of safe boundaries in online relationships and the risks of *child grooming*. Based on these issues, a *motion graphic* based educational media was designed, combining visual, audio, text, and narrative elements to convey information in a more

communicative, engaging, and easily understood manner for teenagers, the target audience.

Data collection was conducted through literature studies, observations of adolescent communication patterns on social media, and analysis of various cases of *child grooming* in digital spaces. The analysis showed that teenagers tend to be more responsive to audio-visual-based media with concise delivery, dynamic visuals, and an emotional approach close to everyday life. These findings served as the basis for determining the visual communication strategy, illustration style, color tone, and message delivery format in the designed *motion graphic*.

Based on the problem identification results, *motion graphics* were chosen because they combine elements of moving illustration, typography, audio, and narrative into a structured visual whole. The use of *motion graphics* is considered effective in simplifying the complex issue of *child grooming* into an educational message that is easier for teenagers to understand without appearing patronizing. Furthermore, the short video format is considered more appropriate for the media consumption habits of the digital native generation, who are accustomed to accessing visual content through social media.

The *motion graphic's* story concept is designed using a narrative approach, depicting a digital relationship situation that appears comfortable at first, but slowly shows signs of emotional manipulation and violation of personal boundaries. The message is delivered gradually so that the audience can understand the patterns of *child grooming* without presenting overly explicit visuals. The narrative uses light, everyday language that is relatable to teenagers.

In addition to *motion graphics* as the main media, this design also produces supporting media in the form of Instagram carousels that function as media for awareness and reinforcement of messages before and after the publication of the main video. This supporting media is designed to help increase the reach of information and strengthen the audience's understanding of safe boundaries in digital relationships and *child grooming* by presenting information in a more concise and easily shareable format on social media. Visually, the Instagram carousel uses a dominance of red color, in accordance with the *Brand Guidelines* of the Anantaka Foundation as the institution's identity. The choice of red aims to maintain consistency in the organization's visual identity while also increasing audience attention appeal on social media platforms that have a rapid flow of information. Meanwhile, the main *motion graphic* video continues to use the dominance of purple to create a closer, more empathetic, and reflective atmosphere in accordance with the character of the narrative being conveyed. The difference in color usage between the two media is part of a visual

communication strategy tailored to the function and characteristics of each media without diminishing the unity of the campaign message being built.

A. Character Design

The main characters are designed using a semi-flat digital illustration style, featuring simple shapes and communicative expressions to appeal to teenagers. The character designs utilize a neutral visual approach that is close to the target audience's everyday lives, fostering emotional connection while conveying an educational message.



Figure 2. Main Character Sketch



Figure 3. Main Character Design Results

B. Color concept

The color concept of the *motion graphic* is dominated by purple, used as the primary visual identity for the background and several supporting elements. Purple was chosen because it conveys a modern, creative impression, and is close to the digital visuals often encountered by teenagers on social media. Furthermore, purple also has an emotional nuance that can support the subtle delivery of themes of digital relationships and emotional manipulation without creating an overly dark or intimidating atmosphere.

The dominant purple color is combined with light blue, cream, and white for the characters to create a visual balance that remains comfortable to the eye. The use of these soft colors helps the *motion graphic* feel lighter and more communicative, thus suiting the target audience of teenagers. The light blue of the characters' clothing conveys a sense of calm and security, while cream and white are used to maintain visual legibility and reduce excessive contrast in the video.



Figure 4. *Motion graphic* Color Palette

C. Background design

The visual backgrounds for the *motion graphics* were designed using indoor settings, such as a living room with a sofa, a study area, and a teenager's bedroom, to create a feel close to the target audience's daily lives. The home environment was chosen because most teenagers' digital interactions take place in personal spaces where they feel safe and comfortable, such as using their phones in their bedroom or family room.

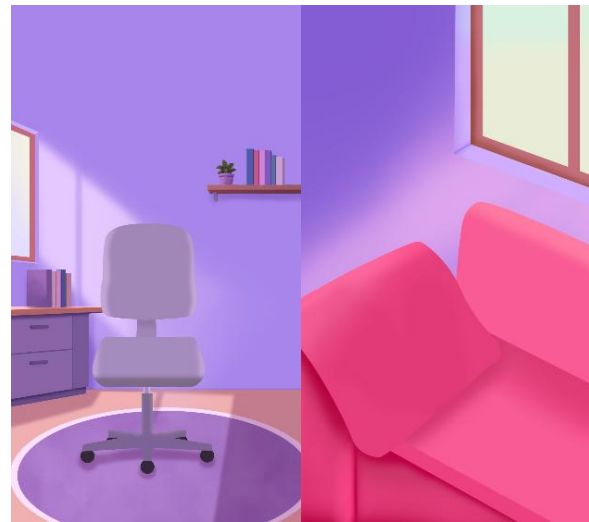
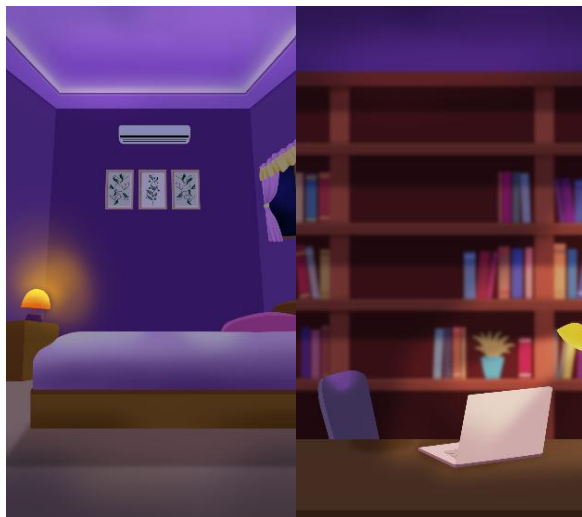


Figure 5. *Motion graphic* Background Design

D. Typography

The typography in this *motion graphic* uses a combination of Acme and Andika New Basic fonts to create a communicative, friendly, and easily understood display for teenagers. Acme is used for headlines and key points in the infographic because it has a bold, simple letterform that easily captures the audience's attention. The rounded font also supports a less formal visual feel, remaining relatable to teenagers, the target audience.

Meanwhile, Andika New Basic is used for the narrative content, *subtitles*, and explanatory text because it offers good readability with its simple, clean letterforms. This font selection aims to ensure comfortable reading of educational information, especially in fast-moving *motion graphics*. The combination of these two typefaces helps create a clear visual hierarchy between the headline and the message, making the information delivery more effective and easier for the audience to understand.

Acme

**THE QUICK BROWN FOX JUMPS
OVER THE LAZY DOG**

**the quick brown fox jumps
over the lazy dog**

Andika New Basic

Andika New Basic

**THE QUICK BROWN FOX JUMPS
OVER THE LAZY DOG**

**the quick brown fox jumps
over the lazy dog**

Figure 6. Typography Concept

E. *Storyline & Storyboard*

Table 1. *Storyline*

No.	Scene	Narasi
1.	(Collage of news headlines about online harassment/grooming cases)	-
2.	Opening	Your phone screen is a window to a vast world. We can befriend anyone, anytime. But remember, not all interactions end safely. Boundaries are important, because you have a right to your personal space.
3.	Problem Identification	Danger often doesn't come from enemies, but can come from someone you feel close to. Whether it's a stranger or someone you already know. Therefore, know your limits.
4.	Beware of Oddities	Be wary of intimacy that feels instant. If the conversation starts to feel uncomfortable, don't hesitate to stop. Excessive attention is often just a gateway to manipulation.
5.	<i>Child grooming</i> Education	There's a pattern called <i>Child grooming</i> . It's a manipulative way to build trust, create a sense of comfort, and ultimately create dependency. The perpetrator might give gifts or compliments to

		appear caring. But gradually, they'll ask for "rewards." They'll ask for your secrets, personal photos, or anything else that violates your privacy.
6.	Emotional Manipulation	Abusers play with your feelings. They make you feel indebted, or afraid of losing their attention, making it difficult for you to say "no." If an interaction requires you to lie, or makes you afraid to be honest with your parents... that's not love. It's a subtle tactic to "control you."
7.	Solutions and Actions	Don't ignore your instincts. If you start to feel uncomfortable, stop immediately. Save evidence. Set privacy settings, block, and report. Talk to an adult you trust. You are not alone, and you deserve to feel safe.





Figure 7. Storyboard

3.2 Design Process

The production phase begins with *voice-over* recording as the basis for determining the timing of each *motion graphic* scene. *Voice-over* recording is performed first so that narration duration, pauses, intonation, and sentence emphasis can serve as the primary reference for composing the visual rhythm. This method allows animation movement to be more precisely aligned with the narrative flow, resulting in a more natural and communicative synchronization between audio and visuals.

After recording is complete, the *voice-over* audio is inserted into the Adobe After Effects *timeline* to serve as the primary guideline for the animation process. The production phase then continues with transforming the visual assets into moving animation through *compositing* and motion design. All illustration elements are separated into separate layers, such as the head, eyes, hands, hair, supporting objects, and background elements, to facilitate the movement control process.

The animation was created using *keyframe* animation techniques, utilizing position, scale, rotation, opacity, and easing settings to create smoother movement. Simple movements such as blinking, hand gestures, changes in expression, and small body movements

were applied to the characters to create a lively impression without distracting the audience from the message. Furthermore, motion text and animated chat bubbles were used to enhance the visualization of digital interactions on social media.

Camera movements such as *zoom in*, *zoom out*, and *frame* shifts were kept minimal to ensure the visuals remain comfortable to watch in vertical social media formats. Transitions between scenes were also designed to be simple, with a predominance of fades and smooth movements to maintain a consistent video rhythm.

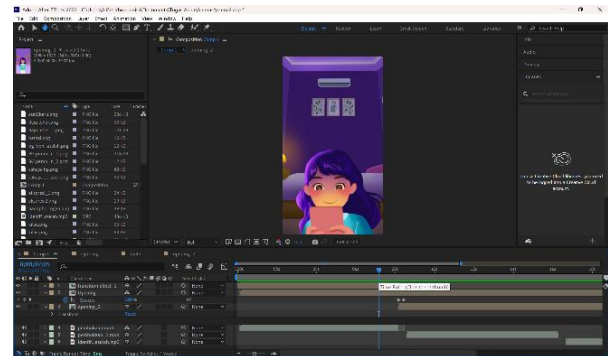


Figure 8. Animation Process in Adobe After Effects

Once all the motion assets are created, the next step is to export each scene as an MP4 file using Adobe Media Encoder. This software helps speed up the rendering process and supports file conversion to various formats as needed.

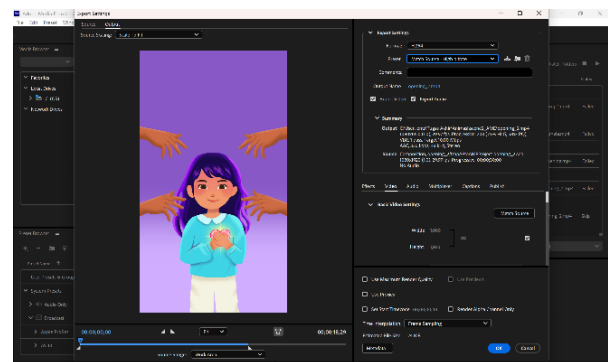


Figure 9. Motion graphic Rendering and Export Process

After the animation process is complete, the next step is carried out in the CapCut application as the final editing and video refinement process. This stage involves rearranging scenes, trimming ineffective durations, and adjusting the rhythm between scenes to create a more dynamic and structured video flow.

The editing stage in CapCut also includes adding *subtitles*, *sound effects*, and background music to enhance the emotional atmosphere of the *motion graphic*. *Subtitles* are used to help the audience understand important information more clearly, especially since the media is intended for quick consumption on social media. *Sound effects* are added

to several scenes, such as chat notifications, scene transitions, and text appearances, to enhance the visual-audio appeal.

Furthermore, the *voice-over*, background music, and animation are synchronized so that all elements move in sync with the narrative tempo. Audio volume is also adjusted to ensure the *voice-over* remains audible without being interrupted by the background music. The final result is then rendered in a vertical video format with a resolution of 1080 × 1920 pixels, tailored to the needs of content distribution on the Instagram platform.

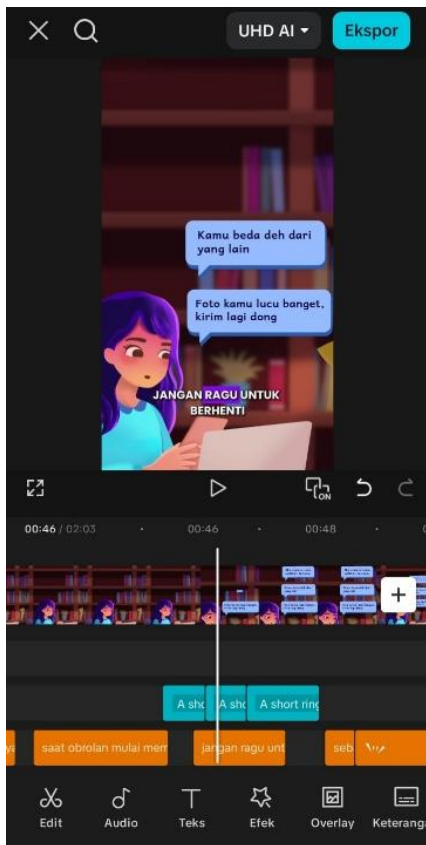


Figure 10. Editing Process in CapCut

3.3 Design Results

A. Supporting Media

In addition to *motion graphics* as the primary medium, this design also produced supporting media in the form of an Instagram carousel infographic, which served as an awareness campaign before the main video was published. This supporting media was designed to gradually build audience awareness about the issues of digital relationships and *child grooming*. The visual concept for the Instagram carousel used a dominant red color, aligned with the Anantaka Foundation's visual identity, to create visual consistency between the campaign media and the foundation's identity.

The carousel's publication strategy was divided into three communication stages: awareness, understanding, and action.

1. The awareness stage contains an introduction to the phenomenon of digital relationships and early signs of emotional manipulation.



Figure 11. Instagram Awareness Carousel

2. The understanding stage contains education about the characteristics of *child grooming* and the importance of safe boundaries in digital relationships.



Figure 12. Instagram Understanding Enhancement Carousel

3. The action stage contains an invitation to be more careful in online relationships, dare to say no, and seek help when feeling uncomfortable.

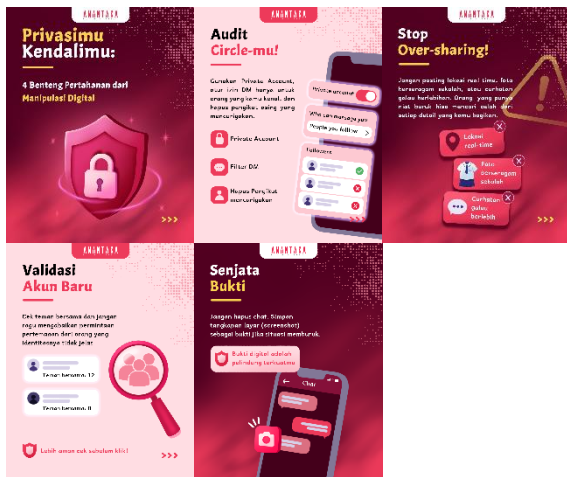


Figure 13. Instagram Call-to-Action Carousel

B. Media Implementation at the Foundation Anantaka

The designed *motion graphic* was then implemented as a digital education campaign medium by the Anantaka Foundation through the Instagram platform. The social media platform was chosen because it aligns with the characteristics of adolescents, the target audience who actively access visual and audiovisual content in their daily activities. The Anantaka Foundation uses this *motion graphic* as a preventative educational tool to raise adolescent awareness about the safe boundaries of digital relationships and the risks of *child grooming* on social media.

The messaging strategy was implemented through *motion graphic* uploads, supporting Instagram carousel media, and visual presentations designed to be concise, communicative, and easy to understand to increase audience engagement on social media. With this implementation, the *motion graphic* serves not only as a visual work but also as a digital educational medium supporting the Anantaka Foundation's social campaign on protecting adolescents in the digital space.

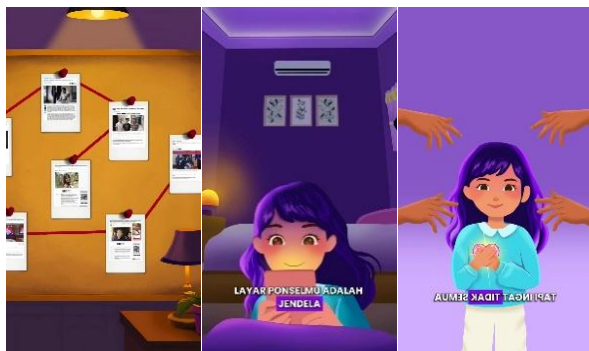


Figure 14. Final Animation Snippet

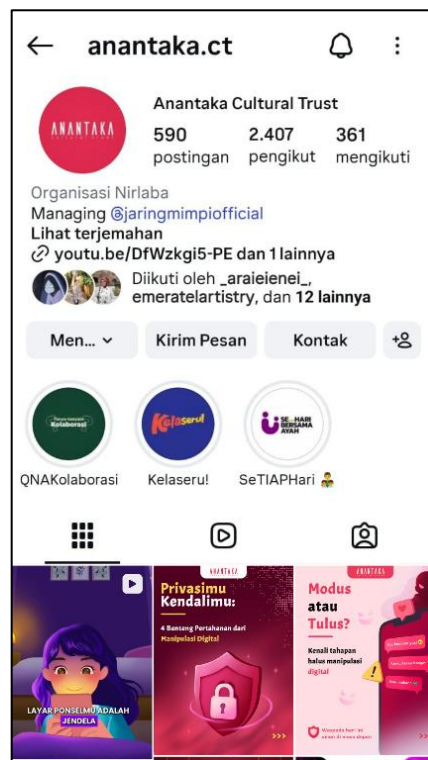


Figure 15. Results of Implementing Educational *Motion graphics* on Social Media

Based on the results of limited trials during the testing phase, the *motion graphic* media that was designed received a positive response from teenagers as the target audience. Most participants were able to understand the main message about the importance of maintaining safe boundaries in digital relationships and recognize some indicators of *child grooming* conveyed

through the storyline and visuals used. The delivery of information through a combination of illustrations, animations, text, and narration was considered helpful for the audience to understand material that was previously considered quite complex. In addition, the results of this design have been submitted to the Anantaka Foundation as a partner in the design process and are stored as educational media that can be reused in socialization activities, digital campaigns, or direct education for teenagers in the future. Thus, the media produced not only functions as an output of research and design, but also has the potential for sustainability as an educational tool that can be used practically by the relevant institutions.

4. Conclusions

Based on the design results, an educational *motion graphic* about safe boundaries in digital relationships and *child grooming* for teenagers was successfully created using the *Design thinking* method, which includes the stages of *empathize, define, ideate, prototype, and test*. This approach helped the media design process become more focused by focusing on the needs and characteristics of teenagers as the target audience.

The *motion graphic* media was designed by combining visual elements, typography, character illustrations, animation, narration, and audio to convey the educational message in a more communicative and engaging manner. The simple visual concept, dominated by the color purple, and a semi-flat illustration style were chosen to create emotional closeness and visual comfort for teenagers. The delivery of information through a daily *storyline* also helped audiences understand forms of manipulation in digital relationships and the importance of recognizing safe boundaries when interacting on social media.

The design results were then implemented as a digital campaign medium on the Anantaka Foundation's Instagram account. The use of *motion graphics* on social media is considered appropriate for teenagers' information consumption habits, which tend to be visual, brief, and audio-visual. Therefore, this *motion graphic* is expected to serve as a preventative educational medium that can raise teenagers' awareness of the risks of *child grooming* and the importance of maintaining safety in digital relationships.

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