

Analysis of the Effectiveness of 2D Animation as a Medium to Increase Awareness of Bullying among Generation Alpha in Indonesia

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Abstract

Background: Bullying among elementary school children in Indonesia has become a serious issue that affects the emotional and mental development. Traditional methods such as lectures are often ineffective in capturing children's attention, especially for Generation Alpha, who are more familiar with visual and digital learning styles.

Aims: This study aims to analyze the effectiveness of 2D animation as an educational medium to increase awareness of bullying among Generation Alpha in Indonesia.

Methods: The research employed a Research and Development (R&D) approach using the Multimedia Development Life Cycle (MDLC) model, consisting of six stages: concept, design, material collection, assembly, testing, and distribution. The effectiveness of the animation was evaluated using the EPIC Model (Empathy, Persuasion, Impact, and Communication) with a quantitative descriptive analysis involving 400 respondents.

Results: The findings indicate that all EPIC model dimensions achieved high effectiveness levels, with an average score of 4.94 (on a 5-point scale), showing that 2D animation successfully conveyed anti-bullying messages. The media demonstrated high perceived effectiveness in stimulating empathy, increasing understanding, and improving communication regarding bullying prevention.

Conclusion: 2D animation is an effective educational tool for promoting empathy and awareness about bullying among Generation Alpha in Indonesia. The study supports integrating animation into character education programs to foster social and moral awareness at an early stage.

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INTRODUCTION

Bullying is a serious problem that can have long-term impacts on an individual's mental and emotional health, especially among children and adolescents. The phenomenon of bullying is increasingly being found among Gen Alpha, which includes children born in 2010 onward (Nadhira, 2023). Generation Alpha, particularly children aged 6 to 12, are experiencing an increasing trend of bullying. During this age range, children are in a critical developmental phase, where they begin to establish their social and emotional identities (Höfrová et al., 2024). In addition, Generation Alpha is characterized by high levels of digital media exposure, which has shaped their daily interactions and learning environments (Šramová & Pavelka, 2023).

Research shows that bullying experiences at this age can have significant long-term impacts on children's mental and emotional health (Man et al., 2022; Tarafa et al., 2022). When children interact with their peers, they not only learn about social relationships but also about power, dominance, and vulnerability. This makes them highly susceptible to bullying experiences, both as perpetrators and as victims (Li, 2024).

Based on data released by the Online Information System for the Protection of Women and Children (SIMFONI PPA) in 2023, there were a total of 25,032 cases of violence reported in Indonesia. Among

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these cases, 57.6% of the victims were children. A more detailed breakdown shows that 18.1% of these victims were between the ages of 6 and 12, which corresponds to elementary school students. Furthermore, it was reported that 1,450 cases occurred in schools (Kementerian PPPA, 2023).

This phenomenon is further exacerbated by the limited effectiveness of existing bullying awareness interventions for elementary school children. According to Sama & Eric (2024), previous efforts have commonly relied on conventional approaches such as classroom lectures, moral storytelling, posters, and printed modules. Although these methods aim to convey anti-bullying messages, they often fail to sustain children's attention, offer limited emotional engagement, and are less aligned with the visual and experiential learning characteristics of elementary-aged students. In contrast, animation-based video media have been shown to effectively increase students' learning interest and learning outcomes at the elementary school level, highlighting the potential of animated media as a more engaging educational approach (Caella & Yulianto, 2024).

In response to these limitations, a more creative and child-centered educational approach is required. This study proposes the use of 2D animation media as an alternative intervention to enhance bullying awareness. Compared to static or text-based media, 2D animation integrates visual storytelling, character expression, and narrative flow, enabling abstract concepts such as empathy, emotional impact, and social consequences of bullying to be conveyed more concretely and engagingly.

Previous studies have demonstrated that animation-based learning can effectively communicate complex social messages to children in an accessible and enjoyable manner (Gea et al., 2023; Prayitno et al., 2024; Sarah et al., 2022; Sari et al., 2025; Yuliati & Handayani, 2023). However, most existing studies focus on general moral education or character development, with limited emphasis on evaluating the effectiveness of 2D animated media specifically for bullying awareness using a structured effectiveness measurement model. Therefore, this research extends prior work by developing a targeted 2D anti-bullying animation and systematically evaluating its effectiveness among Generation Alpha students using the EPIC Model.

This study is motivated by the limited availability of anti-bullying educational media that are specifically designed to address the cognitive characteristics and communication style of Generation Alpha. While previous anti-bullying interventions have utilized various audiovisual or animation-based approaches, few studies have systematically developed and evaluated 2D animated media tailored to Generation Alpha using a structured communication effectiveness model.

Drawing on the Technology Acceptance perspective, Marheni et al. (2025) highlight that users' behavioral intention to adopt new technologies is strongly influenced by perceived usefulness and ease of use. In line with this perspective, the present study aims to develop a 2D animated anti-bullying educational video and to evaluate its communication effectiveness among Generation Alpha using the EPIC Model.

The novelty of this research lies in integrating a child-centered 2D animation development process with a communication-based effectiveness evaluation framework, positioning bullying awareness as a measurable communication outcome rather than solely a behavioral or psychological construct. Through this approach, the study seeks to provide empirical evidence on the feasibility of 2D animation as an effective medium for conveying anti-bullying messages to Generation Alpha.

METHODS

This study employs the Research and Development (R&D) method to guide the design and development of the animation video. The animation production process is structured into several stages, which are systematically described as follows.

Research Design

This study adopts a Research and Development (R&D) method, which is suitable for developing and evaluating educational media products. Within this R&D framework, the research is structured into two main phases:

(1) Media development

(2) Effectiveness evaluation

The Multimedia Development Life Cycle (MDLC) is employed as the development framework, while the EPIC Model is applied as the evaluation model to measure the effectiveness of the developed 2D animation in raising bullying awareness among Generation Alpha.

Media Development Phase (MDLC)

The media development phase follows the **Multimedia Development Life Cycle (MDLC)** model, adapted from Luther and refined by Sutopo. MDLC is used specifically to guide the systematic production of the 2D animation media. This model consists of six sequential phases: concept, design, material collection, assembly, testing, and distribution (Aryani et al., 2023; Isnaini et al., 2025; Roedavan et al., 2022), as illustrated in Figure 1.

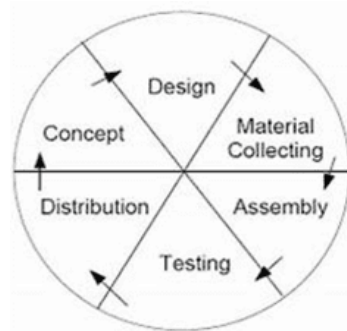


Figure 1. MDLC Model (Febriansyah & Sumaryana 2021)



1. Concept

This stage involves identifying the characteristics of Generation Alpha, common forms of bullying, and the educational values to be conveyed through the animation. Various references related to bullying were reviewed to establish a conceptual foundation. In addition, interviews were conducted with classroom teachers and several Generation Alpha children to ensure that the animation concept was contextually appropriate and relevant.

2. Design

In this stage, a storyboard is developed to outline the storyline, characters, visual composition, and scene transitions of the animation. The design is tailored to the visual preferences of Generation Alpha, including the use of bright colors, simple language, and engaging characters. The storyboard ensures that the narrative flows logically and that the educational message is communicated clearly. The storyboard of the developed animation is presented in Table 1.

Table 1. Storyboard

Picture	Explanation
	<p>The first scene depicts a schoolyard with the Indonesian red and white flag. A student named Anson is shown entering his classroom.</p>
	<p>The second scene shows Anson stretching out his leg, causing Ridho to trip as he enters the classroom. This scene illustrates an act of physical bullying and serves the beginning of the conflict in the storyline.</p>

Picture	Explanation
	<p>The third scene depicts Anson bullying Ridho once again by forcibly taking his pencil. Ridho appears scared and confused, while Anson displays an aggressive and intimidating attitude.</p>
	<p>The fourth scene shows Anson bullying Ridho once again. However, the incident is witnessed by Rina, who happens to be nearby. Rina immediately takes action by informing the teacher about what she has seen.</p>
	<p>The fifth scene depicts the teacher approaching Anson and Ridho to resolve the issue. The teacher reprimands Anson and provides an explanation and guidance, advising him not to repeat the act of bullying.</p>
	<p>The sixth scene shows Anson realizing his mistake and apologizing to Ridho for all the bullying he has done. Ridho sincerely accepts the apology, marking the resolution of the conflict.</p>
	<p>The seventh scene displays the phrase “Stop Bullying”, serving as the moral message of the entire story.</p>

3. Material Collection

This stage focuses on gathering all assets required for the animation development process. Visual assets were obtained from free and public platforms, while several illustrations were independently created using Adobe Illustrator. Audio elements, including background music and sound effects, were sourced from royalty-free platforms and carefully selected to match the intended atmosphere of the animation. All materials were synchronized with the storyboard to maintain narrative consistency.

4. Assembly

During the assembly stage, all collected and designed assets are integrated into a complete 2D animation video. Adobe Illustrator is used to create backgrounds and characters, while Adobe After Effects is utilized to animate visual elements. CapCut is used to add background music and subtitles to enhance clarity and engagement. The animation production process is illustrated in Figures 2–6.



Figure 2. Animation Process in After Effects

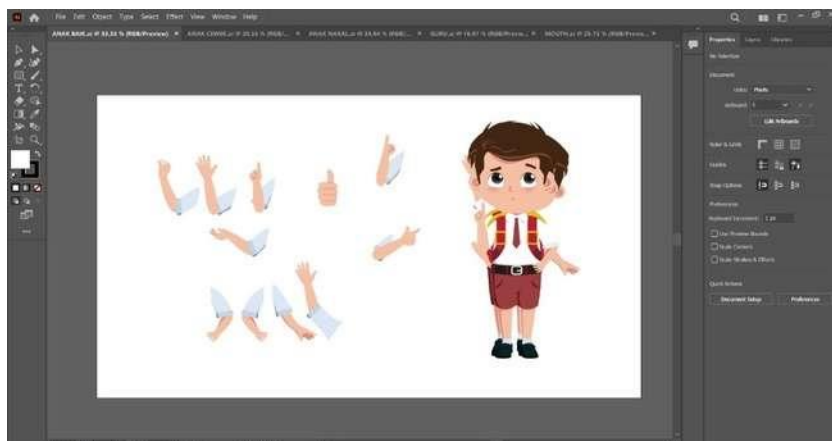


Figure 3. Student Character Creation Process

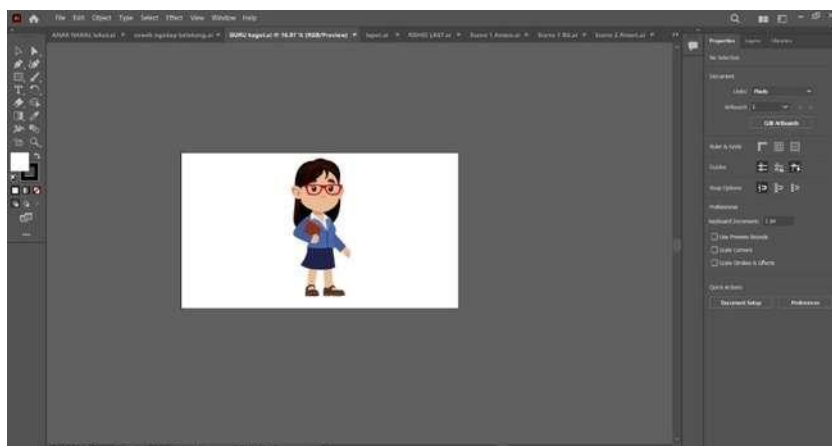


Figure 4. The Process of Creating the Teacher Character

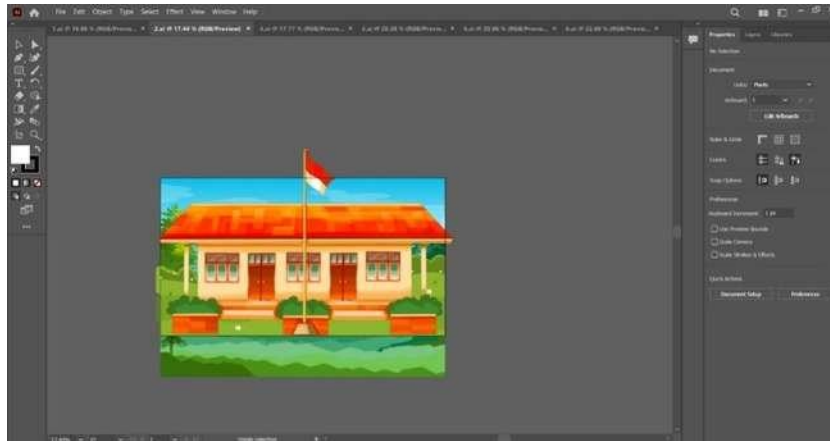


Figure 5. Background Creation Process

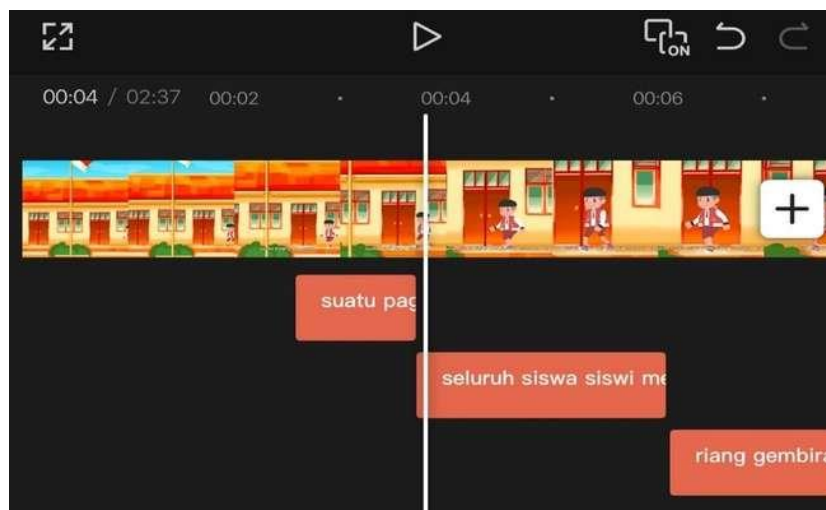


Figure 6. Subtitle Addition Process

5. Testing

The testing stage is conducted to ensure the quality and functionality of the developed animation. Internal evaluations are carried out repeatedly during the production process to identify and correct visual errors, timing inconsistencies between animation and audio, and other technical issues. Feedback from the academic supervisor is used to refine the animation before finalization.

6. Distribution

After revisions and approval, the finalized animation video is distributed through the YouTube platform. This platform is selected due to its wide accessibility and popularity among Generation Alpha, enabling the anti-bullying message to reach the target audience effectively.

Effectiveness Evaluation Phase: EPIC Model

Following the completion of the development phase, the effectiveness of the 2D animation is evaluated using the EPIC Model, developed by AC Nielsen. The EPIC Model is selected because it provides a structured framework for assessing the effectiveness of communication-based media and has been applied in educational research contexts (Nastain et al., 2024).

In this study, 2D animation serves as the independent variable, while bullying awareness is the dependent variable. Bullying awareness is operationalized through four EPIC dimensions:

- a. Empathy, which reflects viewers' emotional responses and their ability to relate to bullying situations;
- b. Persuasion, which measures the influence of the animation on attitudes and intentions to prevent bullying;
- c. Impact, which assesses the clarity and memorability of the bullying message;

- d. Communication, which evaluates viewers' understanding and recall of the core anti-bullying message.

Data Collection and Instrument

This study employs a quantitative descriptive approach. The population consists of Generation Alpha in Indonesia, totaling approximately 29,397,760 individuals based on the 2020 Population Census issued by the Central Bureau of Statistics (BPS). The sample size is determined using the Slovin formula with a 5% margin of error, resulting in 400 respondents, selected through random sampling.

Data are collected using an online questionnaire distributed via social media platforms such as Instagram and WhatsApp, using Google Forms. The questionnaire is designed based on the EPIC dimensions and measured using a Likert scale ranging from *Strongly Agree* to *Strongly Disagree*. The measurement indicators for each variable are presented in Table 2.

Table 2. Variables and Measurement Indicators

No	Variable	Questions Related to the Variable
1	Empathy	1. You feel interested in the animated video that raises the issue of bullying. 2. The animated video helps you better understand bullying. 3. You find the animation engaging enough to watch more than once.
2	Persuasion	1. You feel that you better understand and become more aware of the impact of bullying after watching this animated video. 2. The animated video increases viewers' concern and commitment to preventing bullying.
3	Impact	1. After watching the animated video about bullying, viewers can more easily understand the impacts of bullying and how to overcome them. 2. The characters in the animated video about bullying appear more engaging compared to those in other animations. 3. The presented animation effectively delivers a clear message about bullying.
4	Communication	1. The animated video about bullying is appropriate to be introduced to children to help them understand the issue of bullying. 2. The anti-bullying message in this animated video is clear and easy for viewers to understand. 3. The message delivered in this animated video about bullying is easy to remember.

Data Collection Procedure

The quantitative data were collected using an online questionnaire distributed via social media platforms, specifically Instagram and WhatsApp. These platforms were utilized to reach parents or guardians of Generation Alpha children, who were asked to assist their children in accessing and responding to the questionnaire. This approach was chosen due to ethical and practical considerations related to collecting data from children within the 6–12 age range.

To ensure that responses reflected the perspectives of the intended age group, parents or guardians were instructed to accompany the children during the questionnaire completion process. The questionnaire items were designed using simple language and child-friendly statements to facilitate comprehension. However, it should be acknowledged that direct age verification was not technically enforced, which may introduce potential bias regarding respondent authenticity.

Consequently, the collected data represent assisted self-reports reflecting children's perceived responses to the animation, rather than independently completed questionnaires. This limitation is acknowledged and discussed further in the limitations section.

Data Analysis Method

This study applies a quantitative descriptive approach to analyze the effectiveness of the developed animation. Data are collected using a questionnaire based on the EPIC dimensions, measured using a Likert scale ranging from Strongly Agree to Strongly Disagree.

The analysis process consists of two stages:

1. Instrument Testing

Validity testing was conducted using item-total correlation analysis, in which each questionnaire item was correlated with its corresponding construct score. An item was considered valid if it achieved a loading factor greater than 0.60, indicating an adequate level of construct representation.

Reliability testing was performed using Cronbach's Alpha to assess the internal consistency of the measurement instrument. A Cronbach's Alpha value greater than 0.60 was used as the threshold for acceptable reliability. All statistical analyses were conducted prior to effectiveness evaluation to ensure that the instrument met the required measurement standards.

2. Effectiveness Evaluation

The mean scores of each EPIC dimension are calculated, followed by the computation of the overall EPIC Index to determine the effectiveness level of the 2D animation in increasing bullying awareness among Generation Alpha.

To evaluate the perceived effectiveness of the developed 2D animation, this study employed the EPIC Model. The mean scores obtained from each EPIC dimension were interpreted using predefined effectiveness criteria based on the EPIC scale. The scale ranges and corresponding effectiveness categories are presented in Table 3 and serve as the analytical basis for data interpretation.

Table 3. Epic Model Scale

No.	Scale Range	Criteria
1	1.0 - 1.8	Strongly Disagree
2	1.9 - 2.6	Disagree
3	2.7 - 3.4	Neutral
4	3.5 - 4.2	Agree
5	4.3 - 5.0	Strongly Agree

The overall research flow, integrating the MDLC development phase and the EPIC evaluation phase, is illustrated in Figure 7.

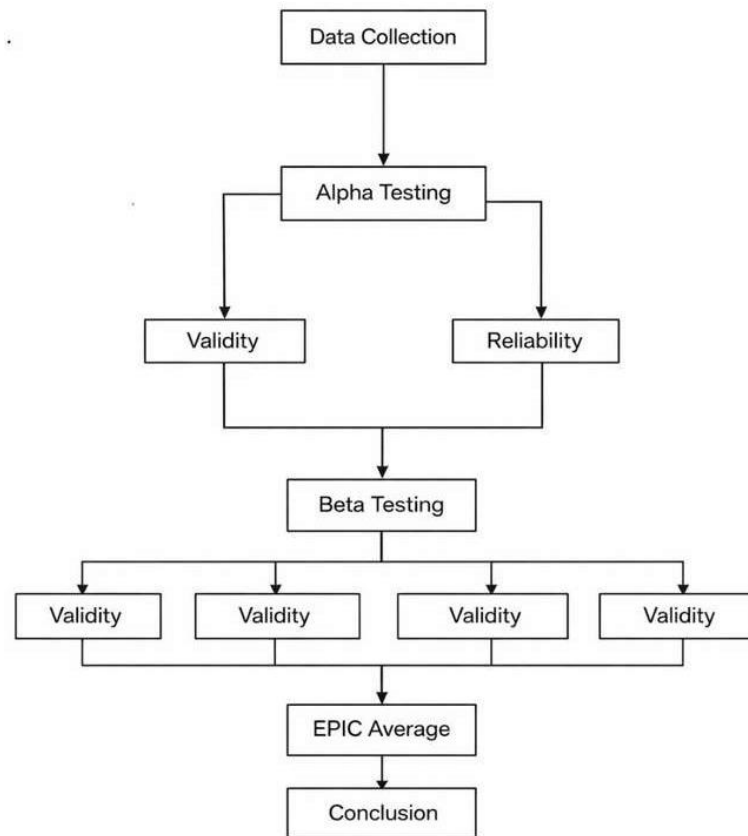


Figure 7. Research flow of the EPIC Model (Pratama & Chrissy, 2023)

RESULTS AND DISCUSSION

Results

Alpha Testing

Alpha testing was conducted to evaluate the validity and reliability of the research instrument before further analysis. The validity test was performed using the item–total correlation approach, in which each questionnaire item was correlated with its corresponding construct score. An item was considered valid if it had a loading factor greater than 0.60.

Table 4. Validity Test

Variable	Loading Factor	Conclusion
EM1	0.945	Valid
EM2	0.977	Valid
EM3	0.977	Valid
PE1	0.977	Valid
PE2	0.977	Valid
IM1	0.981	Valid
IM2	0.977	Valid
IM3	0.977	Valid
CO1	0.997	Valid
CO2	0.981	Valid
CO3	0.945	Valid

The results indicate that all questionnaire items are valid, as each item exceeds the minimum loading factor threshold of 0.60. This suggests that the items are appropriate for measuring their respective constructs within the EPIC Model.

Following the validity test, a reliability test was conducted using Cronbach's Alpha to assess the internal consistency of the questionnaire. A Cronbach's Alpha value greater than 0.60 indicates acceptable reliability. The results of the reliability test are presented in Table 5.

Table 5. Reliability Test

Cronbach's Alpha	N of Items	Results
0.994	11	Reliable

All constructs obtained Cronbach's Alpha values above 0.60, indicating that the instrument demonstrates a high level of internal consistency and is reliable for data collection.

Beta Testing

After confirming that all questionnaire items were valid and reliable, beta testing was conducted to assess the perceived effectiveness of the developed 2D animation using the EPIC Model. The results indicate that all EPIC dimensions achieved mean scores within the Strongly Agree category.

Empathy

The Empathy dimension obtained a mean score of 4.94, which falls within the Strongly Agree category. This result indicates a high level of perceived emotional engagement with the anti-bullying animation among respondents.

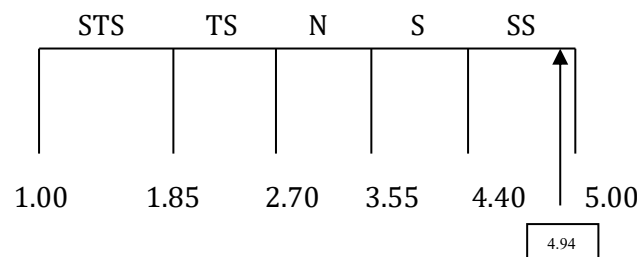


Figure 8. Empathy Results

Persuasion

The Persuasion dimension obtained a mean score of 4.95, which falls within the Strongly Agree category. This result indicates a high level of perceived persuasive effectiveness of the 2D animation in conveying anti-bullying messages.

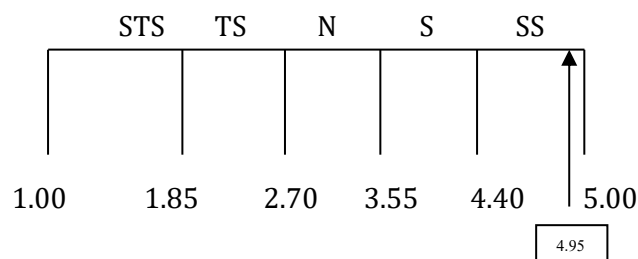


Figure 9. Persuasion Results

Impact

The Impact dimension obtained a mean score of 4.95, which falls within the Strongly Agree category. This result indicates that respondents perceived the anti-bullying message delivered through the animation as clear and memorable.

This suggests that the combination of visual storytelling, repetition of key scenarios, and explicit moral cues contributed to effective message retention. However, since no comparative media analysis was conducted, these findings should be interpreted cautiously.

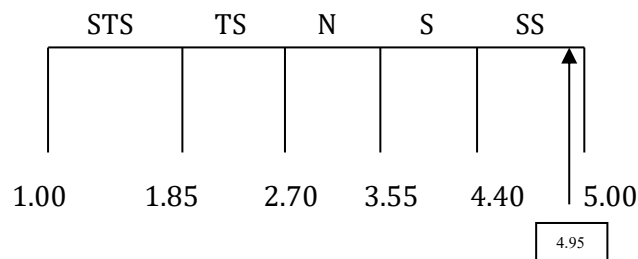


Figure 10. Impact Results

Communication

The Communication dimension obtained a mean score of 4.94, indicating that the message conveyed through the animation was perceived as clear, understandable, and suitable for children.

The use of simple language, expressive character actions, and visual cues appears to support effective communication of anti-bullying messages to Generation Alpha, who are highly accustomed to audiovisual media formats.

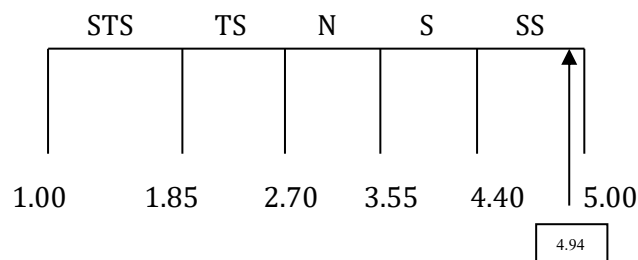


Figure 11. Communication Results

EPIC Index

The overall EPIC Index obtained a mean score of 4.94, which falls within the Strongly Agree category. This result indicates a high level of perceived effectiveness of the 2D animation across all EPIC dimensions.

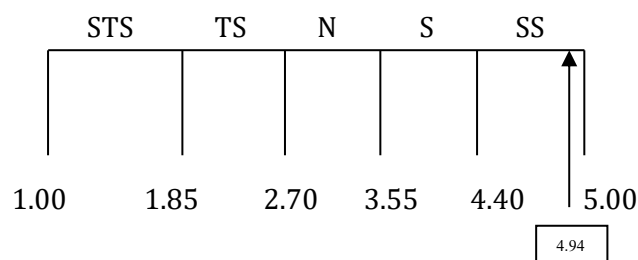


Figure 12. EPIC Index Results

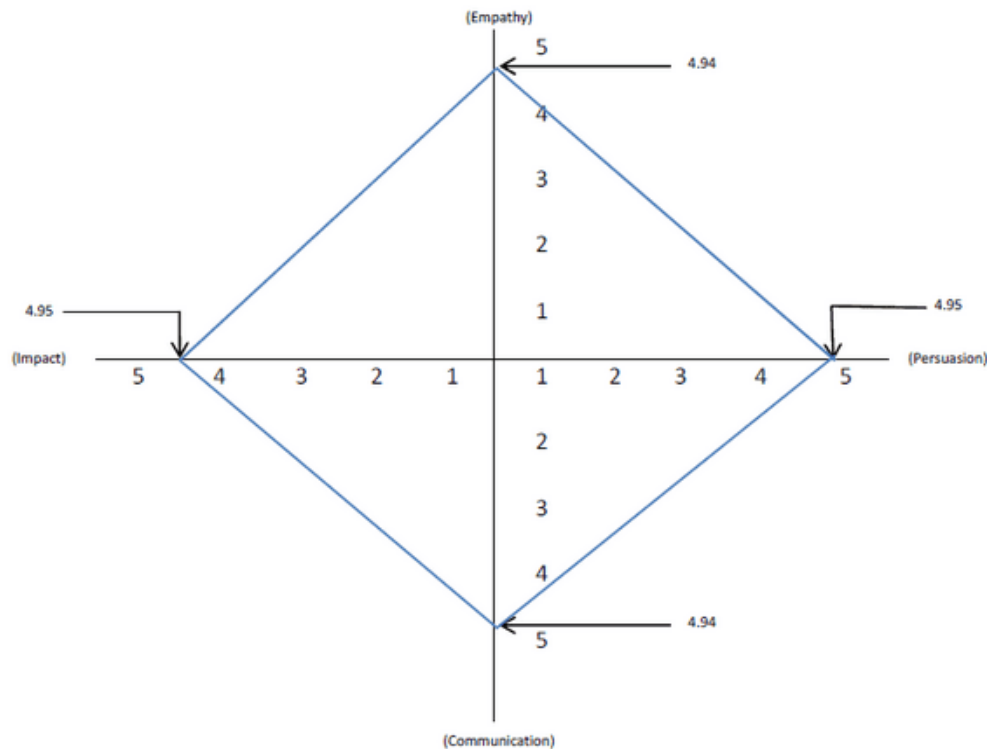


Figure 13. EPIC Index Chart

Discussion

The high score obtained in the Empathy dimension suggests that the narrative structure and character interactions in the animation facilitated viewers' emotional connection with the bullying scenarios presented. Emotional engagement plays a crucial role in anti-bullying education, as empathy has been widely recognized as an important factor in reducing aggressive behavior among children.

However, it should be noted that this empathy measurement reflects self-reported emotional responses rather than observable empathic behavior. As such, the findings do not directly indicate long-term attitudinal or behavioral change, but rather perceived emotional engagement with the communicated message.

The high score achieved in the Persuasion dimension suggests that the animation may encourage reflection and increase concern regarding bullying behavior among Generation Alpha. This perceived persuasive effect can be attributed to the narrative depiction of consequences and moral resolution presented in the storyline, rather than reliance on explicit instructional messages, which may enhance message acceptance and relatability for young audiences.

Nevertheless, it is important to note that the Persuasion dimension within the EPIC Model captures perceived attitudinal influence rather than observable behavioral change. Therefore, the findings should be interpreted as evidence of communication effectiveness rather than actual behavioral modification.

The high score in the Impact dimension suggests that the combination of visual storytelling, repetition of key scenarios, and explicit moral cues may have supported effective message retention among viewers. These elements are consistent with principles of audiovisual learning that emphasize reinforcement and narrative clarity in enhancing message recall.

However, as no comparative media analysis was conducted, this interpretation is limited to respondents' perceived impressions of the animation rather than objective comparison with other educational media formats. Rather than demonstrating causal impact, the EPIC Index reflects respondents' overall evaluation of the animation as an educational medium for raising bullying awareness. As this study does not employ experimental controls or pre-post comparisons, the findings should be interpreted as evaluative and exploratory in nature.

Accordingly, the high EPIC Index score provides empirical support for the feasibility and acceptance of 2D animation as a communication medium for anti-bullying education among Generation Alpha, rather than evidence of direct attitudinal or behavioral change.

Implications

This study aimed to examine the perceived effectiveness of a 2D animated video as an educational medium for bullying awareness among Generation Alpha using the EPIC Model. The quantitative results indicate that all EPIC dimensions Empathy, Persuasion, Impact, and Communication—obtained consistently high mean scores, resulting in an overall EPIC Index of 4.94. Rather than merely indicating effectiveness, these uniformly high scores warrant further analytical interpretation.

The high Empathy score suggests that the animation successfully elicited emotional engagement among viewers. This outcome can be attributed to the narrative-driven design, character relatability, and visual storytelling tailored to Generation Alpha's cognitive and emotional characteristics. Emotional resonance is particularly important for this age group, as affective engagement often precedes message comprehension.

However, it should be noted that empathy in this context reflects viewers' emotional responses to the message rather than observable empathic behavior toward peers.

Similarly, the Persuasion dimension achieved a high score, indicating that viewers perceived the animation as convincing and motivating. This finding may reflect the simplicity of the message delivery, the use of age-appropriate language, and the moral framing embedded in the storyline. Comparable results have been reported in digital bullying prevention studies, where media-based and interactive interventions were found to enhance students' motivation and perceived relevance of anti-bullying messages in primary school settings (Shao et al., 2025). Nevertheless, persuasion as measured by the EPIC Model captures perceived attitudinal influence rather than actual behavioral change. Therefore, the results suggest potential persuasive impact rather than confirmed behavioral intention or action related to bullying prevention.

The Impact and Communication dimensions also showed similarly high scores, indicating that the animation was memorable and that its core message was clearly understood by viewers. The convergence of high scores across these dimensions may be influenced by overlapping constructs within the EPIC instrument, where message clarity, memorability, and emotional appeal are closely related. Additionally, the use of a self-report questionnaire may introduce a positive response bias, particularly among younger respondents who tend to give favorable evaluations of visually engaging media.

Importantly, the consistently high scores across all EPIC dimensions highlight a methodological consideration regarding the suitability of the EPIC Model for assessing social or psychological constructs such as bullying awareness. Originally developed for marketing communication evaluation, the EPIC Model primarily measures perceived communication effectiveness rather than changes in awareness, attitudes, or behavior. In this study, bullying awareness is operationalized as viewers' perceived understanding, emotional engagement, and message recall related to bullying issues. As such, the findings should be interpreted as evidence of effective message communication rather than definitive proof of increased psychological awareness or behavioral transformation.

When compared with previous anti-bullying studies, the findings of this research show both alignment and distinction. Previous studies employing animated or audiovisual media for bullying prevention consistently report positive outcomes in terms of increased awareness, empathy, and understanding of bullying behavior among children (Fakhriza & Khaira, 2025; Sarah et al., 2022; Sari et al., 2025; Selian et al., 2025). Similar patterns are also observed in broader animation-based learning research, which highlights the effectiveness of narrative-driven and visually engaging media in supporting children's emotional and social understanding (Prayitno et al., 2024; Yuliati & Handayani, 2023).

Consistent with these findings, the present study demonstrates high perceived effectiveness across emotional and communicative dimensions, as reflected in the consistently high EPIC scores. However, unlike intervention-based or experimental studies that examine behavioral or longitudinal

outcomes, this research focuses on perceived communication effectiveness. This distinction positions the current findings as complementary to existing anti-bullying media studies, providing empirical support for the feasibility and acceptance of 2D animation as an introductory or supportive medium for bullying awareness among Generation Alpha.

However, unlike intervention-based anti-bullying programs that utilize experimental or longitudinal designs to measure changes in attitudes or behavior, this study focuses on perceived communication effectiveness immediately after exposure. Consequently, the very high and relatively uniform scores across all EPIC dimensions may reflect the strong visual appeal, narrative simplicity, and emotional resonance of the animation rather than sustained behavioral change. This distinction suggests that while the findings are consistent with prior anti-bullying media research in terms of awareness-related outcomes, they should be interpreted as complementary to, rather than substitutive for, intervention-based evidence on bullying prevention.

Research Contribution

This study contributes to the literature in three key ways. First, theoretically, it extends previous research on animation-based anti-bullying education by framing bullying awareness as a communication-based construct, operationalized through the EPIC dimensions. While prior studies have primarily examined animation as a tool for moral education or bullying prevention outcomes in general (Sarah et al., 2022; Sari et al., 2025), this study emphasizes how anti-bullying messages are perceived, understood, and emotionally received by Generation Alpha as a communication audience.

Second, practically, this research provides empirical evidence that 2D animation can function as an effective medium for delivering anti-bullying messages that are emotionally engaging and clearly understood by Generation Alpha. Unlike earlier studies that focused on intervention outcomes or teacher-led implementation, the present study highlights the feasibility and acceptance of animation as a standalone educational communication medium, supporting its use as an introductory or complementary tool in character education and bullying awareness programs (Prayitno et al., 2024; Yuliati & Handayani, 2023).

Third, methodologically, this study demonstrates both the applicability and limitations of the EPIC Model in educational and social awareness contexts. The consistently high EPIC scores across Empathy, Persuasion, Impact, and Communication indicate that the model is effective in capturing perceived communication effectiveness of educational media. However, the findings also reveal that the EPIC Model primarily measures evaluative and attitudinal perceptions rather than behavioral change, highlighting its suitability for communication assessment but its limitations for measuring long-term psychological or behavioral outcomes. This methodological insight provides a reference for future studies seeking to evaluate digital learning media beyond traditional academic performance indicators (Nastaiin et al., 2024).

Limitations

Despite its contributions, this study has several limitations. The use of the EPIC Model measures perceived effectiveness, not actual behavioral change, limiting causal interpretation. Additionally, the high similarity of scores across dimensions suggests potential overlap among constructs. The cross-sectional design and reliance on self-reported data further restrict conclusions regarding long-term impact.

One limitation of this study concerns the data collection method. Although the target population was Generation Alpha children aged 6–12 years, the questionnaire was distributed through social media platforms primarily accessed by parents or guardians. As a result, responses may reflect assisted self-reports rather than fully independent child responses. Additionally, the absence of technical age verification may affect data accuracy. Therefore, the findings should be interpreted as indicative of perceived communication effectiveness rather than definitive representations of children's independent evaluations.

Suggestions

Future studies are encouraged to complement EPIC-based evaluation with behavioral or longitudinal methods to assess sustained bullying awareness and prevention behavior. Expanding respondent diversity and incorporating experimental designs would further strengthen empirical validity.

CONCLUSION

This study indicates that 2D animation has the potential to function as an effective communication medium for delivering anti-bullying messages to Generation Alpha in Indonesia. Rather than reiterating empirical results, the findings highlight the suitability of visually driven and narrative-based animation for engaging young audiences and conveying social awareness messages.

Overall, this research underscores the value of 2D animation as a supportive educational communication tool in anti-bullying initiatives, while also emphasizing the need for future studies to explore its long-term impact using experimental or longitudinal approaches.

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AUTHOR CONTRIBUTION STATEMENT

The author (LZ) independently designed and developed the research, conducted data collection and analysis, and prepared the final manuscript. All stages of the research were carried out independently under the guidance and supervision of academic advisors.

AI DISCLOSURE STATEMENT

The author used artificial intelligence tools (such as ChatGPT) solely for language refinement and clarity improvement during the preparation of this manuscript. All content was carefully reviewed, revised, and validated by the author, who takes full responsibility for the accuracy, originality, and integrity of the work.

CONFLICTS OF INTEREST

The authors declare that there are no financial, institutional, or personal conflicts of interest that could have influenced the conduct of the study, the analysis and interpretation of data, the preparation of the manuscript, or the decision to publish the results.

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