



The Impact of Animated Videos on Student Awareness of Bullying

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ABSTRACT

Introduction: Bullying among teenagers is a pervasive issue with significant physical, mental, verbal, and psychological repercussions. Effective health education methods that captivate students' attention are essential for addressing such detrimental behaviours. This study assesses the effectiveness of animated videos as a tool to enhance high school students' understanding of bullying, using a case study from Karya Bakti Mambo High School. The dynamic and visually engaging nature of animated videos offers a promising avenue for improving educational outcomes.

Methods: A pre-experimental design was adopted, involving 31 students from Karya Bakti High School. Data collection was performed using identity forms and pre- and post-intervention questionnaires. The impact of the animated video intervention was evaluated through Univariate and Bivariate analysis.

Results: The intervention significantly improved the students' knowledge about bullying. Initially, 54.8% of students were in the "poor" knowledge category, which decreased to 58.1% achieving "sufficient" knowledge post-intervention. The paired t-test revealed a significant increase in the average knowledge scores from 52.58 to 75.16 post-intervention (Sig. (2-tailed) = 0.000).

Conclusion: Animated videos significantly enhance the understanding of bullying among high school students. This educational strategy not only improves knowledge but also engages students more effectively than traditional methods. The broader implications of this study suggest that incorporating such dynamic visual content into school curriculums or anti-bullying programs can play a critical role in mitigating bullying behavior. This method could potentially transform health education approaches, fostering a more interactive and impactful learning environment.

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INTRODUCTION

In today's era of globalization, bullying has become a critical issue that concerns various layers of society around the world. Data from the World Health Organization (WHO) for the years 2022-2023 indicates that approximately 246 million adolescents worldwide have experienced bullying, which constitutes 30.6% of the total global adolescent population (1). The survey conducted through the Global School-Based Health Survey (GSHS) in 160 countries illustrates the grim reality faced by adolescents aged 13-17 years, who feel the impact of bullying in the last 30 days. Verbal bullying is the most common type, followed by physical bullying and cyberbullying. Bullying is not limited to physical effects but also has profound psychological consequences that can reduce the self-confidence and emotional stability of the victims, often leading to mental health disorders and decreased academic performance (2).

Based on region, teenagers in low- and middle-income countries experience bullying more frequently (36.9%) compared to teenagers in high-income countries (24.7%) (3). This data indicates that bullying is a serious problem worldwide, including in Indonesia. Therefore, efforts are needed to prevent and address bullying at individual, family, school, and community levels. At international institutions, one of which is the Plan International Center for Women's Research, it is stated that about five Asian countries with the highest prevalence of bullying cases are Vietnam (79%), Cambodia (73%), Nepal (79%), Pakistan (43%), and Indonesia (84%) (4). In Indonesia, the prevalence of bullying includes 2,777 young Indonesians aged between 14-24 years, found to experience cyberbullying at an average rate of 45% (UNICEF, 2020). According to data from the Indonesian Child Protection Commission, the prevalence of bullying incidents in education is 1,567 cases (5).

This phenomenon occurs because teenagers in Indonesia still perceive bullying behavior as common. When teenagers experience continuous bullying, their emotions become unstable, and their self-confidence decreases (6–8). Additionally, bullying behavior also impacts the victim's psychological condition, such as being easily brought to tears, quick to anger even when interacting with others, and continuously experiencing excessive fear (9,10). The impact of bullying causes bullied teenagers to become anxious and always feel alone. Bullying has become commonplace and has even become part of the tradition among Indonesian teenagers (11).

Bullying not only damages social relationships and the learning environment, but it can also lead to long-term effects such as mental health disorders and decreased academic performance (12–14). Given the high prevalence of bullying in schools, it is important to find effective intervention strategies to address this issue.

This reality is further exacerbated by data showing that adolescents in low- and middle-income countries experience bullying more frequently compared to those in high-income countries. In Indonesia, the prevalence of bullying is extremely high, with a rate reaching 84% among adolescents, according to the Plan International Center for Women's Research. This indicates that bullying has become part of a tradition of violence that not only damages social relationships but also the learning environment. Therefore, there is an urgent need for effective educational interventions to address this issue.

In Indonesia, the health education media currently used are still conventional, such as using leaflets, booklets, flip charts, or PowerPoint presentations. As times progress, some studies show that the use of leaflets, PowerPoint presentations, booklets, and flip charts is less effective in increasing knowledge (15–18). According to several studies, games or videos are more appealing to Generation 4.0, who are more familiar with and prefer using advanced technology, especially if the videos feature funny and unique characters (19–22).

In the context of education, animated videos have proven to be an effective tool for delivering information in an engaging and easily understandable way. The visual appeal and creative storytelling of animated videos can capture students' attention, making the material more relevant and easier to remember (23,24). By utilizing this technology, we can enhance students' understanding of bullying, recognize early signs, and comprehend its impact more deeply.

In the context of education, the health education media currently used in Indonesia are still conventional, such as using leaflets, guidebooks, flip charts, or PowerPoint presentations. However, several studies have shown that these methods are less effective in increasing knowledge, especially in the current digital era. In contrast, the use of animated videos has proven to be an effective tool because it can convey information in an engaging and easily understandable manner. The visual appeal and creative storytelling of animated videos can capture students' attention, making the material more relevant and easier to remember. By utilizing this technology, we can enhance students' understanding of bullying, recognize early signs, and comprehend its impact more deeply.

This research is important because it can provide insights into the effectiveness of animated media in health education, particularly in the context of bullying. By understanding the impact of animated videos on students' awareness, we can design more effective and evidence-based interventions to address bullying in schools. The goals

of this research align with sustainable development efforts, particularly in the areas of quality education and mental health. By increasing students' awareness and knowledge about bullying through innovative methods, we contribute to creating a safer and more inclusive learning environment, while also supporting adolescent mental health, reflecting a commitment to the Sustainable Development Goals (SDGs), specifically SDG 4 (Quality Education) and SDG 3 (Good Health and Well-being).

The research highlighted here addresses a significant gap in existing studies on bullying in Indonesia by evaluating the effectiveness of animated videos as a medium for health education. This approach is particularly innovative given the high rates of bullying reported and the traditional methods currently employed in health education, which have proven less effective in engaging Generation 4.0 students. By integrating animated videos, which are more appealing and engaging due to their visual and creative elements, this research provides new insights into more effective educational practices that could significantly enhance students' understanding and awareness of bullying.

Furthermore, this study not only contributes to the academic field by offering evidence-based alternatives to conventional educational methods but also aligns with broader societal goals. Through this innovative approach, the research fills a critical void by proposing a feasible solution to a pressing issue and laying the groundwork for future interventions that can be scaled and adapted across different cultural contexts within Indonesia and potentially in other similar settings globally. This focus on technological integration in educational strategies marks a significant shift towards more effective and sustainable practices in addressing bullying and its impacts.

METHOD

This research is a type of experimental study using a pre-experimental research method. The design used is a one-group pre-test and post-test design. This design can be illustrated as follows:

Table 1. One-Group Pretest-posttest Design

Pretest		Treatment		Posttest
O1	_____	X	_____	O2

Source: Knapp, Thomas R, 2016 (25).

Explanation:

O1 represents the pre-test (before the mental health education is provided through an animated video about bullying).

X represents the treatment (intervention). The treatment in this research is mental health education by providing an animated video about bullying to students at SMA Karya Bakti Mambooro.

O2 represents the post-test (after the mental health education is provided through an animated video about bullying).

The research was conducted from February 6 to June 20, 2024, at SMA Karya Bakti Mambooro. This study involved 31 students as the sample. The data collection method in this study involves filling out personal information and questionnaires. Data on students' knowledge about bullying is obtained from questionnaire scores by conducting pre-tests and post-tests, where the researcher distributes the questionnaire first (pre-test) before providing the intervention in the form of an animated video about bullying, and after the video is shown, the questionnaire is distributed again (post-test). Subsequently, the data obtained from previous research journals related to bullying, and data from the Central Sulawesi Provincial Health Office, the Palu City Health Office, the Palu City Child Empowerment and Protection Agency, and SMA Karya Bakti Mambooro data are also used.

The sampling technique in this research is proportionate stratified random sampling, which is used if the population consists of layered groups with members/elements that are not homogeneous and are proportionally stratified. The sample is calculated proportionally. The formula is as follows:

$$n = \sum \frac{\text{Class Population Number}}{\text{Total Population Number}} \times \text{Sampel}$$

So, the number of samples obtained for each class is:

$$\begin{array}{l} \text{Class X} \\ n = \frac{28}{106} \times 31 = 9 \text{ Student} \end{array}$$

$$\begin{array}{l} \text{Class XI} \\ n = \frac{34}{106} \times 31 = 10 \text{ Student} \end{array}$$

$$\begin{array}{l} \text{Class XII} \\ n = \frac{44}{106} \times 31 = 12 \text{ Student} \end{array}$$

Next, the data processing in this research was carried out in several stages: 1) Editing, where the researcher checks the completeness of the data in the questionnaire. 2) Coding, where the researcher assigns codes or symbols to the data for each respondent's consent form and questionnaire. 3) Data Consolidation, where the researcher gathers the data into one working display. This process was conducted to speed up the data entry process. 4) Data Processing, which starts with entering the data. The researcher inputs the questionnaire data into a computer program, and 5) Results.

The animated video used in this research was designed considering several critical aspects:

Duration, the video was created with an optimal duration of between 5 to 10 minutes to ensure that students remain engaged without feeling bored or tired.

Theme, the video's theme is tailored to bullying issues, exploring various scenarios often faced by adolescents in schools. This includes all forms of bullying such as verbal, physical, and cyberbullying, with the goal of enhancing students' awareness and understanding of the negative impacts of such behaviors.

Character Engagement, the characters in the video are designed to be easily identifiable by students. Using relatable characters, such as diverse school students, the video aims to create an emotional connection with the audience. Characters facing bullying are shown how they overcome these situations, while others serve as supportive friends or even as bullies who learn from their mistakes.

Interactivity: The video also includes interactive elements, such as questions that encourage students to think and interact directly with the content. This enhances engagement and facilitates more active learning.

The design and implementation of this animated video are expected not only to increase knowledge about bullying but also to change students' attitudes and behaviors towards bullying. By presenting the context and consequences of bullying through realistic and relatable scenarios, this intervention aims to create a safer and more inclusive learning environment.

The data analysis used in this research is univariate analysis, aimed at describing the characteristics of each research variable (26). Univariate analysis in this study is used to analysed the characteristics of respondents, including students' knowledge before and after being shown the animated video about bullying. Univariate analysis is used to determine the frequency distribution and percentage of each variable (26). In this univariate analysis, the dependent variable is analysed in the form of mean values, maximum values, minimum values, and standard deviation (26). Bivariate analysis is a data analysis method used to examine the correlation or influence between two variables being studied (27). Bivariate analysis in this study was conducted to analysed the effect of animated bullying videos in improving students' knowledge about bullying behaviour. The analysis was carried out using a computerized program. Before the data analysis, a normality test was conducted to determine whether the data was normally distributed, using the Shapiro-Wilk test. If the data is normally distributed, the Paired t-test is used (27).

Ethical Approval

Ethical approval for this study was formally granted under the approval code: No:000404/KEPK POLTEKKES KEMENKES PALU/2024.

RESULTS

Univariate Analysis

Respondent Characteristics

Table 2. Frequency Distribution of Respondent Characteristics

Respondent Characteristics	Subject Group	
	F	(%)
Gender		
Man	20	64,5
Woman	11	35,5
Amount	31	100
Age		
15 Years	4	12,9
16 Years	18	58,1
17 Years	9	29,0
Amount		100
Class		
Ten	9	29,0
Eleven	10	32,3
Twelve	12	38,7
Amount	31	100

Source: Primary Data, 2024

Table 2 shows that out of 31 research respondents, the proportion of male respondents is more dominant, with 20 students (64.5%), while the proportion of female respondents is 11 students (35.5%). The respondents' characteristics based on age reveal that the average age of respondents is 16 years (58.1%), the youngest respondent is 15 years old (12.9%), and the oldest respondent is 17 years old (29.0%). The respondents' characteristics based on class level show that the majority of the students are in the 12th grade, with 12 students (38.7%), followed by 11th grade with 10 students (32.3%), and 10th grade with 9 students (29.0%).

Frequency Distribution of Students' Knowledge at SMA Karya Bakti Mambooro Before and After Receiving Health Education Through Animated Videos About Bullying

Knowledge is categorized into three levels: good, moderate, and poor. Knowledge is classified as good if the respondent scores 76-100%, moderate if the respondent scores 56-75%, and poor if the respondent scores $\leq 55\%$.

Table 3. Frequency Distribution of Knowledge of SMA Karya Bakti Mambooro Students before and after being given health education using animated bullying video media

Knowledge Variable	Pre-Test		Post-Test	
	F	%	F	%
Bullying				
Good	6	19,4	13	41,9
Enough	8	25,8	18	58,1
Not enough	17	54,8	0	0
Total	31	100	31	100

Source: Primary Data, 2024

Table 3 shows that the respondents' knowledge before being shown the animated video about bullying falls into the following categories: 6 students (19.4%) had good knowledge, 8 students (25.8%) had moderate knowledge, and 17 students (54.8%) were in the poor knowledge category. After being shown the animated video about bullying, there was an improvement, with 13 students (41.9%) in the good knowledge category and 18 students (58.1%) in the moderate knowledge category.

Results of Descriptive Statistical Test on the Knowledge of Students at SMA Karya Bakti Mamboro Before and After Receiving Health Education Through Animated Videos About Bullying

Table 4. Descriptive Test Results on the knowledge of SMA Karya Bakti Mamboro students before and after being given health education using bullying animation video media

	N	Mean	Minimum	Maximum	Std. Deviation
Pre-Test	31	52,58	10	90	22.281
Post Test	31	75,16	60	95	11.067

Source: Primary Data, 2024

Table 4 shows a difference in the knowledge scores of students at SMA Karya Bakti Mamboro before and after receiving health education through an animated video about bullying. The average knowledge score during the pre-test was 52.58, while the average score during the post-test was 75.16. This indicates an increase in the average knowledge of students at SMA Karya Bakti Mamboro by 22.58 points. The minimum score during the pre-test was 10, and the maximum was 90. Meanwhile, the minimum score during the post-test was 60, and the maximum was 95. Furthermore, the standard deviation during the pre-test was more heterogeneous, as indicated by the larger pre-test value compared to the post-test value.

Bivariate Analysis

The sample in this study consisted of 31 respondents. Before the analysis was conducted, a normality test was first performed using the Shapiro-Wilk test.

Table 5. Results of Data Normality Test on the knowledge of SMA Karya Bakti Mamboro students before and after being given health education using bullying animation video media

Tests of Normality		
Shapiro-Wilk		
Statistic	df	Sig.
.965	31	.394
.919	31	.022

Source: Primary Data, 2024

Table 5, the results of the normality test using the Shapiro-Wilk test show a significance value (sig) of 0.394 for the pre-test and 0.022 for the post-test. This means that the data is normally distributed (≥ 0.05). Therefore, the test used to determine the effect of the animated bullying video on the knowledge of students at SMA Karya Bakti Mamboro about bullying is the Paired t-test.

Analysis Results

Table 6. Paired t-test analysis of SMA Karya Bakti Mamboro students' knowledge about bullying before and after being given health education using bullying animation video media

Paired Samples Test									
Paired Differences									
				Std. Error	95% Confidence Interval of the Difference				Sig.
		Mean	Std. Deviation	Mean	Lower	Upper	t	df	(2-tailed)
Pair 1	pre_test - post_test	22.58065	14.36842	2.58065	27.85103	17.31026	8.750	30	.000

Table 6, it is shown that the Sig. (2-tailed) value is $0.000 \leq 0.05$, which leads to the conclusion that there is a significant effect on the knowledge of students at SMA Karya Bakti Mamboro before and after receiving health education through an animated video about bullying, based on the pre-test and post-test data. Thus, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted.

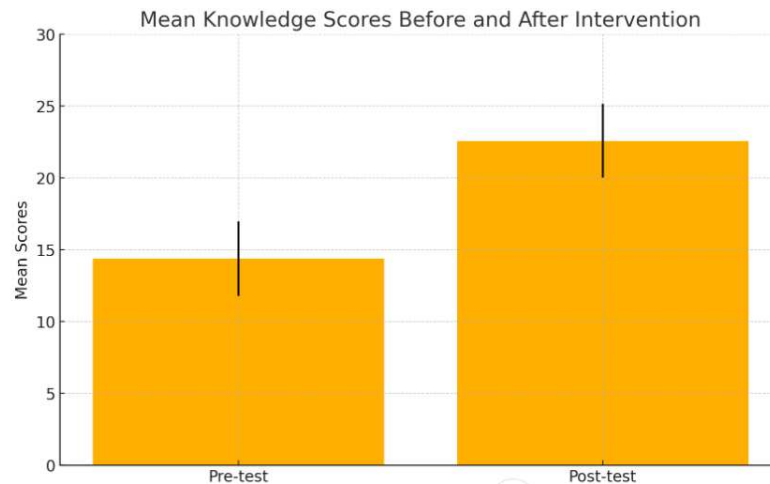


Figure 1. Average Knowledge Score Before and After Intervention

In the bar chart above, we observe a comparison of the average knowledge scores of SMA Karya Bakti Mambaro students before and after receiving health education through animated video media on bullying. The average score in the initial test (pre-test) was 14.36842, while the average score in the final test (post-test) increased to 22.58065. This indicates a significant improvement in students' understanding of bullying material after participating in the health education session using animated video media.

The error bars displayed on each bar indicate the standard deviation (2.58065) of the average scores, providing an overview of the score variability among the students. This increase supports the effectiveness of using animated videos as a health education method to enhance students' awareness and knowledge about bullying.

The statistical test results (t-test) also show a high statistical significance with a p-value < 0.001 , indicating that the increase in scores is likely not due to chance. This demonstrates that the use of animated videos is an effective strategy in health education to address bullying issues among adolescents.

DISCUSSION

Bullying in schools is a global issue that affects the well-being and emotional development of students in various parts of the world (13,28). The issue of bullying not only directly affects the victims but can also create an unsafe and non-inclusive school environment (29,30). With the increasing prevalence and impact of bullying, it is important to implement effective approaches to educate students about this issue and how to deal with it.

In today's digital era, where cyberbullying has also become a serious concern, this project aims to combine elements of animation with relevant information to engage students of various ages. Animation, as a visual and dynamic medium, has the potential to make messages about bullying easier to digest and more impactful than traditional educational methods.

This research shows that bullying affects students' increased knowledge regarding the social and psychological impacts of such behavior. The study found that students who experience or witness bullying can develop a deeper understanding of its effects on the victims. This increased knowledge includes a better awareness of the emotional consequences, long-term impacts, and the importance of effective intervention. In other words, the experience can encourage students to be more sensitive and proactive in addressing bullying behavior, as well as motivate them to participate in prevention and outreach efforts in their environment.

Several studies reveal that knowledge about bullying includes an understanding of its definition, types, impacts, and ways of prevention and handling (13,31–33). Health education through animated media aims to deepen students' knowledge and facilitate positive attitude changes towards bullying. The evaluation of students' knowledge before and after the intervention is expected to provide insight into the effectiveness of this educational method in raising awareness and understanding of bullying.

In terms of age characteristics, it was found that the majority in this study were 16 years old, with 18 students (58.1%). This study shows that at this age, students have entered late adolescence, during which they are experiencing significant cognitive and social development. Adolescents aged 16 are generally more proficient in using technology and have greater access to information resources through the internet and digital media. This can facilitate their

independent learning and increase their knowledge. In line with this research, several studies state that a person's knowledge is influenced by two aspects: internal and external. The internal aspect that affects knowledge includes age and experience (33–37).

To enhance the implementation of animated videos in education, several challenges need to be considered. First, the variability in technological infrastructure across schools can pose a challenge, as some may not have the necessary hardware to effectively use animated videos. Additionally, reliable internet access is crucial for streaming high-quality animated content, especially in rural or less affluent areas that often face challenges with consistent and fast internet access. Resource limitations, such as limited budgets, also hinder schools from developing or acquiring these educational tools, while the maintenance and updating of animated content requires additional resources that may not be available in all educational institutions.

Furthermore, it is important to ensure that the content of animated videos is culturally sensitive and appropriate to the social context of the students. The process of adapting videos to various languages and cultures can complicate implementation and potentially distort the intended messages if not done accurately. On the other hand, teacher readiness and support in using this technology need to be enhanced through adequate training, including how to integrate animated videos into the existing curriculum. Additionally, variations in student engagement with animated videos and the need for accessibility for students with disabilities are also crucial factors that must be addressed to maximize the effectiveness of animated videos as educational tools.

However, while the application of animated media presents a promising approach to bullying education, there are potential barriers that need to be considered when scaling this intervention. One significant obstacle is the access to technology, which varies greatly across different schools and regions. Not all educational institutions have the necessary technological infrastructure or the financial resources to support such tools. This can lead to disparities in the effectiveness of the intervention, where students in under-resourced schools may not receive the same level of engagement or educational content as those in better-equipped schools.

Furthermore, the success of this intervention heavily relies on the teachers' willingness and ability to integrate new technologies into their educational practices. Teacher training is crucial, as educators need to be proficient in using these technologies and understanding the content they are delivering. Without adequate training and support, teachers might struggle to effectively use animated videos, which can diminish the potential impact of the intervention. Additionally, student engagement can vary significantly, influenced by factors such as individual interest, the perception of relevance of the material, and personal experiences with bullying. Addressing these variables is essential to maximize the reach and effectiveness of the educational content, ensuring it resonates with and is accessible to all students.

The knowledge of students at SMA Karya Bakti Mamboro about bullying before and after receiving health education through animated video media on bullying

Bullying, or harassment, is one of the significant social issues in the school environment that can affect the mental and emotional health of students (13,14). Although various efforts have been made to address this issue, many students still do not fully understand the impact of bullying or the appropriate ways to deal with it. Effective education about bullying can play a key role in raising students' awareness and understanding, which in turn can reduce the prevalence of bullying in schools (38,39).

In this context, animated media has proven to be an effective tool for delivering information in an engaging and easily understandable way. Animation can bring complex situations to life and provide clear visual examples of bullying, helping students to better understand and respond to this issue with more empathy.

This research shows that after receiving health education through animated video media about bullying, there was a significant change, with almost all respondents experiencing an increase in knowledge by 58.1%. According to several studies, knowledge is the result of 'knowing' and occurs after sensing a particular object, as knowledge plays a crucial role in shaping a person's actions (40–42).

This research uses an educational method in the form of animated video, where educational videos as audiovisual media are referred to as health education methods. Audiovisual media can convey understanding and information more realistically through moving images and sound. Animated videos are more appealing than other media because they have a certain attraction that increases curiosity. This medium engages both the sense of hearing and sight. The more senses used to perceive information, the greater the ability to understand the meaning of the information being conveyed. This aligns with several previous studies stating that games or videos are more engaging for Generation 4.0, who are more familiar with and prefer using advanced technology, especially when the videos

feature funny and unique characters (19,20,43,44). The use of digital technology in schools can be utilized as a more varied and modern educational facility for bullying prevention. The use of such technology will have a positive impact on students' interest due to its engaging and non-monotonous presentation. One of the most popular and widely used types of technology is audiovisual technology, including animated videos that can be used to spread information about bullying. According to several previous studies, students who previously had little or no knowledge about bullying now have a better understanding of the concept and prevention methods after being shown the animated video (39,45–47).

Providing knowledge and information through animated videos in this study has proven to increase the knowledge of students at SMA Karya Bakti Mamboro about bullying. This can be seen in the fact that most adolescents experienced a significant increase in knowledge, improving from a poor knowledge level. This is in line with several studies that state the knowledge level is categorized as moderate if the score is between 56-75% (48–50). The changes in knowledge before and after being shown the animated video are due to each respondent having different speeds and levels of comprehension in understanding information. In the context of bullying, animated videos can offer a more effective approach to explaining the dynamics and consequences of such behavior in a way that is more engaging and easier to understand. Animation often has the ability to depict situations and emotions more clearly, enabling students to more quickly and deeply grasp the negative impacts of bullying.

However, due to individual differences in information processing speed and comprehension, not all students will respond to animated videos in the same way. Some students may quickly assimilate the information and show significant improvement in their understanding of bullying mechanisms and consequences, while others may need additional time or further explanation to fully grasp the message being conveyed.

It is also important to remember that variations in personal background, previous experiences, and initial understanding of bullying can affect how effective animated videos are in increasing knowledge. Therefore, the implementation of animated videos as an educational tool should be followed by discussion sessions and additional activities to help reinforce understanding and ensure that all students have the opportunity to absorb and process the information effectively.

With a holistic approach and proper support, animated videos can be a powerful tool in educating students about bullying, helping them recognize the signs, understand its impact, and motivating them to engage in prevention efforts, thus creating a safer and more inclusive environment in schools.

Bullying remains a pervasive social issue within school environments, adversely affecting the mental and emotional health of students. Despite various interventions, a significant gap persists in students' understanding of bullying's impacts and the appropriate responses to it. Effective education on this topic is crucial, as it can enhance awareness among students, thereby potentially reducing bullying incidents in schools. In this light, animated media has emerged as an effective educational tool. By vividly illustrating complex scenarios, animations offer clear and relatable visual examples of bullying, enabling students to grasp the severity of the issue and fostering empathy in their responses.

The use of animated videos in education, particularly concerning sensitive issues like bullying, presents unique challenges that must be carefully navigated. While animations can effectively depict the dynamics and emotional impact of bullying, variations in students' information processing abilities can lead to differing levels of comprehension and engagement. Not all students may respond equally to animated lessons; some might quickly understand and empathize with the content, whereas others may require more time or additional explanatory sessions to fully comprehend the material. Furthermore, personal backgrounds and prior experiences with bullying could influence the effectiveness of animated videos. To address these challenges, it is advisable to complement animated videos with guided discussions and follow-up activities, ensuring a comprehensive understanding across the student body. This approach not only reinforces the lessons imparted by the animations but also accommodates diverse learning paces and styles, ultimately contributing to a safer and more inclusive school environment.

However, although animation has proven to be an effective educational tool, there are potential barriers that need to be considered when implementing this method on a larger scale. One major challenge is access to technology. Not all schools have the facilities or budget to implement advanced technology like animated videos, which can limit the application of this method in some areas. Additionally, teacher training is a crucial aspect; teachers need to be equipped with the skills to integrate this technology into the curriculum and understand the best ways to deliver the material to students. Without adequate support and training, the use of animated videos may not achieve maximum impact.

Variability in student engagement is also an important factor to consider. Each student has different learning speeds and levels of receptiveness to educational media, which can affect the effectiveness of animated videos. Some students may quickly understand and absorb the information presented, while others may require more time or additional explanatory sessions to fully comprehend. Personal backgrounds and previous experiences with bullying can also influence how effective animated videos are in enhancing understanding and empathy towards the issue.

Therefore, it is crucial to complement the use of animated videos with guided discussion sessions and follow-up activities to ensure comprehensive understanding among all students. This approach not only reinforces the lessons conveyed through animations but also accommodates diverse learning paces and styles, ultimately contributing to the creation of a safer and more inclusive school environment.

Implications for Public Health

Enhanced health education strategies, the effectiveness of an animated video in increasing student awareness about bullying provides evidence that multimedia tools can be a valuable component of health education programs. This suggests that incorporating such engaging and interactive resources into curricula may improve understanding and retention of critical information about bullying and its consequences. Scalable solutions, animated videos can be disseminated widely at a relatively low cost, making them a scalable solution for promoting health education across diverse populations. This can be particularly beneficial in reaching students in various geographic locations and socio-economic backgrounds.

Behavioral change and awareness, influencing student behavior by effectively raising awareness about bullying, animated videos can contribute to behavioral changes among students. Increased awareness may lead to a reduction in bullying incidents and improved peer relationships, fostering a safer and more supportive school environment. Empowerment through knowledge, enhanced awareness empowers students to identify and address bullying situations, potentially leading to more proactive and informed actions both in reporting and intervening in bullying cases.

Public health policy and programs, informed policy development the findings from this study can inform public health policies aimed at bullying prevention and intervention. Policymakers can use the evidence of the effectiveness of multimedia educational tools to support the development and implementation of similar initiatives in schools and community programs. Schools and educational institutions can integrate animated videos into their anti-bullying programs, leveraging these tools as part of a comprehensive strategy to address bullying and promote mental health and well-being among students.

Long-Term Outcomes, evaluating the long-term impact of such educational tools on bullying rates and student well-being will provide valuable insights into their sustained effectiveness and guide future public health strategies.

In conclusion, the study underscores the potential of animated videos as a tool for enhancing student awareness about bullying, with implications for improving health education, influencing behavior, shaping public health policies, and guiding future research.

However, recommendations for integrating this approach into school policies or teacher training programs could be expanded. To maximize the effectiveness of animated videos in anti-bullying education, it is essential that school administrations and educational policymakers consider formal integration of these tools into the curriculum. This integration should not only involve the deployment of the videos themselves but also the training of teachers on how to effectively use these resources to engage students and facilitate discussions around bullying.

Further, schools could develop comprehensive anti-bullying policies that incorporate multimedia tools as a central element of their strategy. This approach should include regular updates to the content to reflect the evolving nature of bullying, especially with the rise of cyberbullying. Additionally, teacher training programs should be designed to equip educators with the skills to recognize signs of bullying, use animated videos effectively to teach about its consequences, and handle incidents sensitively and effectively. By embedding these tools into the broader educational and policy framework, schools can create a more consistent and proactive approach to bullying prevention and intervention, enhancing the overall impact on student behavior and school culture.

Limitations and Cautions

The impact observed in the study may not be generalizable to all educational settings or demographics. Variations in school culture, student engagement levels, and individual experiences with bullying could affect how well the animated video influences awareness and behavior.

Assessment tools, the tools and methods used to measure changes in student awareness and behavior may have limitations. Self-reported measures can be subject to bias, and the effectiveness of the video may be influenced by the students' prior knowledge or attitudes towards bullying. Quantitative vs. Qualitative Impact, the study might primarily use quantitative measures to evaluate impact, potentially missing qualitative aspects of student experiences and perceptions that could provide deeper insights into the video's effectiveness.

Relevance and engagement, the effectiveness of the animated video is contingent upon its content being relevant and engaging to the target audience. Variations in the video's appeal, comprehensibility, and cultural sensitivity might affect its impact across different student groups. Follow-up and reinforcement, without adequate follow-up or reinforcement of the video's messages, the initial impact on awareness might diminish over time. Continuous education and support are necessary to maintain and build upon the awareness generated by the video.

Recommendations for Future Research

Sustained impact assessment, conduct longitudinal studies to evaluate the long-term effects of animated videos on student awareness and behavior regarding bullying. Assess whether improvements in awareness translate into sustained behavioural changes and reductions in bullying incidents over extended periods.

Generalizability across demographics, investigate the effectiveness of animated videos across diverse student populations, including varying age groups, cultural backgrounds, and socio-economic statuses. This will help determine how different demographics respond to such interventions and identify any necessary adaptations. Varied Educational Environments: Examine the impact of animated videos in different educational settings, including urban, rural, and international schools, to understand how contextual factors influence the effectiveness of the intervention.

Holistic approaches, study the effectiveness of integrating animated videos with other anti-bullying programs and support systems. Research how combining multimedia interventions with classroom discussions, counselling services, and peer support initiatives impacts overall effectiveness.

By addressing these recommendations, future research can build on the current study's findings, enhancing the effectiveness of animated videos and other multimedia tools in promoting awareness and behavioral change regarding bullying in educational settings.

CONCLUSION

In conclusion, this study effectively demonstrates the significant impact of animated videos on the knowledge levels regarding bullying among students at SMA Karya Bakti Mambo. Initially, the students' understanding of bullying was categorized as poor. However, after the intervention through animated video media, there was a noticeable improvement, with the majority of respondents moving to the moderate knowledge category. The statistical analysis confirms that the use of animated video media significantly enhances the students' understanding of bullying issues.

To strengthen these findings, future research could include longitudinal studies to assess the long-term retention of knowledge and behavior changes concerning bullying. Additionally, comparative analyses could be conducted to evaluate the effectiveness of animated videos against other educational tools. Such studies would provide deeper insights into the pedagogical impacts of various educational media and help in determining the most effective methods for addressing bullying in schools. These recommendations for future research not only underscore the conclusions drawn but also pave the way for more comprehensive strategies to combat bullying effectively.

AUTHOR'S CONTRIBUTION STATEMENT

The role and contribution of the author involved guiding the overall direction of writing this article. This included conceptualizing the article, conducting research, writing the manuscript, and ensuring that the article effectively addresses the issue of bullying.

CONFLICTS OF INTEREST

Disclosure: All contributors have declared that there are no financial interests, affiliations, or personal relationships that could be considered to influence this article. The focus of this writing remains on providing accurate and unbiased information to raise awareness about bullying and its impact on students.

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