

## **Android Application Development based on 2D Animation Video on Cyber Bullying Crimes Related to Threatening and Grooming**

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**Abstract:** The rapid development of technology brings many advantages and disadvantages to all levels of society. This study aims to design, develop, and evaluate the functionality of the development of an Android application based on 2D animation video about cyberbullying crimes related to threats and grooming. This application serves to provide understanding and a fun experience to users because users can gain awareness of the crime of cyberbullying, threats, and grooming. This study is targeted at all levels of society so that they all know what the crime of bullying related to care and grooming is. ADDIE model used in this study involves five main phases, namely the analysis phase, design phase, development phase, implementation phase, and evaluation phase as well as the implementation of the development of this application using Adobe Animate 2020, Adobe Premiere Pro, and Adobe Photoshop software and the overall findings of experts on this study can provide a high level of awareness among the community using 2D animation video. The experts evaluate the functionality of this study involving lecturers and teachers. The research instrument used is a checklist form. The results of the expert's research provide positive feedback on the use of this application and will help all levels of society to recognize cyberbullying-related crimes and grooming. In conclusion, the development of an android application based on 2D animation video on the crime of cyberbullying related to threats and grooming has many benefits that can be given to all levels of society.

**Keywords:** Android Application, Cyberbullying, Threats, Grooming

### **1. Introduction**

Nowadays, the use of Information and Communication Technology (ICT) is often used by the community to facilitate daily work. However, the use of ICT can be misused by irresponsible parties.

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The frequency of ICT use, especially by young people to interact and get information easily and quickly using smartphones is increasing. According to Ismail, Abdul Majid, and Rajan (2021), the passion and eagerness to use communication technology and online relationships are found among school students with the presence of daily relationships and interactions formed among them through text messages, the use of smartphones, and social media sites.

One of the abuses of ICT is cyberbullying. According to Heiman, Olenik-Shemesh, and Eden (2015), cyberbullying refers to online behavior involving electronic media that aims to hurt, embarrass, and insult other individuals or the victims of cyberbullying themselves. While, according to Che Noh and Yusri Ibrahim (2014), cyberbullying is one of the most frequent disturbances, especially among teenagers. Through cyberspace, cyberbullying can be done because it is a safe space to do aggressive actions toward other users.

According to Safiek (2019), cyberbullying is one of the most frequent forms of harassment, especially among today's teenagers who are born and live in an all-digital and technological world. They are a generation that is literate in information technology and is used to using technology tools. However, their familiarity with the use of technology tools does not mean that they are spared from the negative effects of the use of technology tools. Mobile devices such as mobile phones, tablets, and laptops that are used frequently without restriction can expose them to the threat of cyberbullying.

### 1.1 Cyberbullying Crimes Related to Threats

According to a study conducted by Priyadarshini, Gomathy, and Abarimuthu (2020), maintaining cyber reliability is also a concern for microgrids with advanced analytics and resources. The more powerful, the more complex the control algorithm, the greater the risk involved with unexpected or confusing conditions that make it run unexpectedly. Since external entities may not pose this issue, it is not identified as a threat for which a microgrid resilience strategy should be developed.

However, the challenge is to maintain microgrid stability, which is also an important feature. A model developed for the study of cyber threats and investigated by research groups of various technology companies. According to Scholtz (2000), the definition of threat is "an expression or warning of an intention to cause evil, injury, or damage. According to Zhang, Maochao, Gaofen, and Zhao (2021), in the domain of cybersecurity, data mining techniques are not new because they are directly related to the so-called secret sharing, which has been widely discussed.

### 1.2 Grooming-Related Cyberbullying Crimes

Sexual Grooming usually involves the exploitation of women, girls, and children without physical contact from the perpetrator. According to Rahman et al., (2022), before these sexual criminals achieve their goal of manipulating and exploiting children as sexual victims, they will first perform a process known as sexual (sexual grooming) which is a process where individuals prepare the child and their environment before the abuse occurs including gaining access to the child, making the child obedient and trusting them and ensuring confidentiality so that their actions are not exposed.

In other words, sexuality can be said to be the initial step that the criminal or bully takes with the victim by establishing a friendly relationship and subsequently gaining the trust of the victim to do bad things. Furthermore, victims of sexual grooming not only happen to children, but teenage girls are also made victims of this immoral thing.

## 2. Methodology

This study uses a qualitative method that is using interviews with experts to assess the functionality of the developed product. Structured interviews were conducted with three experts using an expert review form. Next, for the development of this application, the researcher has selected the ADDIE model, where this model has five main phases, namely the analysis phase, design phase, development phase, implementation phase, and evaluation phase. According to Juppri and Isa (2016), the analysis stage is the basis for all other stages in the teaching design which aims to identify the objectives, content, suitability to the target and the achievement of the learning and teaching model. This first phase is important in planning the right idea before the developer starts the development of this Android application. Therefore, the results of the analysis carried out by the developer can help in obtaining data for developing this application.

Next, the design phase which is the second phase in this model is a systematic method of planning, developing, evaluating, and managing the learning process (Morrison, 2010). This design must be in line with the application development objectives that have been set. After completing this design phase, the developer can prepare a specific development process to achieve the development objectives as stated in the analysis phase.

The third phase in the ADDIE model is the development phase. According to Branch (2009), the development phase refers to the tools used to create learning materials. The purpose of this phase is to produce and validate learning resources. The development phase also refers to the production phase where the actual construction process of the product is done using digital technology and multimedia principles that are selected based on the analysis of needs that have been identified (Ayob, 2017).

The last phase in the ADDIE model is the evaluation phase. The purpose of the evaluation phase is to evaluate the quality of the product and the development process before and after the implementation process. A common procedure in the evaluation phase is to determine the evaluation criteria, select or develop an evaluation tool and then perform the evaluation (Morrison, 2010). The assessment made is based on several experts selected to test the functionality of the developer's final product and whether it achieves the objectives of the study or not.

## 3. Results and Discussion

The expert evaluation through an expert checklist form (Six experts who are involved in this evaluation). Five lecturers from the Faculty of Technical and Vocational Education (FPTV) and one guidance and counseling teacher at SMK Tunku Mahmood Iskandar. Three experts will evaluate the content design and three experts will evaluate the interface and interaction design. Table 1 shows the result of the content design analysis in the development of this application, all three experts agree on the first item. Next, only two experts agreed with the second item. Next, for the third item until the sixth item, all experts agree on the statements. However, for the seventh item, only two experts agreed with the statement. In addition, on the eighth item, all the experts agreed on the statement. On the ninth item, only two experts agreed with the statement. Finally, on the tenth item, all the experts agreed on the statement.

**Table 1: Analysis of Content Design**

Item	Statement	Frequency	
		Yes	No
1	An android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming provides a clear picture	3	0
2	An android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming is suitable for use	2	1

3	An Android application based on two-dimensional animated videos is easy to understand	3	0
4	The content of the android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming explains the correct information	3	0
5	Android applications based on two-dimensional animated videos produced can be followed well	3	0
6	An android application based on a two-dimensional animated video developed by cyberbullying crimes related to threats and grooming	3	0
7	The understanding of android application based on two-dimensional animated videos about the crime of cyberbullying related to threats and grooming can be understood by society	3	0
8	The content of cyberbullying crimes based on two-dimensional animated videos about threats and grooming is suitable for use	3	0
9	An android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming that is easily understood by the user	2	1
10	An android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming is appropriate	3	0

Table 2 shows the result of the interaction design analysis in the development of this application. The first item shows that all experts agree that the position of the interaction button is consistent. In addition, the three experts also agreed that the interaction button used can work well. Next, the third item, which is the navigation button, uses the appropriate icon to show that all the experts agree. In addition, all the experts disagree on the fourth item, which is the navigation button using the right text size. Next, the fifth item, which is the navigation button using the appropriate text color shows that all three experts agree with the statement. Finally, the three experts disagree on the sixth item, which is that the design of the navigation button used is appropriate.

**Table 2: Analysis of Interaction Design**

Item	Statement	Frequency	
		Yes	No
1	The position of the interaction buttons used is consistent	3	0
2	The interaction buttons used can work well	3	0
3	Navigation buttons use appropriate icons	3	0
4	Navigation buttons use the appropriate text size	0	3
5	Navigation buttons use appropriate text colors	3	0
6	The design of the navigation buttons used is appropriate	0	3

Table 3 shows the result of the interface design analysis in the development of this application. On the text part, the first thing which is the appropriate color of the text shows that all the experts agree. As for the type of font, only two experts. The third item, which is the size of the text, shows that two experts also agree. The fourth item, which is the compilation of the text, shows that the three experts do not agree. The fifth item, which is the type of text, shows that all experts agree. In addition, in the graphic section, the sixth point is high resolution and clearly shows that all experts agree. The seventh item, which is an interesting graphic, shows that only two experts agree. The eighth item, which is the

appropriate graphic color, shows that all experts agree. Overall, the result shows that all experts accepted the interaction design and achieved the standards of product development.

The ninth item, which is the appropriate icon, shows that all experts agree. Next, for the audio part, the tenth item which is the background music shows that all the experts. The eleventh item, which is the audio, clearly shows that only two experts agree. The twelfth item that background music does not interfere with hearing to focus shows that all experts agree. The thirteenth item, which is the resolution of audio and background music is high, showing that all experts agree. In addition, in the video section, the fourteenth item, which is an easy-to-understand animated video shows that only two experts agree with a percentage. The fifteenth item, which is satisfactory video quality, shows that only two experts agree.

The sixteenth item, which is the appropriate video duration, shows that all experts agree. The seventeenth item, which is the organized video journey, shows that only one expert agrees. The eighteenth item, which is the controllable video, shows that all experts agree. Finally, for the animation section, the nineteenth item which is animation conveys information clearly shows that only two experts agree. The twentieth item, the animation, is interesting, showing that all experts agree. The twenty-first item, which is animation, is appropriate, showing that only two experts agree. The twenty-second item that the animation is perfect shows that all experts agree. The twenty-third item that the animation movement works well shows that all experts agree. The last thing, which is the animation movement, is clear, also showing that all the experts agree.

**Table 2: Analysis of Interface Design**

Item	Statement	Frequency	
		Yes	No
1	The text color used is appropriate	3	0
2	The type of font used is appropriate	2	1
3	The size of the text used is appropriate	3	0
4	The arrangement of the text is consistent	3	0
5	The type of text used is easy to read	3	0
6	The graphics used have a high resolution and are clear	3	0
7	The 2D graphics used are interesting	3	0
8	The graphic colors used are appropriate	3	0
9	The use of icons is appropriate	3	0
10	The background music used is appropriate	3	0
11	Audio for animated videos is clear	3	0
12	The background music used does not disturb the hearing to focus	3	0
13	Audio resolution and background music are high	3	0
14	2D animated videos are easy to understand	2	1
15	2D animation video quality is satisfactory	3	0
16	The duration of the video used is appropriate	3	0
17	An organized video journey	3	0
18	Video can be controlled	1	2
19	2D animation produced can convey information clearly	2	1
20	The resulting 2D animations are interesting	3	0
21	The resulting 2D animation is appropriate	2	1
22	The 2D animation design is perfect	3	0
23	The animations work well	3	0
24	The animations are clear	3	0

The discussion in this study is related to the questions that have been stated showing that it has been achieved. These three questions have been achieved and it proves that the android application based on

a two-dimensional animated video about the crime of cyberbullying related to threats and grooming produced has answered all the questions raised. The first and second questions are questions related to the application development process while the third question is a question regarding the design analyzed from the expert checklist.

The first question which is the design of an android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming shows that this question is achieved. Before starting the development of the application, the developer has gone through the first few steps such as preparing storyboards related to the application and cyberbullying crimes related to threats and grooming, which are storyboards on each page from the main display page, manual, main menu, introduction, objectives, threats, grooming, quizzes, credits, and exits related to cyberbullying crimes related to threats and grooming. In addition, the developer has met with three value assessment experts consisting of a guidance and counseling teacher at Sekolah Menengah Kebangsaan Tunku Mahmood Iskandar, Senggarang, Johor, and two lecturers at Universiti Tun Hussein Onn Malaysia (UTHM) to inquire about the effectiveness of the content placed in the developer application whether it is correct or not. In addition, the selection of appropriate software is also important for developers to avoid unwanted problems such as the problem of the application not working when the development process is developed.

The second question, which is the development of an android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming shows that this question is achieved. The development of this application is guided by a storyboard that has been used as a guideline for developers. This Android application has been developed using several software in the development phase. Among that software are Adobe Animate, Adobe Photoshop, and Adobe Premiere Pro. Through Adobe Animate software, developers can prepare movements more carefully such as frames and scenes can turn a movement into an Android application. Adobe Photoshop is used to edit images selected from the website and can be included in the developer's Android application. Adobe Premiere Pro software is used by developers in editing the two-dimensional animation video editing process that has been prepared in advance in Adobe Animate.

Through the third question which is the evaluation of the functionality of an android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming shows that this question is achieved. Based on the results of the analysis obtained, the developed Android application received a positive response from the experts who they encouraged the developer to make corrections for each design phase to obtain a more effective Android application. Overall, the value and design assessment experts agree that the content contained in this application is correct and accurate.

#### **4. Conclusion**

In conclusion, the development of an android application based on a two-dimensional animated video about the crime of cyberbullying related to threats and grooming has many advantages in terms of conveying information to all types of society. This is because cyberbullying crimes related to threats and grooming are not limited to female users only. Therefore, awareness of this type of cyberbullying crime is expected to be curbed at least to protect the good name of all types of society. In addition, improvements are also expected to be made by developers in the future to become more efficient and interactive by considering the suggestions made to produce this Android application effectively and provide clear information to end users.

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