

Design of The 3D Animation Film "Bully" as an Educational Media about The Dangers of Bullying in Elementary School Children

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The 3D animated film "Bully" is designed as an educational medium to raise awareness of elementary school students about bullying, a serious problem in educational institutions that negatively affects both the victim and the learning environment. Through interesting animations and relevant stories, this movie conveys educational messages for children. The manufacturing process uses the Research and Development (R&D) method which includes problem identification, concept development, production, feasibility testing, and distribution. A survey at SDN 139 Palembang showed that many students experienced bullying, both verbal and physical, with the psychological impact felt the most. This movie aims to foster empathy, provide solutions to prevent bullying, and contribute to the creative industry. The animation is expected to be an effective medium in delivering moral and educational messages that are easy for children to understand.

Keywords: 3D Animation, Bullying, Short Film, Violence

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1. Introduction

Bullying is a serious problem that still frequently occurs in elementary schools. This behavior not only negatively impacts the victims but also disrupts the teaching and learning process and creates a hostile atmosphere. Consequently, many children still don't understand the dangers of bullying and how to prevent it. Bullying is defined as aggressive behavior that occurs in school-aged children, resulting in a real imbalance of power [1]. Bullying behavior can occur because the perpetrator gets satisfaction from hurting people who are considered weaker and wants to get attention from the people around them, then another factor is that the perpetrator has a grudge, is jealous or wants to increase the perpetrator's self-confidence [2]. Bullying or harassment is a form of violence in which psychological or physical coercion occurs against a weaker person or group by a person or group of people.

The increase in acts of violence between children is caused by television shows and games that show acts of violence and bullying or harassment which are then imitated by children, such as in soap operas, visualizations of violent news, and violent games [3]. One of the growing problems in schools is bullying behavior among students. Bullying often occurs at the hands of seniors or upperclassmen. Upperclassmen or seniors pressure their juniors, using fabricated excuses to rationalize violent acts [4]. Children learn bullying behavior by imitating it, practicing it on their friends [5]. Psychologically, bullying can have negative effects on victims, such as low self-esteem, depression and long-term trauma [6].

The high number of bullying cases in the world of education in the country has made Indonesia the fifth highest contributor to bullying cases in the world out of 78 countries. Reported from the Programme for International Student Assessment (PISA) survey data, it shows that 42% of students in Indonesia aged 15 years old experienced violence and bullying within a period of one month, 14% experienced threats, 15% experienced intimidation, 18% experienced physical violence such as beatings and pushing, 19%

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experienced kidnapping cases and 22% of students in Indonesia experienced bullying through insults [1]. Furthermore, the Indonesian Child Protection Commission (KPAI) in 2019 revealed that the majority of bullying cases against children occurred in elementary school students. KPAI recorded 25 cases, or 67 percent. Although various preventative measures have been implemented, such as urging schools to provide better protection for students, this problem remains persistent. A 2024 survey at SDN 139 Palembang confirmed cases of bullying in the form of physical and verbal violence. These survey results align with KPAI data, indicating that bullying remains a serious problem in elementary schools. Feelings of superiority often trigger bullying. Although preventative measures, such as reprimands from teachers, have been implemented, more comprehensive measures are still needed to address this problem.

Public understanding of the impact of bullying in schools is still very lacking, because many people think that bullying is a common occurrence and should not be taken seriously [7]. Various methods are used to minimize bullying incidents in schools, including the National Commission for Child Protection urging schools to better protect and pay attention to their students, while bullying is simply part of how children play. The implementation of Law Number 23 of 2002 concerning Child Protection, Article 54 stipulates "Children in and around schools must be protected from acts of violence committed by teachers, school administrators or their friends in the school concerned, or other educational institutions."

The increasing number of bullying cases among children, coupled with the rapid development of 3D animation technology, can open up significant opportunities for the development of educational animated films as an alternative solution to address the issue of bullying through animated films. 3D animated films about bullying serve not only as entertainment but also as an effective tool to raise children's awareness and understanding of the harmful effects of bullying. With engaging visuals and inspiring stories, animation can reach children emotionally and encourage them to be more empathetic and courageous in standing up against bullying. Furthermore, the production of educational animated films can positively contribute to the creative and educational industries, opening up opportunities for collaboration between various parties, such as schools, social organizations, and filmmakers.

The increasingly complex problem of bullying requires creative and effective solutions. 3D animated films like "Bully" offer a unique approach to addressing this issue. With its relevant storytelling and relatable characters, animation can help children understand the perspectives of both victims and perpetrators of bullying. Furthermore, animated films can convey positive messages about the importance of empathy, courage, and cooperation in overcoming problems. Films can be an effective medium in addressing and reducing bullying behavior [8]. The development of animated videos as a tool to educate children about preventing bullying behavior in elementary schools is an important step in efforts to create a safe and inclusive learning environment [9].

This research is a development of Wulandari's study which highlights the problem of bullying which impacts children's mental health and the importance of education to prevent it [10]. This study notes that bullying is a serious issue in educational settings and requires special attention. Another relevant study examined the use of educational videos as a medium to prevent verbal bullying in elementary schools, which showed that animated videos can be an effective tool in conveying bullying prevention messages to students [11].

Based on a review of previous research, there are several interesting research gaps to explore further regarding the effectiveness of 3D animation in preventing bullying. Although research has shown that animation can be an effective educational tool, further research is needed to compare the effectiveness of 3D animation with other educational media, as well as to explore the factors that influence the success of animation-based interventions. Furthermore, existing research tends to focus more on specific types of

bullying and has not comprehensively examined the effectiveness of animation in preventing various forms of bullying. Therefore, further research needs to consider various types of bullying, the characteristics of diverse students, and the long-term impact of animation-based interventions. Therefore, the author developed a short 3D animated film as an educational medium for handling bullying by introducing the negative impacts of bullying behavior. This author hopes that this work can serve as a reference for future authors who focus on the use of animation media in educational institutions in Indonesia.

2. Literature Review

Animation

According to Thomas & Johnson in their book "Disney Animation: The Illusion of Life," animation is the art of bringing images to life with a sequence of actions projected onto a screen at a constant speed. Animation isn't just about making objects appear to move, but also about how animations have life and connect emotionally with the audience. Meanwhile, animation is defined as the art of drawing movement because it requires a deep understanding of movement and how it can be applied to images [12]. Animation, according to Ibiz Fernandez in his book Macromedia Flash Animation & Cartooning: A Creative Guide, is the process of recording and playing back a series of still images to achieve the illusion of movement. Literally, animation is the attempt to give movement to objects that are not naturally moving. Waeo states that animation comes from the word "to animate," which means to move or bring to life. For example, an inanimate object is moved regularly to give the impression of life. Meanwhile, according to Awulle, animation is a moving image consisting of a collection of objects (images) arranged sequentially with a predetermined movement path [13].

3D Animation

Chris Broomhall stated that in computers, 3D is described as an image that has depth. Meanwhile, Aditya, 3D animation is animation that is 3D. Although not in actual 3D form, that is, not a 3D object that can be touched and felt physically, but in 3D form on a 2D glass screen (TV screen media, cinemas, computers, projectors, and similar media). 3D animation besides having these two dimensions also has depth (Z). 2D animation is flat, while 3D animation has depth (volume) of form. 3D animation can be defined as animation that can be seen from various points of view [14].

Principles of Animation

Animation, as a moving visual art form, comes in various types such as 2D, 3D, stop motion, traditional, motion graphic, and clay motion. Each type has its own unique characteristics and production techniques. To create lively and engaging animation, animators refer to 12 principles of animation including solid drawing skills, timing, anticipation, ease in & ease out, arch formation, secondary action, squash and stretch, exaggeration, follow-through and overlapping action, two main techniques in animation creation (straight ahead and pose to pose), character placement in the frame (staging), and overall visual appeal (appeal). [15]. By understanding and applying these principles, an animator can produce animations that are not only entertaining, but also have high artistic quality.

Bullying

Bullying is defined as unpleasant behavior, whether verbal, physical or online, that makes someone feel uncomfortable, hurt and depressed, carried out by an individual or group, so that bullying usually involves an imbalance of power between the perpetrator and the victim, where the perpetrator often has stronger physical and emotional strength than the victim [16]. Meanwhile, bullying actions have characteristics of the victims, perpetrators and witnesses of bullying [17]. Bullies are typically larger and stronger than their

peers, leading to hurtful or demeaning behavior toward the victim. Bullying victims often exhibit characteristics such as physical weakness, shyness, and a lack of social interaction. Victims tend to submit to the bully's influence. Witnesses or observers of bullying often observe the bully's behavior toward the victim. This is due to fear of becoming the next victim, leading to feelings of guilt later on. The effects of bullying include anxiety and trauma, and bullying can lead to fear in victims, leading to avoidance of communication. Bullying also affects victims' trust in others, making it difficult for them to trust and open up to others. These effects can persist into adulthood for both the bully and the victim. [18].

Relevant Research

Relevant research, entitled "Designing the 2D Animated Short Film 'Broken' as a Message Delivery Medium," discusses social issues surrounding bullying [19]. The media designed by the author to convey the message of the dangers of bullying in the form of a 2D animated film. This author became a reference for this design in terms of using animation as an effective medium in conveying bullying messages to elementary school children. While the research entitled Animated Film "Nussa and Rara Episode Baik itu Mudah" as a Means of Character Building in Early Childhood which discusses the character values in Early Childhood from the Nussa and Rara film, including: religious, social care, curiosity, environmental care, hard work, appreciating achievement, they are invited to absorb and apply in everyday life [20]. This research is a reference for the author on how to instill character values in elementary school children.

3. Design Methods and Analysis

Research and Development (R&D)

In this research and development (R&D) method, the author uses it to produce specific products. In this study, the main problem lies in elementary school educational institutions, where cases of bullying are the primary reason for designing and developing a 3D animated short film entitled "Bully" as an educational medium about the dangers of bullying.

There are several stages of research and development, in brief consisting of 10 steps as follows: (1) Potential and problems, identifying existing potential and problems faced that are relevant to the development of the product or solution produced. (2) Data collection, collecting information or initial data that is relevant to the problem or potential that has been identified. Such as literature studies, surveys, interviews or other data collection methods. (3) Product Design, designing the initial product or model that will be developed. In product design, it must be realized in working drawings, so that it will be easier for other parties to understand it. (4) Design Validation, the process of assessing whether the product design is feasible or not, in this case, several experts or experienced specialists can be brought in to assess the new product being designed. (5) Design Revision, improving the design that has been discussed with experts and specialists to improve weaknesses to be reduced by improving the design. (6) Product trials, testing carried out by experiment, namely by comparing the effectiveness and efficiency of the old work system with the new one. (7) Product revision, making improvements or refinements to the product based on the results of the product trials carried out. This revision is carried out so that the product becomes better and is ready to be tested on a larger scale. (8) Trial usage, testing the product on a larger scale to determine the effectiveness of the product. (9) Product revision, the final revision of the product based on the results of the trial usage. (10) Mass production, the final stage of the product being developed on a mass scale and distributed so that it can be used by a wider target audience [21].

In the R&D stage, the author modified the design stage developed by previous experts. There are 5 stages that the author developed to design animated short films, namely: (1) Problem identification: the initial stage where problem analysis is carried out. The goal is to collect data through observation, interviews, and

surveys. (2) (Development of ideas and concepts: producing concepts, stories, character designs to making animatic storyboards. (3) Animation development: entering the stage of making modeling, texturing, rigging, to rendering from ideas and concepts that have been developed. (4) Feasibility Test: testing the product directly with the Supervisor or related parties in one forum. By consulting to get feedback on the results developed. If problems are found or there is something that needs to be improved, the product will be revised and perfected based on the input received. (5) Distribution or dissemination: animated films are distributed commercially or free of charge for public use.

Framework

This framework, which describes the five-step process of the R&D approach to problem-solving, 3D animation development, and final product publication, consists of five stages. The following illustrates the stages used:

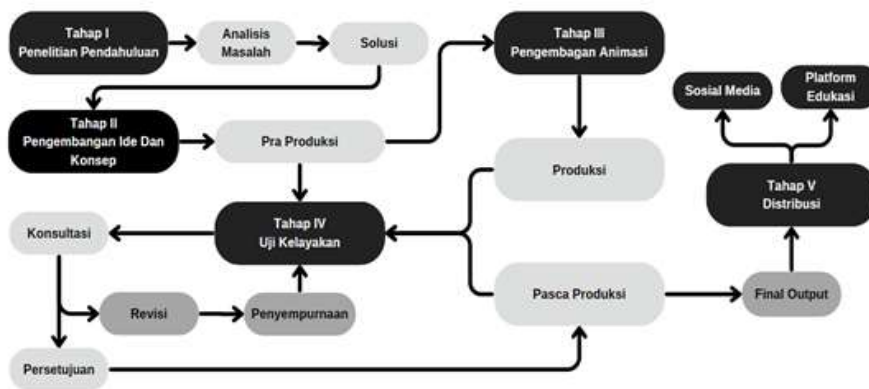


Fig. 1. R&D Method Thinking Framework

There are several stages that must be completed in the animation creation process to achieve optimal results. These stages begin with determining the story concept and character development, and creating a storyboard. Once the concept is established, the next steps are modeling, rigging, animating, and finally rendering. Next, we'll illustrate the stages involved in creating the 3D animation "Bully."



Fig. 2. Production Pipeline for 3D Animation

4. Results and Discussion

This section discusses the process and outcomes of producing the hybrid animation. Preproduction is the first stage undertaken in creating the animation 'Dating from an Islamic Perspective.' This stage is divided into several steps Pra Produksi. Script, The story theme that has been determined is related to an Islamic narrative. The story created contains Islamic elements. Through this story, it is expected to provide moral lessons and be beneficial to the audience.

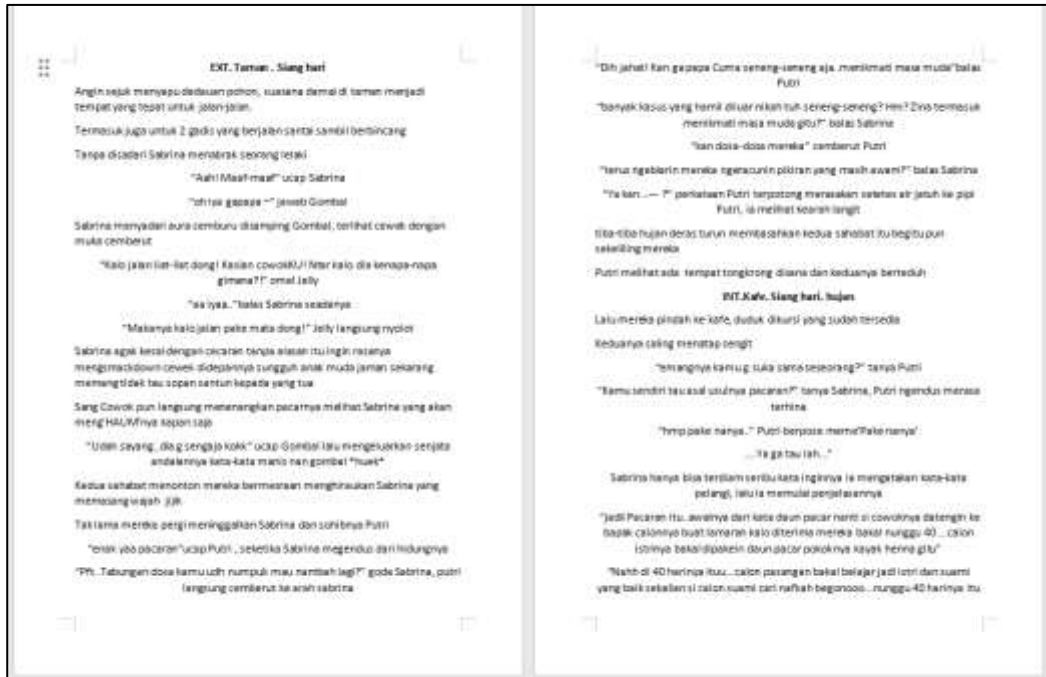


Fig. 2. Script

Storyline, This is a crucial initial stage for determining the story to be animated. The storyline serves as a reference for creating subsequent scenes and ensures that the story to be conveyed is clear and well-directed.

Skeno	Message	Visual effect	Music/Sfx	Perkiraan Durasi
Opening Title	"Panas. Panas. Panas! Agak Panas!"	Yes	Music background	3 detik
Opening 1	Angin sepoi sepoi di taman pedesaan, suasana damai di taman menjadi tempat yang tepat untuk jalan-jalan.	Frag Eye	Music background	3 detik
Opening 1	Terlihat juga untuk 2 gadis yang berjalan santai sambil berbicara.	Medium shot Medium Close up	Sfx Langkah kaki Music background fade out	2 detik
Opening 1	Tanpa disadari Sabrina menabrak seorang lelaki.	Medium long shot	Sfx tabrak	2 detik
Opening 1	"Aah! Maaf maaf!" "Oh iya gapapa."	Medium long shot	Voice over Sfx karnasi	3 detik
Konflik 1	Sabrina menyadari aura cemburu di samping Gombal, terlihat cewek dengan muka cemberut.	Medium shot	Sfx	3 detik
Konflik 1	"Kalo jalan-lal-lal-dong! Kapan cowokku? Ntar kalo dia kenapa-kenapa gimana?" omel Jelly	Medium shot Sambil dia Part panung ke Sabrina	Voice over	4 detik
Konflik 1	"Ya iya..". "Talo Sabrina seadanya."	Medium shot Sambil dia Part panung ke Jelly	Voice over	1 detik
Konflik 1	"Makanya kalo jalan-pake mata dong!" Jelly langsung nyolot.	Medium shot Sambil dia Part panung ke Sabrina	Voice over	2 detik
Konflik 1	Sabrina agak koral dengan ucapan Jelly alasan itu ingin supaya mengkonfirmasi cewek. Sedangkan Jelly sungguh anak muda jaman sekarang memang tidak mau sopan santun kepada yang tua.	Medium shot	Sfx persiapan	1 detik
Konflik 1	Sang Cowok pun langsung menanggapi pacarnya melihat Sabrina yang akan meng HAIN-nya kapan lagi?			
Konflik 1	"Udah sayang.. dia g' seneng kok!" ucap Gombal lalu mengeluarkan senjata antikennya kata-kata mulai mengambil "huak"			
Konflik 1	Kedua sahabat menonton mereka bermelekan mengira Sabrina yang melolong wajah J&B.			
Konflik 1	Tak lama mereka pergi meninggalkan Sabrina dan sahabat Putri.			
Konflik 1	"enak yoo pacaran!" ucap Putri.. setelah Sabrina megerok dari hidungnya.			
Konflik 1	"Pff.. Tabungin dosa kamu udh numpuk mau nantah lagi?" gode Sabrina, putri langsung cemberut ke arah Sabrina.			
Konflik 1	"Dih jahat! Kan gapapa Cuma sebang-umeng aja.. menimati masa muda!" balas Putri			
Konflik 1	"Banyak kasus yang terjadi di luar rumah tuh? sebang-umeng? Hm? Divo bener-bener menimati masa muda gitu?" balas Sabrina			
Konflik 1	"Ikan dosa-dosa mereka" sambur Putri			
Konflik 1	"Terus ngabarin mereka ngeracunin pikiran yang masih awam?" balas Sabrina			
Konflik 1	"Ya kan...?" perkataan Putri langsung meredakan setelah air jatuh ke pipi Putri, ia melihat ke arah langit.			
Konflik 1	Sisa-sisa hujan deras turun membasahkan kedua sahabat itu begitu pun sehabis mereka.			
Konflik 1	Putri melihat ada tempat tongbrong di area dan keduanya bereduk.			
Konflik 1	INT. Kafe, Siang hari, hujan			
Konflik 1	Lalu mereka pindah ke kafe, duduk dikursi yang sudah tersedia.			
Konflik 1	Keduanya saling menatap lengit.			
Konflik 1	"Semangnya kamu g' tuka siapa sebang-umeng?" tanya Putri			
Konflik 1	"Tamu sendiri tau soal usulnya pacaran?" tanya Sabrina, Putri nganduk merasa tertawa.			
Konflik 1	"Temp pake nanya..?" Putri berpose memaki "kalo nanya.."			
Konflik 1	"Ya ga tau lah.."			
Konflik 1	Sabrina hanya bisa tertawa terlihat kata ingusnya ia mengeratkan kata-kata pelangi, lalu ia memaki sehabisannya.			
Konflik 1	"Jadi Pacaran itu.. awalnya dari kata daun pacar hari ini cowoknya ditangin ke bapak.. calonnya buat tomahan kalo diterima mereka bakal nunggu 40... calon istrinya bakal dipakein daun pacar pokoknya kayak henna gitu"			
Konflik 1	"Nahh.. di 40 harinya itu.. calon pasangan bakal belajar jadi istri dan suami yang baik sebelum si calon suami cari nafkah begono.. nunggu 40 harinya itu.."			

Fig. 3. Storyline

Character Concept. The character concept in this project involves four characters. To design these four characters, Medibang Paint software was used.



Fig. 4. Character Concept

Storyboard, A storyboard consists of drawings that convey ideas, providing an overall depiction of the story to be produced [22]. The role of the storyboard is to provide advantages to the user by allowing modifications to the storyline, thereby creating a deeper impact.

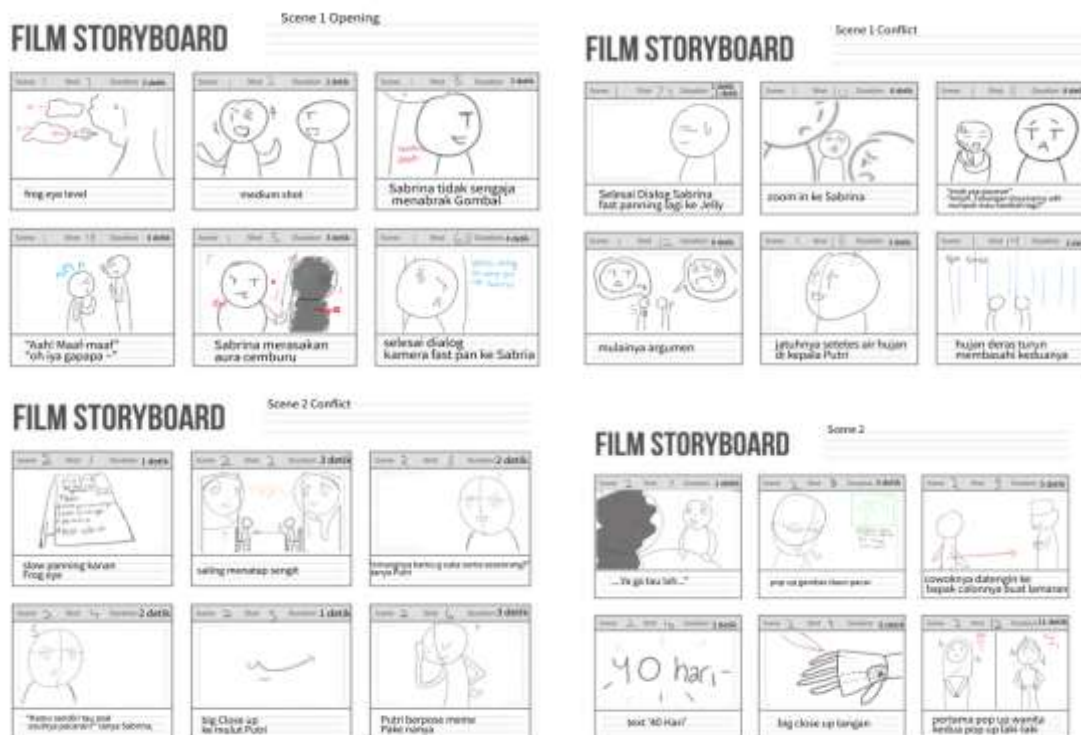


Fig. 5. Storyboard

Voice over, The technique of recording or producing voice is used to orally convey information, which is then integrated into the animated video. In this final project, all character voices are performed by a single person. Sound Effect, Sound effects are added to create a dramatized atmosphere and make the audio more engaging, while also emphasizing the information being conveyed. Typography, The font used for subtitles is Verdana to ensure viewer comfort while reading. Background Modelling, Modelling begins with a cube and progresses by moving nodes in and out to create larger, smaller, or more complex structures or meshes.

Another method involves using curves to create objects such as walls and flat surface [23].



Fig. 6. Modelling Background

Color Scheme, The color scheme is used in various design disciplines, such as fine arts, interior design, and graphic design, to achieve aesthetic goals and effective visual communication.

Production

The production of the hybrid animated film about dating from an Islamic perspective was carried out through the following production processes: (1) Layout: Layout work was performed using Toon Boom. After rendering the 3D backgrounds designed according to the character positions, line art for the characters was created in Toon Boom. (2) Key Motion: The next stage is key motion, where the movement of the characters is created from the initial and final key positions. (3) In-between: To make the character movements appear smooth and lifelike, additional key frames are inserted between the initial and final keys. (4) Clean-up: The final stage of production involves refining all character movements and character designs.

Post-production

The post-production of the hybrid animated film about dating from an Islamic perspective was carried out through the following stages: (1) Compositing: After rendering all the animations created in Toon Boom, the rendered outputs are combined in After Effects. (2) Editing: In this stage, the rendered outputs are synchronized with the sound effects (SFX) and voice-over recordings that have been prepared. (3) Rendering: The final stage, rendering, involves combining all the rendered animation with the edited audio to produce the complete film.

5. Conclusion

The hybrid animated film tells a story about dating from an Islamic perspective and is intended for Muslim adolescents. The purpose of creating this film is to provide a warning that dating is not part of Islamic culture and is strictly prohibited for every Muslim. Through this animated film, it is hoped that viewers can understand the consequences of violating religious teachings regarding relationships between men and women. The resulting animated film can also provide benefits to the general public, particularly in enhancing understanding of Islamic values related to male-female relationships. By utilizing hybrid animation technology, the film is expected to attract attention and provide a better understanding to viewers, especially young Muslim audiences. The author recommends avoiding all forms of sinful behavior that contradict Islamic teachings, emphasizing the importance of safeguarding oneself from actions that lead to

sin, in accordance with Allah's commandments.

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