

## TALKING KRISHNA – DEVELOPING 3D CHARACTER OF KRISHNA

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### ABSTRACT

*The Children who are born in the latest generation are called the Z and Alpha generations. These generations are the ones closest to the Internet and technology. The current advance of technology makes global connections even more widespread so that the need for an international language to communicate is also urgently needed. Therefore, an interactive educational application that uses English as the international language was created using Krishna's character as the main character. This interactive application is named Talking Krishna. This character of Krishna was designed as attractive as possible so that children can easily grasp the knowledge offered by Talking Krishna. Besides, Krishna's character will deliver some of the moral values that are believed can improve the children's character building. Krishna's character is made by utilising 3D animation with Cinema 4D.*

**Keywords—** 3D animation, 3D modelling, Krishna

### 1. INTRODUCTION

In today's sophisticated era, education plays the most important role in the development of a nation. Education is considered as a community capital to build a foundation concerning the development and growth of this nation. Nowadays, the competition to open "international" classes with various names has been started from kindergarten to higher education program. From the level of kindergarten to high school or the equivalent, there are those who use the name immersion class, bilingual class, and International Standard School Stubs. Apart from these diverse names, the program was created with the aim that later school graduates in Indonesia can compete globally. The government also supports the

existence of this international standard educational movement by issuing the regulation of National Education System Law No. 20 of 2003, Article 50, Paragraph 3 (Suharso, 2014).

The knowledge, understanding and experience of education in elementary schools always need to be refreshed and enriched, given the knowledge and concepts of education in elementary school are the result of dynamic human thinking, changing because of the influence of the situation and living conditions of humanity in general. The concept of education is always changing along with the demands of the times and civilization of humanity in the world in various aspects of life (Taufiq, 2014).

Alpha generation (or Gen A) are children who are born from the millennial generation. A social researcher and speaker, Mark McCrindle delivered the term Alpha generation is a continuation of the Z generation [familyguide, 2018]. The Z generation is a generation that is getting familiar with the Internet. McCrindle mentions that as many as 2.5 million children Alpha Generation were born in the world every week [familyguide, 2018]. Gen A is the most familiar generation with the internet. McCrindle also predicts that the Alpha generation cannot be separated from gadgets, lack of socialisation, lack of creativity, and also they will be individualistic. Most of them want to do the things that are instant and less appreciative of the process [familyguide, 2018]. Because the final generation of Z is too close to Alpha Generation, they have the similarity of characteristics.

Dr. Neil Aldrin, M.Psi, a psychologists argued that Gen A will behave more materialistically, as they tend to be in technological development era. They also think very practically, are less concerned about values, and more selfish than previous generations [familyguide, 2018]. This rapid technological development in the future will undoubtedly affect them, such as how their learning style, materials learned at school, and their daily association or communication with others.

The learning style of Gen A, which is the closest generation to the Internet, makes them rely on technology, one of which is the gadget. Such dependence causes children in this generation to be more individualistic and selfish because of the lack of association directly. In addition, to changes in learning styles and association, the material learned in school will also change. One of the most influential material is English because one of the factors is the number of technology currently based on English.

In fact, technology can have many positive effects on a child's development if it used properly and through parental supervision over the time of use and the content or game that the child can use [Delima et.al., 2015]. One of the technological developments that can be utilised today is a play application that can also provide education in it [Delima et.al., 2015]. Children's favourite games are games with instructions that can be easily understood and adjusted to the

child's abilities. In addition, the game must have a visualisation of characters that attract children [Rante, Schelhowe, Lund, 2015].

Thus, an interactive English-based educational application is created using the Cinema 4D to create the 3D main character, Krishna. The character of Krishna is used for educational media in order to attract children's interest in learning and improve children's understanding of the material submitted [Utami, 2011]. Therefore, the character of Krishna will be made as attractive as possible, so that children can be more interested in the characters inside. Krishna character is one example of the character of the east culture that can help the delivery of some moral values that have been lost because the negative impact from development of technology. This character is also adapted to Indonesian children who have a tendency towards East culture. It is hoped that children in this generation can understand about moral values and can apply them in their daily activity.

One of program that always being used to achieve international competition is the use of English as the language of instruction in schools. Even the kindergarten and elementary school students now have been taught English intensively to improve the level of education in Indonesia. Teaching early childhood education has many benefits, among which children can learn more efficiently and gain more knowledge through activities that can be more interesting to learn, through arts, musics, sports, and any other interactive activities, then the content given early is easier to be embedded than when they are adults.

Therefore, in order to motivate Indonesian society about competing globally without having to be limited by language barriers, an interactive English-based application is created. The application is a game that utilizes voice recognition technology as an implementation of the practice of speaking English. It can train the ability of the user to practice speaking English well and correctly. In addition, the introduction of Krishna's character of this application is also a means to help convey some moral values that have been lost due to current technological developments. Krishna character is a god who is respected by Hindus and becomes a model for many people. That way, it is expected that children in this generation can understand moral

values and can apply them in their daily lives, also can keep abreast of technological developments that exist with English language training that has been trained early.

## II. RELATED WORKS

Talking Tom is a game for children, which presents the figure of a male cat that become the user's virtual pet. Talking Tom offers many exciting features; one of them is ability to imitate the voice of the user. When the user says a word or a sentence or even if user only screaming, Tom repeats it. This feature uses voice recognition, where the user says something then the application will capture the sound. Talking Angela is similar to Talking Tom, except that Talking Angela is presenting a female cat character.

The different between Talking Tom, Talking Angela and Talking Krishna is to the environment. The environment of Talking Krishna will be shown with three stories, according to a web book. Then, the story of Krishna is taken from "Krishna Tales" story. The visual of Krishna will be shown in "Krishna Tales", because this web book is equipped with some images of Krishna and images of some stories of Krishna.

## III. RESEARCH METHODS

The methodology that used in this paper is divided into three points, they are pre-production, production, and pra-production.

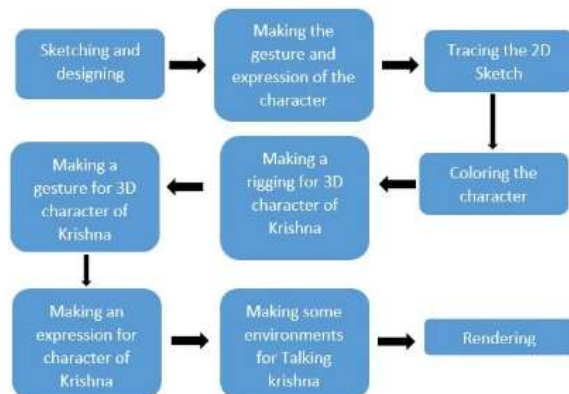


Fig 1. The methodology

The pre-production, there are sketching and designing, making the gesture and expression of the character in 2D. Then, the production, there are tracing the 2D sketch into 3D by using Cinema 4D, coloring the character, making a rigging for the 3D character of Krishna, making a gesture for the 3D character of Krishna, making an expression for the 3D character of Krishna, the last is making some environments. Then the post production is rendering

### A. Sketching and Designing

At the first step, a Krishna character will be sketched and designed in 2D. This character will be made following the Krishna character's reference to his story, such as his wavy hair, his dark blue skin, there is a feather in his hair as an accessory, and yellow dhoti only.

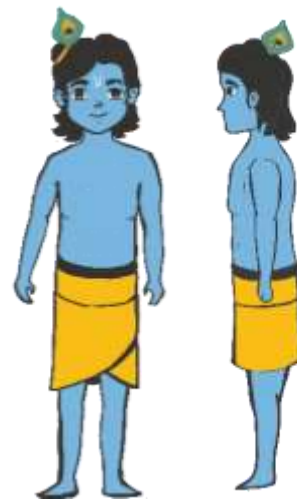


Fig 2. 2D character of Krishna

For making a 3D character, it needed to make a 2D design to make it easier. This design is edited by using Adobe Illustrator. From the Fig 2, Krishna is made in two versions, front and side view. It will make it easy when want to imagine how Krishna looks like in 3D version.

### B. Making the gesture and expression of the character in 2D

At this stage, any gesture design and expression will be created for Krishna's character. Krishna expressions that will be made include: sad, happy, lazy, and angry.

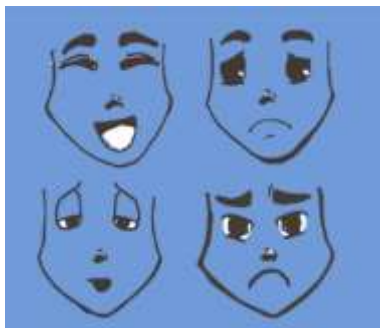


Fig 3. 2D expressions

After that, the Krishna movement will be made small movements that follow the expression of the character. There are four gestures that have been made.

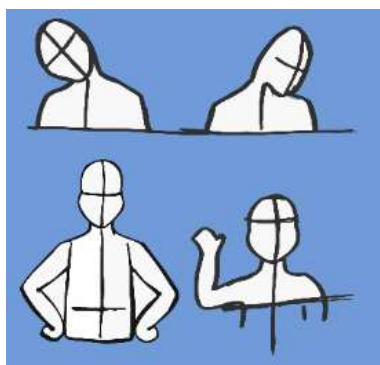


Fig 4. 2D gestures

Then, matching the expressions and gestures for the Talking Krishna.

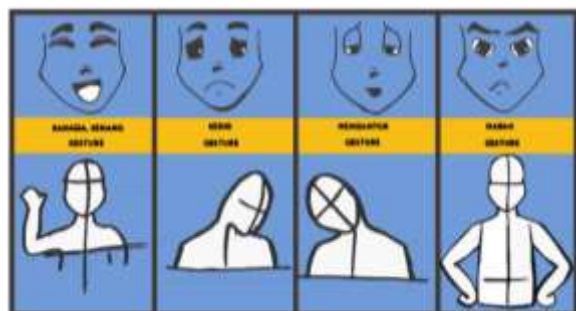


Fig 5. 2D expressions+2D gestures

This expression will be used to create expressions that complete the Krishna character in 3D.

### C. Tracing the 2D sketch into 3D by using Cinema 4D

At this step, will be tracing Krishna characters using Cinema 4D software in accordance with the sketches that have been made before. Sketch images will be made front and side look to facilitate the tracing process.

Tracing will be following the 2D characters that have been made.

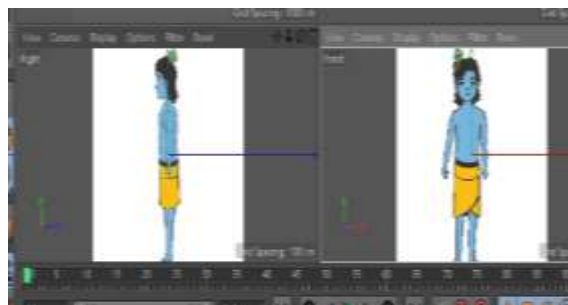


Fig 6. Front and side in Cinema 4D

In Cinema 4D, there are three parts for 2D shape images, there are front, left / right, and top. However, this time only needed the front and right side, because it is enough to be able to make a 3D character.



Fig 7. Front and side in Cinema 4D

### D. Colouring and Character

After making the character, it can start for colouring the character. The colouration is adjusted to the character of Krishna in general and in accordance with the existing story, such as

Krishna with the dark blue skin and black hair and Krishna is wearing a yellow dhoti.



Fig 8. Colouring the character

When colouring Krishna's character, it is necessary to adjust with Krishna's story. This Krishna's character will be adjusted to the storybook entitled Krishna Tales

#### E. Making a rigging for the 3D character of Khrisna

After finished tracing and colouring Krishna's character, it will begin to make a rigging on Krishna's character. This rigging is functionalized for making Krishna's character that can be quickly moved and it can give some gestures. In Cinema 4D, to make rigging an object can use two ways. The first way is to use the "Joint Tool". By choosing this tool, we can manually rig following the object's shape according to what we want.

The second way is to select the "Character" tool. This tool is easier because in this tool there are several choices of rigging forms that we want to suit the intended object that user needs. Besides, in this tool, we can direct the rigging area according to what we want.

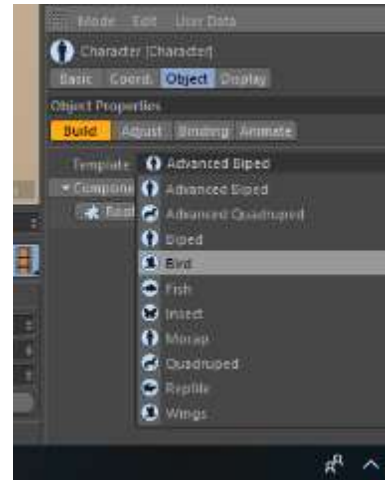


Fig 9. Character Tool

In Cinema 4D, for rigging an object can use two ways. The first way is to use the select tool "Joint Tool". By selecting this tool, we can be manually rigging to follow the shape of the object in accordance with what we want.

The second way is selected the "Character" tool. This tool is easier because in this tool has been available several options rigging forms that we want in accordance with the shape of the object. Besides, in this tool, we can direct the rigging area in accordance with what we want easily.

In Figure 9 is how to make a rigging using the tool "Character". First, select "Character", after that select object that you want to be rigged, and we can choose the component from everybody part of the object that will be given a rigging.



Fig 10. Rigging

After selecting the kind of objects that will be rigged and have determined the components to be



used, rigging can be done according to the character, following the body shape of the object.

F. Making a gesture for the 3D character of Krishna

After the step of making a rigged has been completed, it starts to make a gesture that will be suitable to the concept that has been made.

Making a gesture on a 3D character can be set easily by changing or rotating one of the points we want to move.

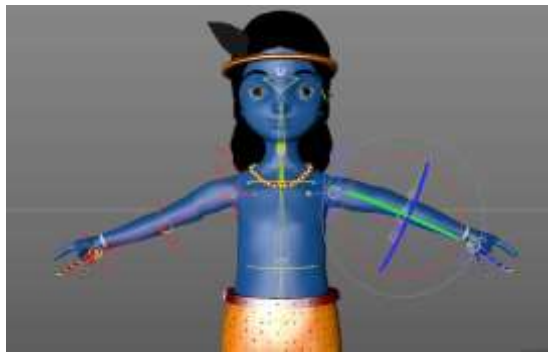


Fig 11. How to move the position of gesture

In fig 13, it can be seen that at the point that we want to move, can be done by giving the rotation at the point.

G. Making an expression for the 3D character of Krishna

At this step, the expression will be made by adding a point to the area that needed to form an expression. This expression will be made in accordance with the pre-made design.

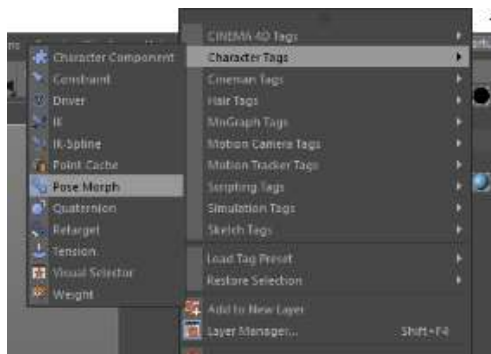


Fig 12. Pose Morph Tool

In making an expression, the tool that can be used is "Pose Morph". The purpose of this "Morph Pose" is to record the movements or poses of the characters from the beginning of the poses to the end of the poses of each point that have been being moved.

After selecting the Pose Morph tool, there will appear several options. Then, select the "point" tool in the mixing section to record the character pose on each point.

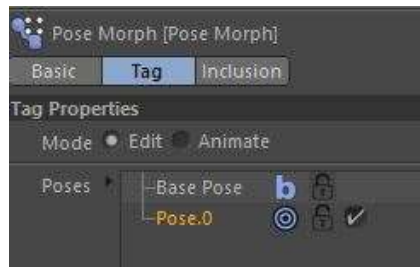


Fig 13. Pose Morph

In the tool point, it will appear as shown above. There is a base pose and pose. The difference between these two parts is in the base pose, to show the initial pose that we have made before doing specific movements on the object. Whereas in the pose. 0 is the part when the object has carried out the process of movement. Pose.0 can be given a different name according to the pose created.

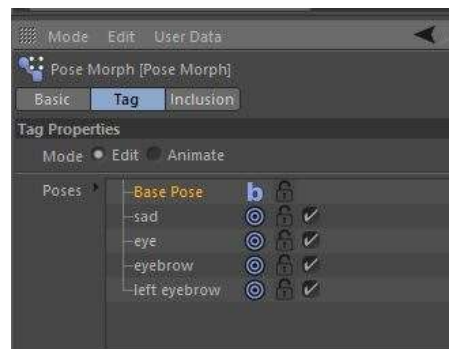


Fig 14. Give a name for pose morph

The different names for each pose made aim to make it easier to distinguish each pose movement.



Fig 15. Example expression

After giving a name for each pose that will be made, then it starts to make an expression movement, by selecting the points of the object to be moved, as in the picture above. When the point starts to move towards the desired direction, we can start to move the record. After recording the movements on the object, the pose will be stored in the part of the pose that has been named.

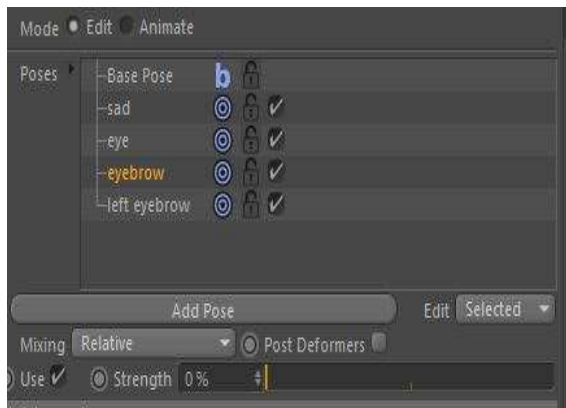


Fig 16. Pose record

In the picture above, it shows the poses that have been recorded. When strength is moved to 100%, automatically the poses that have been created will appear on the object without having to move the dots on the object again, because the pose has been recorded. Each pose will be recorded on the pose morph and each motion of the object will be in accordance with the motion made and will be stored automatically.

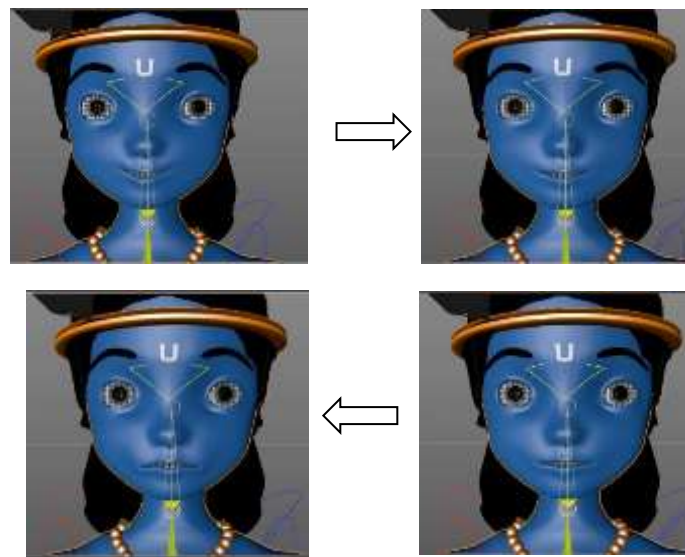


Fig 17. Expression of Krishna

The expression that has been made will be adjusted to the sketch that has been made.

#### H. Making Some Environments

Besides created a character to complete the visual of Talking Krishna, it needed asset that will complete the character, such as the environment. The environment that has been created will be adapted to the storyline of Krishna. All the stories will be taken to the existing Krishna story. The three tales that will be taken are "Krishna and the Govardhan Mountain", "Krishna and Kaliya", and "Krishna and the Cow of Gokul" [Krishna Tales, 2018]



Fig 18. Environment

The three stories that have been chosen take place in the mountain, river, and tree.

TABLE I.RESULT OF RESEARCH

I. Rendering

After all the processes have been completed, Krishna's character and the environments can be rendered immediately. This rendering is the final process of creating Krishna characters. In this render setting, it uses "Global Illumination".

When the "Global Illumination" is turned on, the visible part of the display will look dark because there is no lighting. Because when "Global Illumination" is turned on, more lighting is required.

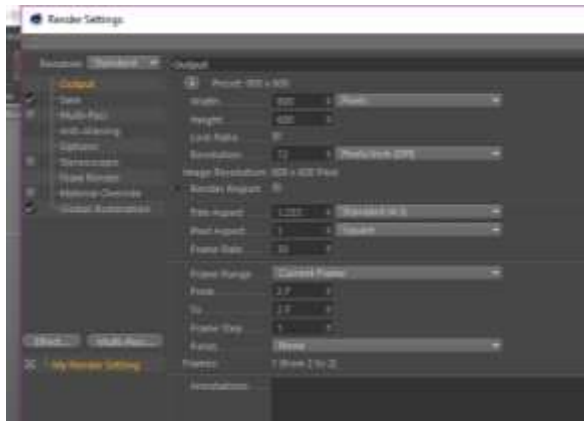






Fig 19. Global Illumination

Global Illumination is one of the most widely used tools and is a favourite of many people, with a high level of realism that can be achieved[7].

IV. RESULTS

Some rendering results of Krishna's character and some environments for the supporting assets, there are:

Result	Description
	<b>KRISHNA</b> It is the main character of <i>Talking Krishna</i> .
	<b>ENVIRONMENT (MOUNTAIN)</b> this environment is to supplement Krishna's character asset, entitled Krishna and the Govardhan Mountain
	<b>ENVIRONMENT (RIVER)</b> this environment is to supplement Krishna's character asset, entitled Krishna and Kaliya
	<b>ENVIRONMENT (TREE)</b> this environment is to supplement Krishna's character asset, entitled Krishna and the Cow of Gokul



## V. CONCLUSION

In this research from the results of making the visual of Talking Krishna, it can be concluded that:

- Cinema 4D is quite easy to use for making 3D animations.
- To create a 3d animation, specify the render settings, so the result can be as desired.
- To create a 3d animation, user must make a sketch first, it is for making it easier to imagine it in 3d.

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