# Designing Interactive Digital Multimedia Education on The Impact of Tiktok Social Media on Children

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| Article Info | ABSTRACT |
|---|---|
| | This research takes the theme of the importance of interactive digital multimedia education on the impact of Tiktok social media on children. This is due to the lack of parental supervision in the use of smartphones during online learning which makes children addicted to the use of social media, especially Tiktok. Even though the pandemic has subsided and all school activities have returned offline, it seems that children are still addicted to Tiktok. If the problem is not addressed immediately, it makes children see more entertainment content on Tiktok than listening to the lessons delivered by their teachers. The purpose of this study is to create interactive digital multimedia to educate parents and children in using TikTok social media and the impact on children's health and character. Thus, parents can increase supervision of their children. The method used in this study uses the Multimedia Development Life Cycle (MDLC) method. MDLC has stages including: concept, material collection, design, implementation, and testing. The tools used in making interactive digital media in this study used Adobe Premiere and Adobe After Effect. The result of this study is that this interactive animated film can display visualizations of the impact of TikTok social media caused, both positive and negative impacts. From the effectiveness test conducted, it can be concluded that interactive digital multimedia passed the test with a percentage of 83% with a Strongly Agree (SS) scale.<br><br> |

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## 1. INTRODUCTION

The rapid development of digitalization has changed many people's lifestyles and habits[1]. Many social media are used by the community such as social media whatsapp, facebook, Instagram, telegram, twitter, and so on. Social media is a virtual communication media that can be accessed in the internet network. With various features provided, various social media can be used by the community to support daily activities. Some use it as a medium of communication, sales, health, and education. Especially some time ago regions around the world were hit by the COVID-19 pandemic. Various kinds of interaction between individuals and communities are very limited. So that it has a huge impact on the economic sector to education. But all activities do not stop completely, only the form of activities that are changed from what was originally offline or directly changed to online or in the network.

Parents prioritize purchasing smartphones to support learning at school. After running online for some time, smartphone use has deviated somewhat from learning. Lack of supervision in the use of smartphones and the number of friends who use social media, especially TikTok, make children addicted. Many entertainment content that is more interesting than school lessons slowly leads to children's focus on learning. Instead of making the spirit of learning, but more lazy to learn and children prefer to create entertainment content as seen on their social media homepage[2][3].

Even though the pandemic has subsided and all school activities have begun to return offline, it seems that children are still addicted to TikTok social media. So that learning at school looks less interesting even though it has often been advised. This proves that the verbal approach is no longer interesting or even ineffective. Because of the above problems, the author wants to design an educational interactive digital multimedia about the impact of TikTok social media on children. In previous studies, many have reviewed the impact of this TikTok social media, but it is still not in the form of interactive digital multimedia. This study took the theme of designing interactive digital multimedia education on the impact of Tiktok social media on children.

## 2.   RESEARCH METHOD

The research method used in this study uses the MDLC method or Multimedia Development Life Cycle. This MDLC method is a multimedia development method that has 6 stages, namely concept design, needs analysis, design design, product implementation and product testing[4][5][6]. One of the advantages of using this MDLC method is that the work is focused at every stage, so that the work is carried out optimally[7][8]. The flow of the MDLC method can be seen in figure 1 below.
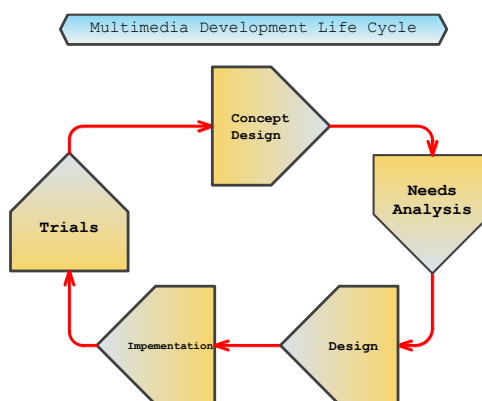


Figure 1. Effects of selecting different switching under dynamic condition

The MDLC or Multimedia Development Life Cycle method has several stages, including the following:

2.1.   Concept Design Stage

The first stage that researchers do in the development of interactive digital multimedia is to design the concept of interactive digital multimedia that will be created including the theme and plot.

2.2.   Needs Analysis Stage

The second stage that researchers do in the development of interactive digital multimedia is to analyze data and what components are needed in making interactive digital multimedia. Starting from computer hardware specifications to supporting software in making interactive multimedia in the form of animated films.

2.3.   Design Stage

The third stage that researchers do in the development of interactive digital multimedia is to make designs from interactive digital multimedia, so that later it will be implemented into an interactive digital multimedia. For the design stage, this research uses supporting tools, namely balsamiq.

2.4.   Implementation Stage

The fourth stage that researchers do in the development of interactive digital multimedia is to create intercative digital multimedia by entering components and data that have been prepared before. For the implementation stage, this research uses supporting tools, namely adobe after effect.

2.5.   Trial Stage

The fifth stage that researchers do in the development of interactive digital multimedia is to test the results of interactive digital multimedia that has been made. Multimedia testing uses effectiveness trials and feasibility testing through filling out questionnaires.

## 3.    RESULTS AND ANALYSIS
### 3.1.  Concept Design Stage

The initial stage in making interactive digital multimedia is by designing the concept of interactive digital multimedia. This Interactive Digital Multimedia will begin by displaying the Opening section containing the Logo, Title, Characters, and supporting audio as the opening backsound. After the opening, an animated film will be shown about the relationship between the pandemic and online learning. After that, it will only be included in the core film about the impact of TikTok social media. The first session will be shown by the Sub-opening of the Positive Impact of TikTok Social Media. Only then was an animated film shown about the positive impact of using TikTok social media on children. After the first session is over, then enter the second session regarding the negative impact of TikTok social media. Just like the first session, which is to show the Sub-Opening first, then show the animated film.

For the concept of animated films shown are activities carried out by children then children experience conditions that can be categorized as positive impacts or negative impacts. When the child experiences this condition, the film will pause temporarily and a pop-up will appear containing text and audio explanation of the condition experienced by the child. This pop-up is semi-transparent set in an animated film. After the contents or explanations in the pop-up are conveyed everything, the pop-up will be hidden again and the paused movie will resume again. This process is valid until the film ends which closes with the copywriter's display and thank-you. The following is a design design of the Interactive Digital Multimedia layout of the Impact of MedSos Tiktok on Children.

### 3.2.  Needs Analysis Stage
1.    Hardware

Table 1. Hardware Requirements

| No. | Device Name | Specification |
|-----|-------------|---------------|
| 1.  | Computer    | ASrock        |
| 2.  | OS          | Windows 10 Pro 64-bit |
| 3.  | Processor   | AMD A8-7680 (4CPUs) ~ 3.5GHz |
| 4.  | RAM         | 16 GB         |
| 5.  | Hardisk     | 500 GB        |
| 6.  | GPU         | AMD Radeon R7 Graphics |
| 7.  | DirectX     | DirectX 12    |

2.    Software

Tabel 2. Software Requirements

| No | Application | Version |
|----|-------------|---------|
| 1. | Adobe After Effect | CC 2020 |
| 2. | Adobe Premiere Pro | CC 2021 |
| 3. | Balsamiq | 4.7.3 |
| 4. | Ms. Visio 2010 | 14.0.4760.1000 |

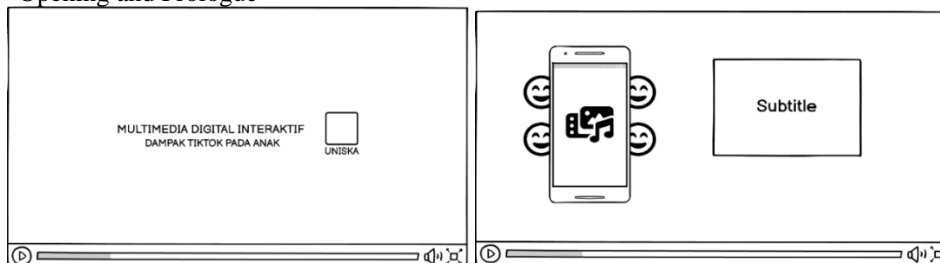### 3.3.  Design Stage
1.    Opening and Prologue



Figure 2. Opening and Prologue Design Design
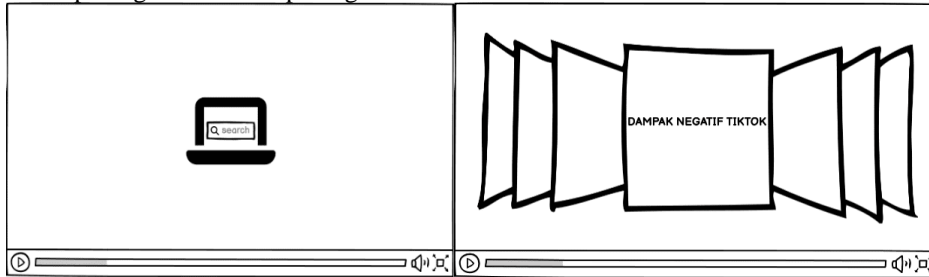
2.  Sub Opening 1 and Sub Opening 2



Figure 3. Design Design of Sub Opening 1 and 2

3.  Positive Impact 1 (Entertainment Media) and Positive Impact 2 (Improve children's motor skills)
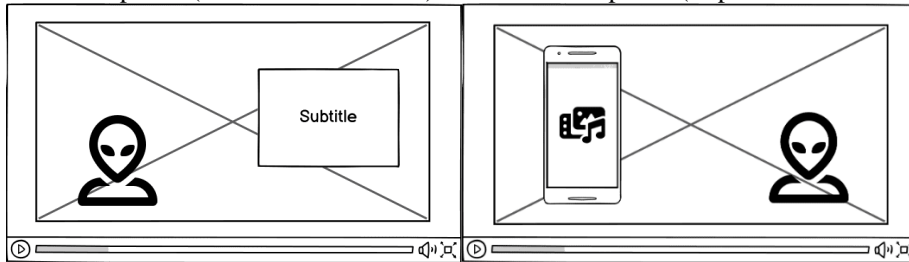


Figure 4. Tiktok Positive Impact Design Design 1 and 2

4.  Positive Impact 3 (Training children's talents and abilities) and Positive Impact 4 (Training self-confidence)
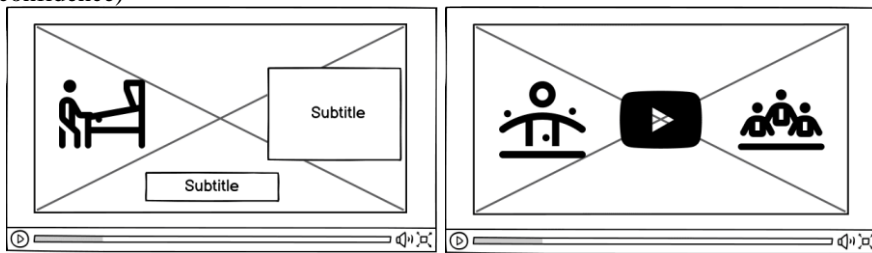


Figure 5. Tiktok 3 and 4 Positive Impact Design Design Design

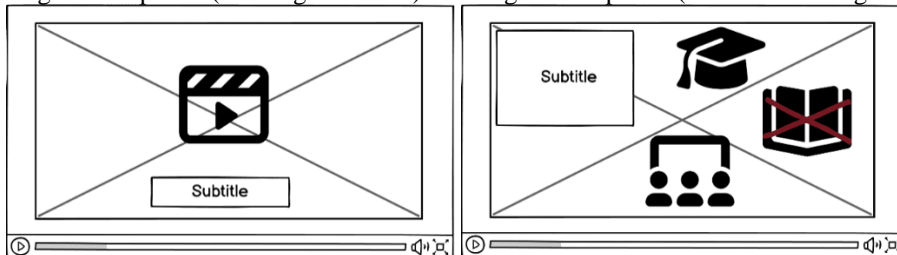5.  Negative Impact 1 (Causing addiction) and Negative Impact 2 (Loss of Learning Enthusiasm)



Figure 6. Tiktok Negative Impact Design Designs 1 and 2

6.  Negative Impact 3 (Insomnia) and Negative Impact 4 (Radiation hazard)
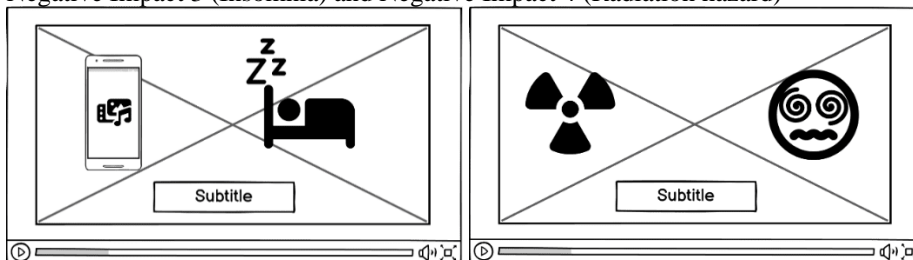


Figure 7. Tiktok 3 and 4 Negative Impact Design Design Design

7.  Concluding



Figure 8. Cover Design Design Design

## 3.4.   Implementation Stage

1.  Opening

The opening design implementation on this interactive digital multimedia has a uniska logo and title. With an interactive digital multimedia title layout located in the center of the screen. For the layout of the uniska logo to the right of the title. The Title Text color is white, the background color is black and the uniska logo color is faithful. In addition, there is also an opening supporting backsound of interactive digital multimedia displayed. The results of the opening can be seen in figure 9 below.



Figure 9. Opening Design Implementation

2.  Prologue

The implementation of the prologue design on this interactive digital multimedia is a mobile phone animation containing tiktok content and also subtitles containing prologue text before entering the discussion of the impact of tiktok. For the content layout on the left then the subtitles on the right and vice versa. For a full screen content layout, the subtitles are at the bottom. In addition, there is also a supporting backsound and dubbing voice that contains an explanation of the prologue part according to the subtitle text of the interactive digital multimedia displayed. The text color adjusts the background and animated film, the backround is brown and also in the form of interactive animated images. The results of the prologue can be seen in figure 10 below.



Figure 10. Prologue Design Implementation

3.  Sub Opening 1

The implementation of sub-opening 1 design in this interactive digital multimedia there is an animated laptop image on the screen displaying search engines from Google. Then in the search box there is an animation of typing text from sub-opening 1, namely "The Positive Impact of Tiktok". The background of the laptop screen is in the form of a search engine from Google and the background of the laptop is in the form of color. In addition, there is also a keyboard typing sound backsound and supporting backsound sub-opening 1 of interactive digital multimedia displayed. The results of the sub-opening can be seen in figure 11 below.
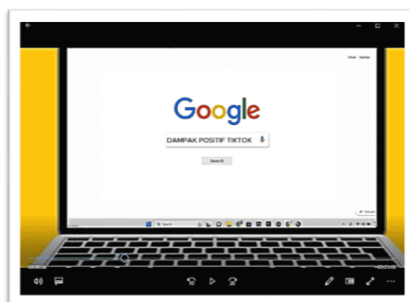
Figure 11. Sub Opening Design Implementation 1

4.  Positive impact 1 (Entertainment)
    The implementation of Positive Impact 1 design in this interactive digital multimedia has animated films and interactive characters accompanied by subtitles and there is also a background in the form of images. The subtitles displayed contain explanatory text about the positive impact of TikTok, which is first as an entertainment medium. For the color of the subtitle text there is a shadow effect to make it more interesting and the background is slightly given a blur effect. For interactive characters, there are two kinds of expressions: the first is an expression of stress, the second is an expression of being entertained. In addition, there is also a supporting backsound and dubbing sound that contains an explanation of the positive impact of the first TikTok from interactive digital multimedia displayed. The results of positive impact 1 can be seen in figure 12 below.



Figure 12. Tiktok Positive Impact Design Implementation 1

5.  Positive impact 2 (Improve motor skills)
    The implementation of Positive Impact 2 design in this interactive digital multimedia has animated films and interactive characters without subtitles and there is also a background in the form of images. The animated film shown contains TikTok content about the second positive impact of TikTok, which is as a reference medium in improving children's motor skills. For the background, it is given a slight blur effect and for interactive characters next to mobile objects that display TikTok content. In addition, there is also a supporting backsound and dubbing sound that contains an explanation of the positive impact of the second TikTok from the interactive digital multimedia displayed. The results of positive impact 2 can be seen in figure 13 below.



Figure 13. Tiktok 2 Positive Impact Design Implementation

6.  Positive impact 3 (Training talents)

The implementation of Positive Impact 3 design in this interactive digital multimedia has interactive character animations accompanied by subtitles and there is also a background in the form of colors. The subtitle displayed contains an explanation of the third positive impact of TikTok, namely as a reference medium in improving children's talents and abilities. For text color, the subtitle is white with no effect. In addition, there is also a supporting backsound and dubbing sound that contains an explanation of the positive impact of the third TikTok from interactive digital multimedia displayed. The results of positive impact 3 can be seen in figure 14 below.



Figure 14. Tiktok 3 Positive Impact Design Implementation

7. Positive impact 4 (Train self-confidence)

The implementation of Positive Impact 4 design in this interactive digital multimedia has animated films and interactive characters without subtitles. The film shown contains content about the fourth positive impact of TikTok, namely as a reference medium in training confidence in children. In addition, there is also a supporting backsound and dubbing sound that contains an explanation of the positive impact of the fourth TikTok from interactive digital multimedia displayed. The results of positive impact 4 can be seen in figure 15 below.



Figure 15. Tiktok 4 Positive Impact Design Implementation

8. Sub Opening 2

The implementation of sub-opening 2 design in this interactive digital multimedia has a layered curtain transition animation in which the curtain displays the text from sub-opening 2, namely "The Negative Impact of Tiktok" with white text color and there is also a brown background. For the transition of layered curtains have different colors. In addition, there is also a supporting backsound of interactive digital multimedia displayed as well as the dubbing sound of "Negative Impact of Tiktok". The results of sub opening 2 can be seen in figure 16 below.
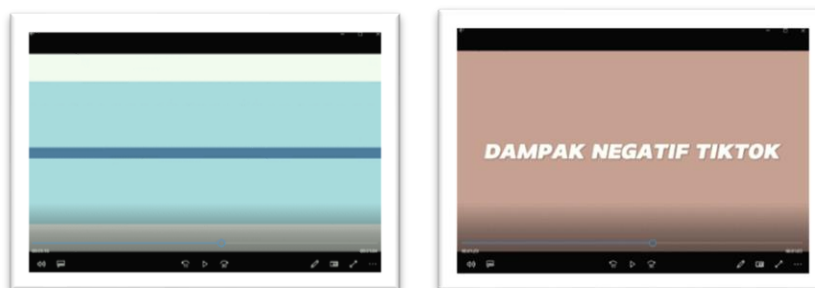


Figure 16 Sub Opening Design Implementation 2

9. Negative impact 1 (Addictive)

The implementation of Negative Impact 1 design in this interactive digital multimedia has animated films and interactive characters with subtitles. The animated film shown contains interactive animations about the first negative impact of TikTok, namely TikTok media can cause addiction. The background is given a slight blur effect and the subtitle text is given white. For interactive animated characters holding mobile phones. In addition, there is also a supporting backsound and dubbing sound that contains an explanation of the negative impact of the first TikTok from interactive digital multimedia displayed. The results of negative impact 1 can be seen in figure 17 below.
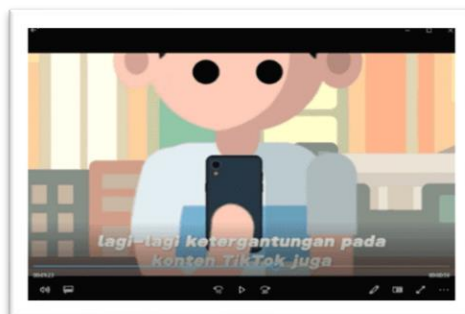


Figure 17. Tiktok Negative Impact Design Implementation 1

10.  Negative Impact 2 (Loss of Learning Enthusiasm)

The implementation of the Negative Impact 2 design on interactive digital multimedia has animated films and interactive characters with subtitles. The animated film shown contains interactive animations about the negative impact of TikTok, the second is that TikTok media can reduce or even eliminate the spirit of learning in children. For backgrounds in the form of white colors and subtitle text without effects. For characters are animated sleeping while studying. In addition, there is also a supporting backsound and dubbing sound that contains an explanation of the negative impact of the second TikTok from interactive digital multimedia displayed. The results of negative impact 2 can be seen in figure 18 below.



Figure 18. Tiktok 2 Negative Impact Design Implementation

11.  Negative Impact 3 (Making Insomnia)

The implementation of Negative Impact 3 design on this interactive digital multimedia has animated films and interactive characters with subtitles. The animated film shown contains tiktok content and interactive animations about the third negative impact of tiktok, namely tiktok media can cause insomnia or sleep disorders because they are imagined and always want to watch tiktok. For backgrounds in the form of images and white subtitle text without effect. In addition, there is also a supporting backsound and dubbing sound that contains an explanation of the negative impact of the third TikTok from interactive digital multimedia displayed. The results of negative impact 3 can be seen in figure 19 below.

Figure 19. Tiktok 3 Negative Impact Design Implementation

12.  Negative impact 4 (Danger of cell phone radiation)
     The implementation of Negative Impact 4 design on interactive digital multimedia is an interactive animated film with subtitles. The animated film shown contains interactive animations and subtitles containing text about the fourth negative impact of TikTok, namely TikTok media can cause interference with the eyes or commonly called radiation hazards. The background is white and the subtitle text is white. For animation the eyes are given a blur effect. In addition, there is also a supporting backsound and dubbing sound that contains an explanation of the fourth negative impact of TikTok from interactive digital multimedia displayed. The results of negative impact 4 can be seen in figure 20 below.



Figure 20. Tiktok 4 Negative Impact Design Implementation

13.  Concluding
     The implementation of the closing design on this interactive digital multimedia has film credits. The film credits displayed are in the form of text in the middle of the display screen and contain the names of supervisors and examiners as well as writers as editors. The background is black and the text displayed is white. In addition, there is also a supporting backsound of interactive digital multimedia displayed. The results of the cover can be seen in figure 21 below.



Figure 21. Implementation of Cover Design

### 3.5.  Trial Stage

In this interactive digital multimedia trial stage, it uses an effectiveness test with assessments by parents and teachers at the elementary level or below through questionnaires. The questionnaire consists of 10 questions and has been answered by 12 respondents. The results of respondents' assessment are listed in the table below:

Table 3. Questionnaire Results

| No | Question | SS | S | RR | TS | STS |
|---|---|---|---|---|---|---|
| 1. | Do you think the appearance of the initial program is attractive? | 9 | 1 | 2 | 0 | 0 |
| 2. | Is the color combination used interesting? | 9 | 2 | 1 | 0 | 0 |
| 3. | Is the displayed text easy to read? | 11 | 0 | 1 | 0 | 0 |
| 4. | Does the dubbing sound sound clear? | 11 | 0 | 1 | 0 | 0 |
| 5. | Is the sound dubbing in accordance with the content in this interactive multimedia? | 11 | 1 | 0 | 0 | 0 |
| 6. | Is the backsound in this interactive multimedia unobtrusive? | 8 | 4 | 0 | 0 | 0 |
| 7. | Is the display of animation in this interactive multimedia interesting? | 10 | 1 | 1 | 0 | 0 |
| 8. | Does the animation shown match the research title? | 11 | 0 | 1 | 0 | 0 |
| 9. | Is the interactive multimedia displayed easy to understand? | 9 | 3 | 0 | 0 | 0 |
| 10. | Is this interactive multimedia effective for educating tiktok social media users? | 10 | 1 | 1 | 0 | 0 |
| | **Total Answers** | **99** | **13** | **8** | **0** | **0** |
| | **Presentage** | **83%** | **11%** | **7%** | **0%** | **0%** |

The collected data is then processed to determine each percentage of the question assessment category and represent it in the form of a chart as shown below:
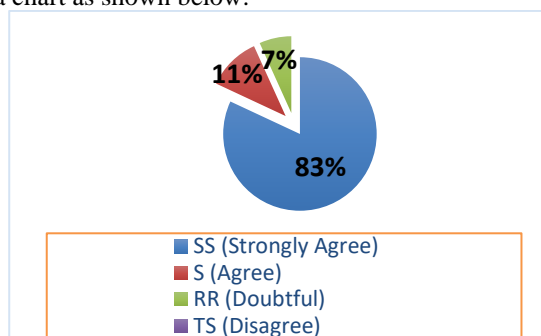


Figure 22. Questionnaire Analysis

From the data set of respondents' assessment of interactive digital multimedia made, the final results for the SS (Strongly Agree) assessment category dominated with a percentage of 83%, for the S (Agree) category the percentage was 11%, for the RR (Undecided) category the percentage was 7%, for the TS (Disagree) and STS (Strongly Disagree) categories the percentage was 0%. With this, it can be concluded that interactive digital multimedia is made effective as interactive digital multimedia to educate parents and teachers as an effort to control the use of TikTok social media in children. So that the impact caused does not pose an excessive risk to children.

From the description above, it can be stated that interactive digital multimedia education on the impact of TikTok on children has passed the effectiveness test with a percentage of 83%.

## 3. CONCLUSION

Based on the results of the study, it can be concluded that the results of the effectiveness test that has been carried out on interactive digital multimedia education on the impact of tiktok on children resulted in a percentage of 83%, with the assessment category of respondents strongly agree (SS) with the design of interactive digital multimedia education on the impact of tiktok on children. With this, the design of interactive digital multimedia education on the impact of TikTok on children can be declared to pass the test.

Suggestions for further research obtained from this research for the development of further research are the need to add objects in the form of animation that can move like interactive illustrations, so that the appearance of animated films is more attractive to users, especially children

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