

E-mail:

idamariana1992@gmail.com,

Akademi Keperawatan Kesdam I/BB
Padang, Padang, Indonesia

This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](#)

Development of Animated Video-Based Interactive Media As Learning Media In Introduction to Reproductive Health

***Ida Mariana**

Abstract – The aim of this research is to develop animation-based interactive learning media for the introduction of adolescent reproductive health at Padang 10 High School. This research uses the Research and Development (R&D) method. The subjects of this research were all teenage students in Class X at SMA 10 Padang. The data collection technique uses an assessment questionnaire in the form of Googleform. The data analysis technique uses descriptive analysis techniques in the form of both qualitative and quantitative data with SPSS version 23.0 software. The research results show that the development of animation-based interactive learning media for the introduction of Adolescent Reproductive Health shows valid results with an average percentage value of 58.97%. The student evaluation items are valid ($r = 0.553$). These items are reliable with a Cronbach's Alpha value of 0.807. Animation-based interactive media as a learning medium for introducing reproductive health in accordance with students' needs in utilizing learning media.

Keywords: Learning media, animation, Adolescent Reproductive Health, Interactive Promotional Media

1. INTRODUCTION

The development of adolescence is a period towards maturity. This process is a process to achieve maturity in various physical, psychological and emotional aspects. From a health perspective, deviant acts that will be worrying are sexual deviations in the form of free sex, the spread of venereal disease, out-of-wedlock pregnancies or unwanted pregnancies among teenagers. The free sexual behavior that is growing among teenagers affects many things, not only mental health but also physical health, including reproductive health. It is known that reproductive health is very important for both men and women. Reproductive health is defined as complete physical, mental and social well-being, not merely free from disease or disability in all matters relating to the reproductive system, its functions and processes. Meanwhile, adolescence or adolescence means growing towards maturity. The maturity referred to here is physical, social and psychological maturity.

According to Yulia y, et al (2023), maintaining reproductive organs is important for teenagers. In adolescence, the reproductive organs are functioning actively. Reproductive organs that are functioning actively are characterized by menstruation in women and wet dreams in men, accompanied by secondary sexual signs such as the growth of fine hair around the genitals. With the reproductive organs functioning actively, teenagers need to understand how to maintain the reproductive organs and system.

Early childhood sex education is different from sex education for teenagers. Early age sex education consists of introducing the concept of shame, introducing gender, and introducing body parts that can be touched by other people. Meanwhile, sex education for teenagers is certainly more complex, namely about describing reproductive organs, puberty and sexuality. It is explained in Jatmikowati et al., (2015) that sex education begins with introducing body parts. Then the child will know that the function of the vagina and penis is not only for urinating but as a tool for reproduction. Jatmikowati et al., (2015) also argue that teaching toilet training from the time children are 2 years old, if they are considered capable, children are taught to wash their toilets or wash their own genital organs so that they can understand their own genitals. Sex education is an effort to teach and provide information about sexual problems. The information provided includes, among other things, the function of reproductive programs by instilling morals, ethics, commitment and religion to prevent misuse of reproductive organs. The aim of early childhood sex education is to introduce your sexual organs, as well as explain their function and how to protect them. If this is not done early, there is a possibility that the child will have problems, such as the habit of touching his genitals before sleeping, or even touching other people's breasts. Sex education is also useful for providing explanations about harmful sexual behavior (free sex), instilling morals and principles not to engage in premarital sex. Sex education is not only beneficial for normal children.

Cases surrounding teenage reproduction are now increasing, due to teenagers' lack of understanding of various aspects of reproduction related to themselves. Improving the quality of adolescent reproductive health can be done by paying attention to health communication issues. Adolescent problems regarding sexuality and reproductive

health are increasingly becoming increasingly complex and worrying. Problems that occur in adolescent reproductive health can include sexual relations before marriage, dropping out of school due to pregnancy, irresponsible partners, use of contraceptives, abortion, infection with HIV/AIDS, sexually transmitted diseases and use of illegal drugs.

The survey conducted by WHO with good and correct information can reduce adolescent problems, one of which is regarding reproductive health in adolescents, almost one fifth or around 17.5% of the world's population are teenagers (people aged 10-19 years). Meanwhile, in developing countries this group has a higher proportion of around 23% (WHO, 2012). Based on the results of the 2012 SDKI KRR survey, adolescent knowledge about reproductive health is still relatively low. 4.7% of teenage girls do not know about their physical changes during puberty, while the figure for teenage boys is still higher, namely 11.1% (BPS, 2012). To respond to adolescent problems, since 2001 BKKBN has been concerned with adolescent problems. This concern is realized by developing the planned generation program (GenRe) through the establishment of an information and counseling center for adolescent reproductive health (PIK-KRR). PIK-KRR is a forum for KRR (adolescent reproductive health) program activities which is managed by, by and for adolescents to provide information and counseling services regarding adolescent reproductive health or what is often referred to as TRIAD KRR (sexuality, HIV and AIDS, drugs).

From various information related to adolescent reproductive health problems, it is a threat in the future regarding adolescent health, because today's adolescents are the tip of the pillar of health in the future, therefore there is a need for special health education for adolescents by providing an introduction to reproductive health for adolescents at school, and information about reproductive health in adolescents needs to be conveyed in the learning process at school, which is the starting point for providing information. Not many people, even parents, consider sex education in early childhood and reproductive health in adolescents to be something important. Parents do not provide sex education to their children because it is still considered taboo and synonymous with adults. Sex education must be given to children as early as possible so that children do not take the wrong steps in their lives. Reproductive health education is very important to provide to teenagers.

Most people consider talking about sex to be taboo, vulgar and inappropriate to talk about. When children ask about things related to sexuality, parents will definitely divert them and argue that when they grow up they will know for themselves. This attitude is actually wrong because children have high curiosity. Children will look for information themselves if parents cannot provide clear information. Therefore, it is necessary to learn about the introduction of Reproductive Health, but for some people learning about Reproductive Health is something that is still taboo to discuss. Therefore, it is important to promote health among teenagers to get to know reproductive health because teenagers are the nation's assets in the future. According to the research results of Afifah Johariyah, et al (2018), to increase respondents' knowledge, health education is needed through counseling, such as health education about adolescent reproductive health which is carried out effectively and efficiently and is provided both visually and audio-visually, so that knowledge will be easy to remember. This is in accordance with

Notoatmodjo (2014) who explains that knowledge is the result of knowing, and this occurs after people sense through the five human senses, namely the senses of sight, hearing, smell, taste and touch. Some human knowledge is obtained through the eyes and ears. Cognitive knowledge is a very important domain in the form of a person's actions (overt behavior). Behavior is based on knowledge (Notoatmodjo, 2014).

This introduction regarding reproductive health is not only obtained from health workers but is obtained from learning at school, so there is a need for promotional media that can be given to students for their learning process. And the learning process in Indonesia currently continues to change over time. This change is influenced by various factors, such as changes in government. Including due to technological developments, nowadays technology has developed rapidly so that it can help humans in various aspects of life and work. As technology develops, the world of education is also experiencing changes and developments in this technological era. Currently, education is also being prepared for the younger generation to be able to survive and be able to adapt to the world of technology. Then, to prepare for this, education needs to make changes in learning media. Learning media is very important in the learning process, because learning media is useful for helping increase insight and providing knowledge to students. Using learning media can increase students' interest in learning material so that the material presented by the teacher can be received and understood well by students.

Learning media is one of the tools used by teachers to deliver learning material, increase student creativity, and increase student interest in the learning process. More interesting visualizations can also make understanding the material easier. A change, including changes in the field of education, can be said to be a form of innovation if the change is made deliberately and to improve previous conditions so that they are more profitable in order to improve a better life. Therefore, innovation is basically a brilliant idea that gives rise to new things such as certain practices, products from thought and technological processes that are applied through certain stages to solve problems that arise and improve certain conditions or certain processes that occur in the world. public. According to Norma D, S (2017) In the field of education, innovation is something that is absolutely necessary, because without innovation there will be a lag in the world of education which will then have an impact on other elements of life such as politics, economics, social, etc. Teachers are required to be able to develop skills in making learning media. For this reason, teachers must have sufficient knowledge and understanding of learning media.

According to Rohmani (2019), the use of interactive media in learning activities can encourage increased student learning outcomes. Hoerunnisa, et al (2023) in their research revealed that improving student learning outcomes in science learning can be influenced by the use of technology-based media. Apart from that, it can stimulate their interest in learning in the context of science learning, so that they will avoid boredom during the learning process. This was also expressed by Januarysman, et al (2016) that increasing student learning outcomes is also a positive impact of using technology during the learning process. Based on this, it is known that the use of technology-based media has a positive impact in improving learning outcomes in science learning. This

technology-based media can be developed into interactive media. Herman (2017) explains that IT-based or interactive multimedia learning often involves students in various activities, such as clicking navigation buttons, selecting answers, shifting objects, writing text, and so on. The involvement of students in the auditive, visual and kinetic aspects of using interactive multimedia makes it easier to understand information or messages.

Munandi (2013) added that the use of interactive multimedia makes the learning process more interesting, interactive, and allows flexibility in time and place. Ariani and Haryanto (2020) stated that increasing interest in learning, decreasing lecture time, and improving the quality of students' learning are the impacts of interactive media such as Articulate Storyline. Health promotion learning related to reproductive health has been carried out so far only by delivering material. Through the researcher's own experience, this does not result in a significant increase or change in a person's behavior because the media used tends to be more monotonous, so innovation is needed for this. Various interesting media that can be used are video media. The videos used are of course not videos that come from natural visualizations about reproduction because that would be considered a taboo matter, so it is necessary to use visualizations that are acceptable and do not make things taboo, not only as a health promotion medium but also as a learning medium. One of the video media that is widely used is animated video.

Animation means movement image or video, which resembles the movements of people carrying out an activity. The concept of animation emerged because of the level of difficulty in presenting information with just one image or a group of images, so that you cannot use text to explain learning material. Research conducted (Purwaningsih, 2018) concluded that interactive animation can help the learning process and increase children's interest in learning. This can be seen from the learning media that uses interactive animation to make children more interested in learning. According to Vaughan (2010), a static or fixed presentation that is made alive is animation. Animations are visuals that change over time and can add power to multimedia projects and web pages. This is also supported by Yulia Y. (2023), animation media is an arrangement of images created to depict a movement in which there is a message to be conveyed. The advantages of animated media compared to other media which only consist of images or text that do not move. The advantage of this animation media is that animation is able to explain every change that occurs. In learning, this animation media can increase students' motivation to understand the material presented.

According to Mayer, et al (2022), animation media is a form of display consisting of interesting images, in the form of moving objects to depict real movement. According to Julia. Y (2023) animation media consists of audio and visual techniques that display a series of words and illustrations. The components of animated media are a series of words, narration, music, still images, photos and animated images. According to Handika BI (2018) animation means an image or video movement, which resembles the movement of a person carrying out an activity. The concept of animation emerged because of the level of difficulty in presenting information with just one image or a group of images, so that you cannot use text to explain learning material. Research conducted (Purwaningsih, 2018) concluded that interactive animations introducing colors,

numbers, letters and shapes are used as teaching aids by both parents and teachers and can help the learning process and increase children's interest in learning. This can be seen from the learning media that uses interactive animation to make children more interested in learning.

According to the research results, the animation media developed by researchers is a suitable medium for use with students. The results of the assessment from material experts were carried out by Lecturers in the Guidance and Counseling Study Program at Jakarta State University with "Laya Y, Y, et al (2023) Used with Revisions". Then the results of the assessment from media experts were carried out by Lecturers in the Educational Technology Study Program at Jakarta State University with "Suitable for Use with Revisions". Based on the assessment results from material experts, videoscribe-based animation media regarding reproductive health achieved results of 65%, which means it is feasible and can be used by students. The advice given by the material expert is that the objectives stated at the front are that the definition of reproductive health needs to be made more specific and clear and for the image of adolescent girls to be changed to be more appropriate to adolescents. Based on the assessment results from media experts, videoscribe-based animation media regarding reproductive health achieved results of 65%, which means it is feasible and can be used by students. The advice given by media experts is that the duration is too fast so that the voice over is used too quickly and the presentation of illustrations can be changed according to the age of teenagers.

Therefore, researchers carry out these innovations, one of which is by using learning media. Many studies have used Vidio as a learning method, but there have been no animated videos that have been used to introduce Reproductive Health, because for some people or groups matters regarding reproductive health are still considered taboo, so by utilizing this learning media, an animated video can be made that illustrates the material that will be presented and has been made so simple that it is easy to understand.

2. METHODOLOGY

This type of research is development research (Research and Development / RD). Research and development methods, namely research and development, are research methods used to produce certain products and test the effectiveness of these products (Sugiyono, 2012:297). The research and development model used in the research refers to the research model developed by Borg and Gall (1983: 772), who stated that research and development procedures basically consist of two main objectives, namely: (1) developing products, and (2) testing the effectiveness of the product in achieving goals.

The subject of this research was students in number 80 students of SMA 10 in Padang. A material expert is an expert as well as a class teacher who teaches in the field of Biology material to validate the animated videos that have been prepared. The subject selection technique used a random sampling technique. Techniques and data collection in this research using Google Form were used to obtain results from student data. According to the techniques used in data collection, in this research the data collection instruments used interviews and Google Form.

Data Validity Test

Testing the validity of the data in this research used method and source triangulation techniques, method and source triangulation which was achieved by comparing informant interview data with interview data of the informant's close friends (key informants).

3. RESULTS

Research result

The results of the research are that a learning video about reproductive health has been compiled, consisting of 1 video about reproductive health for teenagers, which contains about reproductive health for female teenagers and male teenagers, which contains all information about health, the dangers of promiscuity and related to the reproductive system. each.

1. The first stage

The first stage is to analyze the situation of learning media needs using Animation Video. When the field survey was carried out for the first time, the researcher conducted an initial survey by analyzing the needs situation using a Google Form which contained information related to the needs of teenagers regarding introduction to reproductive health, and it was found that 80 students (100%) hoped to get information about reproductive health for teenagers. And students like this because students feel more comfortable watching if the information provided is in the form of an animated video.

2. Second Stage

In this second stage, learning media has been created in the form of an animated video, which has also been displayed on the YouTube page to make it easier for students to access it if needed. Before showing the video, ask material experts to validate the video. The video display looks like the following image:

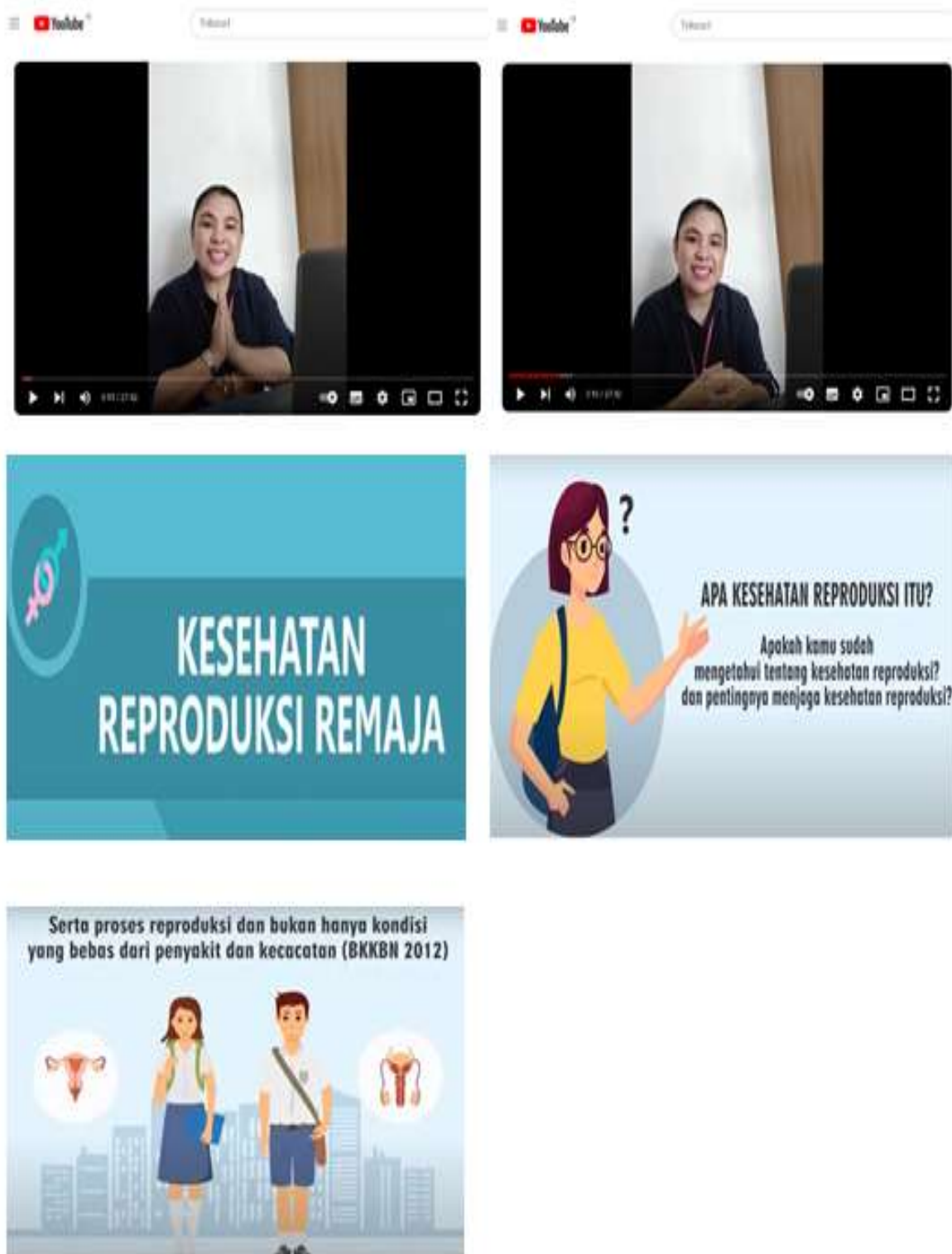


Figure 1: Researcher Source

3. Third phase

After making this Animation Video, the researcher carried out research in the field, directly delivering the material while showing the Animation Video that had been prepared, and not forgetting to provide information so that the video could be watched on YouTube. The researcher provided material related to reproductive health in two ways, namely, the first performance by delivering the material alone without video and the second performance delivering the material accompanied by an animated video performance.

4. Fourth Stage

In this fourth stage, namely assessing students through a questionnaire assessing the level of student knowledge, the results of the research show that out of 80 students, 69 (87%) students understand well the content of the material presented, namely, among other things, students understand what reproductive health is, what is the reproductive process, reproductive health danger signs. And 11 people (13%) students did not properly understand the content of the material that had been presented.

5. Fifth Stage

In this fifth stage, by analyzing the data that has been collected to evaluate learning media, the learning media evaluation survey questionnaire uses Google Form. Results as in table 1 below:

Table 1.
Distribution of student evaluations of animated video learning media (N=80)

No.	Statement	Very agree	%	Agree	%	No Agree	%
1	Videos help to understand the material__	71	88.75	7	8.75	2	2.5
2	Videos are easy to use	75	93.75	5	6.25		
3	Videos on the YouTube Channel make it easy to watch repeatedly	75	93.75	5	6.25		
4	Interesting video	77	96.25	3	3.75		
5	Video Helps provide the information that today's teenagers need	76	95	4	5		
6	The images in the video are clear and easy to understand	68	85	12	15		

7	The language used is easy to understand	71	88.75	9	11.25
---	---	----	-------	---	-------

Based on table 1, the data shows that out of 80 students, the majority (88.75%) agree that the reproductive health animation video helps understand material about reproductive health for teenagers. The majority of students (93.75%) agree that the animated video is easy to use. The majority of students (93.75%) agreed that videos on the YouTube Channel make it easy to watch repeatedly. The majority of students (96.25) agree that the video is interesting. The majority of students (95%) agree that the video helps provide information that teenagers need today. The majority of students (85%) agree that the images in the video are clear and easy to understand. The majority of students (88.75%) agree The language used is easy to understand.

Education is a learning process aimed at acquiring knowledge and skills (Selatan et al, 2021). In this sense, it is emphasized that students explore their potential through the educational process or through paths recognized by society. This aims to ensure that students can improve their quality in several aspects of life (Syafri, et al, 2017). To achieve this, a well-structured learning process is needed. It is important to adapt the learning process to the psychological development of students who vary at various age levels. So the use of learning media is really needed

The development of learning media in this research is an animated video about reproductive health in adolescents. Then, after delivering the animated video material, upload it to YouTube so that it can be used by students. YouTube is a site that specifically offers video sharing services. Every visitor can freely watch and download the videos they want. (Murtiningsih, M., & Latif, HA (2021).

Based on the research results of Farah NM (2020), based on the results of several research articles, it can be concluded that the use of interactive multimedia which includes audio and visuals is very influential and helps the successful delivery of material by teaching staff in the classroom, because it can create fun, motivating, and improve learning. children's enthusiasm for learning, as well as improving children's memory. because the learning material is presented in a concrete form and packaged in a form that increasingly attracts students' attention, and it can also be concluded that the use of interactive multimedia has a significant effect on increasing the learning achievement of children with mild intellectual disabilities. The learning process is not monotonous in only one direction, but using various strategies can increase student motivation to learn. Quasi-experimental research on learning strategies regarding blended training has been carried out previously. The research results show that the blended learning method can increase students' independent learning motivation compared to conventional methods. (Pontung et al. 2020).

The results of the questionnaire showed that a total of more than 94% of respondents agreed that they felt helped by this interactive animated video. According to Ester MA Lumingkewas, et al (2018). A total of more than 96% of respondents were able to find out things that were previously unknown about cervical cancer through this interactive animated video. Then, more than 78% of respondents agreed that this interactive animated video was effective in attracting

interest in getting to know cervical cancer.

The material in this interactive animated video is considered easy to understand by more than 88% of respondents who agree. As many as 65% of respondents also agreed that this interactive animated video was interesting in introducing cervical cancer.

This is also supported by research by Sri LN (2012), namely the need for teenagers to understand their reproductive health according to BKKBN1 is for teenagers to know their bodies and reproductive organs, understand the function and development of their reproductive organs correctly, understand their physical and psychological changes, protect themselves from various risks. which threaten their health and safety, prepare for a healthy and bright future, and develop responsible attitudes and behavior regarding the reproductive process. The research results showed that the majority of students (88.75%) agreed that the language used was easy to understand. This research is in line with previous research on education during the Covid 19 pandemic by (Ratu, Uswatun, and Pramudibyanto 2020), data showed that 82% of students supported and were increasingly enthusiastic about preparing technology for new modes of learning using the web.

The research results showed that the majority of students (93.75%) said videos were easy to use and the majority of students (93.75%) said videos on YouTube channels made it easy to watch repeatedly. This is in line with research expressed by M. Cessario Al Faraby, et al. (2021), namely video based learning innovation is a presentation of messages or information using video technology. The video will be played as a daily learning method for students. Video based learning innovation will maximize visual and audio elements which will make it easier for students to understand and capture the messages and information they see and hear. It is believed that video based learning innovation will make learning methods easier and more effective, because it presents messages and information in a more interesting way.

According to Meimulyani, et al (2013: 80), they believe that mentally retarded children have delays in their ability to grasp and think, and require the use of learning media in concrete forms that attract attention because mentally retarded children get bored quickly and easily switch their attention. So there is a need for media that is concrete, interesting, and easy to understand for mentally retarded children. One of them is interactive multimedia in the form of animated videos or photos. By presenting media in the form of videos and photos that attract attention, the material presented will be quickly captured by mentally retarded children. The same thing was obtained by researcher Fitri NP (2015), namely that based on the results of the research discussed in chapter IV, it can be concluded that a product has been created in the form of interactive media with material on adolescent reproductive health for class VIII students at PGRI Saptosari Gunung Kidul Middle School. The results of the validation test by material experts on interactive media received an assessment with a percentage of 65% and were included in the quite good category. The assessment

from media experts for validation tests on interactive media obtained a percentage of 90% and was included in the good category. And the results of the material expert validation test assessment by the supervising teacher, interactive media about adolescent reproductive health received a percentage of 85% and was included in the good category. Results from operational field tests, interactive media about reproductive health received a percentage of 84.5% in the good category.

The research results show that the majority of students (96.25%) said the video was interesting. This is in line with research expressed by M. Cessario Al Faraby, et al (2021), namely that video based learning innovation is believed to make learning methods easier and more effective, because present a message and information in a more interesting way. The results of research by (Putra. I, 2015) entitled "Development of Interactive Multimedia Learning to Recognize Numbers and Letters for Early Age Children", obtained results from an assessment of the learning media created, namely validation questionnaires by material experts and media experts. Product feasibility obtained very good assessment results (4.66) with scale criteria of 5 and assessment by children in one-on-one trials, small group trials and operational trials with very good results with an overall average in each aspect, namely above 81%.

According to Bella NA (2024) In the current era of education, the use of learning media is nothing new. Most educators realize that learning media has a function to support student learning processes. However, not all educators adapt the use of learning media to current developments based on technology. The importance of this can also be seen from students' interest and enthusiasm for the use of technology in learning. The results of the research show that the majority of students (95%) said that Vidio helps provide the information that today's teenagers need. This is in line with research expressed by M. Cessario Al Faraby, et al (2021), namely video based learning innovation in increasing interaction in the teaching and learning process. is an effective and feasible step to implement. This is because video based learning innovation provides visualization and audio which is believed to attract students' attention and interest to be more responsive and interactive in teaching and learning activities.

The research results showed that the majority of students (85%) said the images in the video were clear and easy to understand. This is in line with Budi S, et al (2021). The effectiveness of video media is based on Edgar Dale's theory which describes the level of student understanding in a cone of experience. This theory emphasizes that students will experience more learning if students use more of their five senses. Visual images can communicate messages quickly and clearly, therefore they can speed up more comprehensive understanding of the message. Visual messages are more effective and efficient in the sense that visual presentation can make students concentrate more.

Results of research by Annisa P, et al (2021) at SLB-CAlpha Kumara Wardhana I Surabaya. Students with intellectual disabilities almost never receive early sex education at school. The provision of early childhood sex education services is provided only on the teacher's initiative to students when students do things that

violate norms. For example, when students touch their genitals, or even are alone with the opposite sex. This method is not effective because children will repeat their actions secretly from the teacher. Students with intellectual disabilities need interesting media to increase interest in learning, for example interactive learning media which contains visual elements that can train memory and thinking power. With the interactive learning media provided, there was an increase in post-test scores for 10 mildly mentally retarded students by 21.5%. So it can be said that interactive learning media has an influence on early childhood sex education for mentally retarded students at SLB-C Alpha Kumara Wardhana I Surabaya

In the research of Alfikri, et al (2017), interactive learning media based on images and computer animation will certainly look attractive and easy to understand for mentally retarded children and of course will increase the interest in learning of mentally retarded children. The interactive learning media used in this research is ppt-based interactive learning media. This media was created using Microsoft Power Point. This media contains early childhood sex education material with illustrative images so that students can more easily understand the material provided. The research results showed that the majority of students (88.75%) said the language used was easy to understand. This is in line with Finda VN, et al (2021). Animated videos with concise, clear explanations in language that is easy to understand and systematic arrangement of material can make it easier for students to understand. learning flow in this material, so that students can learn independently as stated by Daryanto (2011) that multimedia learning must be independent, apart from allowing users to use the media without guidance, it can also provide convenience and integrity of material content in other ways

4. CONCLUSION

In this research, audio-visual learning media has been prepared, namely animated videos about Reproductive Health which have been created based on an analysis of respondents' needs. The learning media has been tested on Padang 10 High School students and most students understand well the content of the material presented, students say the video display is interesting and easy to understand. Based on the evaluation of learning media, it was found that animation-based interactive media as a learning media for introducing reproductive health was in accordance with students' needs in utilizing learning media.

5. ACKNOWLEDGMENTS

Thank you to all parties who have helped in completing this research. In particular, to the teacher of Biology, Ms. Nini, subject who has participated in supporting the implementation of this research well and without any obstacles especially in validating the content of health reproductive video. Thanks to a lot of input regarding learning tool that can be used to fulfill students' needs in utilizing learning media.

Author Contributions Both authors contributed equally to the current research and read and approved the final published version of the article.

Conflicts of Interest The author declared no potential conflicts of interest.

REFERENCES

- Al Faraby, MC, & Hakim, W. (2021). Video Based Learning Innovation in Increasing Interaction in the Teaching and Learning Process. *Scientific Writing Competition*, 2(1), 43-56.
- Amelia, BN, & MintoHari, Mp. *Development of Interactive Media Based on Articulate Storyline 3 to Improve Student Learning Outcomes on Human Digestive System Material in Class V Primary School*.
- Atik, NS, & Susilowati, E. (2021). The relationship between the level of knowledge and adolescent reproductive health behavior in vocational students in Semarang district. *Ar-Rum Salatiga Health Scientific Journal*, 5(2), 45-52.
- Ernawati, H. (2018). Knowledge of adolescent reproductive health in rural areas. *Indonesian Journal for Health Sciences*, 2(1), 58-64.
- Ganiajri, F. (2012). Differences in the use of flash multimedia and lectures as media for adolescent reproductive health education for early adolescents at SMP Negeri 3 Turi, Sleman district. *Diponegoro University Public Health Journal*, 1(2), 18825.
- Kristanto, SA, Harti, H., & Patrikha, FD (2021). Development of Learning Media Using Lectora Inspire in Salesmanship Courses. *PROFIT Journal*, 8(2), 84-94.
- Lumingkewas, EM, Sompie, SR, & Tulenan, V. (2018). Interactive Animation Video on Introduction and Prevention of Cervical Cancer. *Journal of Informatics Engineering*, 13(3).
- Meianti, A. (2018). Development of PowToon Audio Visual Based Learning Media on Basic Competencies Implementing Class X Product Promotion in Mojoagung State Vocational School Marketing. *Journal of Commerce Education (JPTN)*, 6(2).
- Maulidiyah, FN (2020). Interactive multimedia learning media for mildly mentally retarded children. *Journal of education*, 29(2), 93-100.
- Nasution, SL (2012). The influence of knowledge about adolescent reproductive health on premarital sexual behavior of adolescents in Indonesia. *Widya Research Journal*, 15(1).
- Isfandira, HB, Sutama, MP, & Hernawan Sulistyanto, ST (2018). *Development of Animation-Based Interactive Learning Media for Recognizing Letters and Numbers in Children at Ba Aisyiyah Tejobang Simo Boyolali* (Doctoral dissertation, Muhammadiyah University of Surakarta).
- Johariyah, A., & Mariati, T. (2018). The effectiveness of adolescent reproductive health education by providing modules on changes in adolescent knowledge. *Journal of Hospital Foundation Health Management. Dr. Soetomo*, 4(1), 38-46.
- Murtiningsih, M., & Latif, HA (2021). Development of Audio Visual Online Learning Media via YouTube Maternity Nursing Procedures Jayakarta College of Health Sciences. *Equilibrium: Journal of Education*, 9(3), 302-309.
- Ngenda, FV, Ajizah, A., & Amintarti, S. (2021). Development of learning media based on

- powtoon animated videos on the concept of moss and ferns for class X SMA. *Quantum: Journal of Science Education Innovation*, 12(2), 136.
- Padmadiani, A., Jauhari, MN, & Badiah, LI (2021). The Influence of Interactive Learning Media for Early Age Sex Education for Intellectually Disabled Students. *Special and Inclusive Education Journal (SPECIAL)*, 2(2), 110-118.
- Putra, IPKAD, Ciptahadi, KGO, & Meitridwiasiti, AA (2024, June). *Interactive Multimedia Introduction to the Human Reproductive System for Class VI State Elementary School 3 Baturiti*. In Seminar on Research Results in Informatics and Computers (SPINTER) | STIKOM Bali Institute of Technology and Business (pp. 640-645).
- Sulistia, CD, Maria, FK, Fatriani, JC, & Hartono, To Design and Development of Interactive Sex Education Learning Media for Early Children Using Articulate Storyline 3.
- Setiawan, H., Adi, S., & Ulfah, NH (2017). Development of interactive multimedia based on autoplay as a health promotion media regarding dental and oral health for fifth grade students at SDN Experiment 02 Malang City. *Preventia Journal*, 2(2).
- Syahputra, AY (2016). *Development of housing promotion media based on interactive descriptive virtual reality* (Doctoral dissertation, State University of Malang).
- Sari, F.N. (2015). Development of Interactive Media on Adolescent Reproductive Health for Class VIII Students at SMP PGRI Saptosari Gunungkidul. *Guidance and Counseling Student Research Journal*, 4(6).
- Yusuf, TA, & Sekarpuri, AD (2022). Education through social media to optimize the social emotional abilities and reproductive health of adolescents in West Sulawesi. *Indonesian Widyaaiswara Journal*, 3(4), 169-176.
- Yunararizky, Y., & Cahyawulan, W. (2023). Development of Videoscribe-based Animation Media regarding Reproductive Health for Class X IPS Students in One of the High Schools in Tangerang City. *INSIGHT: Journal of Guidance Counseling*, 12(1), 87-96.