https://journal.ypidathu.or.id/index.php/ijlai/
P - ISSN: 3026-7102
E - ISSN: 3030-8372

Utilization of Kinemaster Application in Improving Learning Outcomes

Agus Sulaiman[1], Fauzan Muklis[2], Him Patry[3]
[1]Universitas Negeri Semarang, Indonesia
[2]Sekolah Tinggi Islam Bahasa Arab Ar-Raayah Sukabumi, Indonesia
[3]An Nikmah al islamiyah Phnom Penh, Kamboja

ABSTRACT

Background. They are constrained by the network and do not have a HandPhone so that the video displayed during learning in the Zoom Meeting is sent back to the WhatSapp Group of class 3.

Purpose. The purpose of this article is to find out what methods or media are suitable for students during the Covid-19 pandemic. Then the technology that can be utilized in the learning process so that educators and students can still meet virtually during the learning process.

Method. The technique used in this investigation is an approximation technique by conducting a survey of the school before the online teaching process is carried out with the aim of seeing what kind of methods and media are used by educators at the elementary school. Then pay attention to the reaction of students at the first meeting of learning in this investigation. After that, analyze and find solutions so that learning runs effectively without discomfort and disinterest of students in the learning process.

Results. In the first part, it can be recapitulated that 90% of learners cannot understand the learning provided through WhatSapp Group. In the second part, it can be recapitulated that 96% of students can understand the learning well, the learning process takes place through the Zoom Meeting application by displaying learning media in the form of videos created and edited using the KineMaster application. 4% of the learners experienced problems during the learning process.

Conclusion. This investigation is detailed into 2 parts, in the first part, the application and the way of learning that is applied are not effective, in the second part all obstacles are corrected so that it can be concluded that the learning media created through the KineMaster application in the form of videos and shared through the Zoom Meeting application really causes a positive reaction to students.

KEYWORDS

Science, KineMaster App, Zoom Meeting App.

Citation: Sulaiman, A., Mukhlis, F., & Patry, H. (2025). Utilization Utilization of Kinemaster Application in Improving Learning Outcomes. *International Journal of Language and Artificial Intelligence, 1*(1), 76–91.

https://doi.org/10.70177/ijlul.v1i1.563

Correspondence:

Agus Sulaiman,
Agussulaiman@gmail.com

Received: September 17, 2023

Accepted: November 10, 2023

Published: November 10, 2023

INTRODUCTION

Teaching is the process of delivering knowledge from educators to students (Ford & Minshall, 2019) It is expected for educators to know and understand how students learn in the classroom according to the characteristics of students. An educator in creating and planning lessons must pay attention to the media chosen to be used in the learning process so that the learning process is effective and efficient (Allen dkk., 2020).

Teachers must have academic qualifications, competencies, educator certificates, be physically and mentally healthy, and have the ability to realize national education goals, which has been explained in Law Number 14 of 2005 concerning Teachers and Lecturers Article.

At this time, especially in the field of education, it is being discussed, as we all know that we are being hit by the Corona virus (Covid-19) which automatically changes the learning patterns of every level of education, starting from the level of Early Childhood Islamic Education, Kindergarten, Elementary School, Junior High School, High School and Higher Education (Wolf & Poulin, 2022). This is actually a challenge for all educators because face-to-face learning is transferred to online learning (online learning using several applications connected to the internet network) (Göbel & Makarova, 2023). Educators must make efforts so that learning is still carried out well and smoothly even though it is online. Educators can use the Zoom Meeting and Google Meeting for the learning process (Gerth Van Den Berg dkk., 2023).

Nowadays, by utilizing existing applications, educators must think about how the learning process runs effectively and does not make students feel bored. Educators are required to be more creative and innovative in explaining or teaching learning (Komec Mutlu dkk., 2022) Therefore, so that students do not feel bored, an educator must be able to adjust what media will be used in the teaching and learning process. Although learning online, which means only meeting virtually, educators can still be creative and innovate to increase the enthusiasm of students in learning. Educators can display or share learning media (Mohaouchane dkk., 2019).

One application that can be used to create virtual learning media in the form of videos is KineMaster. KineMaster is a full-featured and professional video editing application for iOS and Android devices (Shalikhah dkk., 2023a). In making learning media using the KineMaster application, we don't need to worry because we enter video, audio, images, text and effects that support educators to be creative. The videos we make can be combined with animated images related to the learning material to make it more interesting. This application contains simple features but still with high video quality (Kang & Kim, 2021).

The KineMaster application can be used or applied through Android which makes it easy for every educator to access it through the Google Play Store (Shalikhah dkk., 2023a) It does not require a laptop or computer. This application is used to cut video time, remove images that do not want to be displayed, put several videos together, provide transition effects, add sound directly or add music that has been provided, write text and much more that we can find in the editing process (Dash dkk., 2021). Educators can also insert pre-recorded videos and add sound to each image during the editing process. The KineMaster menus are also very easy to understand and really support educators to be more creative (Pappone dkk., 2022).

Based on the findings of the investigation, the learning of science is still low in Indonesia. Many aspects cause this to happen. We can see that among them are aspects of the condition of educators and the inappropriate scientific fields owned by educators (Bustamante dkk., 2023). This actually has an impact on the educator because the learning process still focuses on the educator and still applies the lecture method. During the Covid-19 pandemic, educators cannot only rely on the lecture method in teaching, especially online (Sano dkk., 2023) The way that educators can do in increasing students' learning motivation is to determine learning methods, learning techniques, create teaching materials and prepare interesting learning media and foster students' enthusiasm for learning that is adjusted to the current situation and conditions (Varmedja dkk., 2019).

Educators are focused on learning strategies and media used in learning Natural Sciences so that the learning objectives of Natural Sciences are well achieved (Bosman & Soto, 2022). Natural Science is a compulsory subject at the elementary school level. The learning process of Natural

Science is more learning based on existing facts and the results will be in the form of discovery through the analysis of students. Then this learning discusses the universe which requires educators to be able to direct students to see, observe, study and analyze directly and relate it directly to nature, because it is not only theory but directly with practice (Juggernath & Govender, 2020).

All of the above theories are very difficult to apply during this pandemic because students learn from home (Arevalo dkk., 2021). There is limited time and opportunity to meet face to face, let alone explain directly to students. However, educators do not need to be afraid, too panic and worry because educators can still relate, connect or see nature to students through learning applications that are commonly used. Educators can also record video explanations of the learning material to be explained (Kaur dkk., 2020). Zoom Meeting and Google Meeting applications can share learning videos that have been made through the KineMaster application. Educators can still search for nature or the surrounding environment by making documentation in the form of video recordings or providing direct examples through existing media (Arifin dkk., 2021).

RESEARCH METHODOLOGY

The target of this investigation is students of SDN 13 Sungai Tarab located in Talang Dasun Village, Nagari Pasie Laweh, Sungai Tarab District, Tanah Datar Regency, West Sumatra Province, 2021/2022 academic year in semester 1 with material about Living Things. The 20 students studied consisted of 12 girls and 8 boys (Mujiasih, n.d.). The number of students was obtained from the data provided by the 3rd grade teacher during the site survey. Natural Science learning is one of the preferred learning and is very popular with grade 3 students. However, at this time the enthusiasm for learning of students decreased because it was still the Covid-19 pandemic period. This situation is finally used as an excuse not to be enthusiastic in learning. But educators cannot let this drag on because it will greatly affect the learning outcomes, cognitive, affective and psychomotor of students. The low enthusiasm of students in the learning process does not always occur during this Natural Science learning, sometimes they really look very enthusiastic about learning Natural Science unfortunately the spirit of enthusiasm makes them disappointed because what they imagine does not happen as they expect, in fact educators only send material through the WhatSapp Group only.

The technique used in this investigation is an approximation technique by conducting a survey of the school before the online teaching process is carried out with the aim of seeing what kind of methods and media are used by educators at the elementary school. Then pay attention to the reaction of students at the first meeting of learning in this investigation (Janatolmakan & Khatony, 2022). After that, analyze and find solutions so that learning runs effectively without discomfort and disinterest of students in the learning process. After that, choose learning media that is in accordance with the characteristics and special characteristics of each learner (Timulak & Elliott, 2019). The media created is by utilizing the KineMaster application. The media that has been made will later be displayed during the learning process using the Zoom Meeting application. After that, it is also sent to the WhatSapp Group with learners who are controlled and guided by parents at home. This method really arouses the enthusiasm of students in learning and creates interest for them in the material that is shown so that it makes them always want to know and guess for themselves the next week what kind of media will be given by the educator (Chen dkk., 2021).

RESULT AND DISCUSSION

Natural Science learning in elementary schools has several difficulties. One of them is the special characteristics of this learning, almost all students have difficulty in taking meaning or drawing conclusions from the learning provided (Maryani dkk., 2019). As we know that Natural Science is one of the compulsory subjects at the elementary school level. Not only from the learning itself but also the factor of the educator, what methods are used in teaching and how to be applied in teaching. The method used is a method that can teach all students. This is our job as educators how to create a comfortable, interesting learning atmosphere and make students easily understand the material provided. So, in terms of teaching educators must have expertise in reading situations and conditions. Then adjust to the characteristics of the learners and use the right method.

Is it only methods and media that must be considered by educators so that the learning process runs smoothly and well? The answer is no, because educators must understand three domains in education or learning (Promyoo dkk., 2019), namely:

Cognitive domain

The cognitive domain is the ability to think of someone who wants to gain knowledge through direct observation, direct practice so that the results of this knowledge are obtained based on facts (Glikson & Woolley, 2020). This cognitive domain is often interpreted as academic intelligence.

Affective Domain

The affective domain is the domain that includes a person's feelings, if the cognitive domain is about a person's academics and logic, then the affective is about a person's feelings or emotions, be it sad or happy. In this domain a person develops his ability to give appreciation, mutual respect and provide judgment so that good morals are formed (Delač & Purković, 2023).

Psychomotor Domain

The Psychomotor domain is the ability or intelligence that uses the physical in doing something. In the cognitive domain includes academics, the affective domain includes feelings or research and this psychomotor domain is the application in accordance with the rules or related structures. For example, there is someone who sees the scenery on the beach then pays attention to it and then draws it on the canvas (Yang & Lin, 2021).

Cognitive, affective and psychomotor domains, these three domains cannot be separated because cognitive thinks, affective behaves and psychomotor applies or applies. In learning an educator must pay attention and understand these three domains because they are interrelated and related (Noor dkk., 2020). In choosing the methods and media to be used, educators must examine these three domains, educators must adjust to these three domains. Educators are required to be like this because students in elementary school are those who are in their infancy. At this time they begin to recognize such as letters and numbers, the task of an educator is to direct them so that they can get in accordance with cognitive, affective and also psychomotor.

At the elementary school level, students have high curiosity, they are always curious about new things and their enthusiasm for learning is very high because being at school is fun (Fadillah dkk., 2020). They meet new educators, new friends, new lessons and certainly with new situations and conditions. When they were in kindergarten they only met friends from one class, now they meet other classes which are automatically more numerous than when they were in kindergarten. This is one of the things that encourages them to always be curious and socialize with others. Now this is the role of educators directing and guiding.

Learners prefer to imitate, educators are the models they always model at school. They often gain knowledge from what they see. Not always they remember what is explained but they will

apply what they see. Therefore, educators must always control themselves wherever they are, must behave with good manners. Especially when in school, especially in the classroom, use educational methods. If there are students who break the rules then do not punish them by hurting them physically but give educational punishment by applying cognitive, affective and psychomotor. Many things must be considered by educators in teaching, especially being educators in elementary schools, students are people like empty glasses who want to be filled with knowledge. Guided with kindness and applied with kindness. As educators, never treat students harshly, let alone hurt them physically and mentally. They are innocent humans who are in their infancy, who still need affection and are dominant in being spoiled. Do not let this happen so that it affects their mentality.

Low-grade students tend to prefer learning with real media. No less happy also with yells or songs especially with a friendly smile of an educator (Ray dkk., 2020). Therefore, for lower grades, educators can make learning media such as pictures, objects or videos related to the subject matter. In the learning process we do not always have to be in the classroom, educators can invite students out of the room to see or observe things related to the current subject matter. This will make it faster for students to understand because they see in real terms not only listen to explanations about the theories.

Well, the next question is do we already know what media and learning media are? As educators and having also been learners or students, of course this is familiar, especially for friends who majored in PGSD (Elementary School Teacher Education) or PGMI (Madrasah Ibtida`Iyah Teacher Education) during college. Media can be interpreted as equipment that we use. So, learning media are equipment that we can utilize or use to smooth the teaching and learning process (Alismaiel dkk., 2022). Equipment that we can show to students in accordance with learning materials, both two-dimensional and three-dimensional media. We can also mean that this media is everything that is used as a learning tool.

An example of media that we can use in learning Natural Science (about Living Things) is to make media images using colorful manila cartons or just one color according to the material to be taught (Astuti dkk., 2021). Educators will teach material about various living things so educators can draw on the paper pictures of humans, animals and plants. But must pay attention and adjust to class conditions. The media made must be seen from a distance and can be seen clearly because we will paste the media in front of the class or on the blackboard. If we draw it only with a small size, not all students will see it clearly.

In the current Covid-19 situation, all the methods or methods described above cannot be applied because students no longer study at school. All students are required to learn from home accompanied by parents. Educators are required to be able to utilize existing technology so that learning continues or is carried out properly (Ayun, 2021). In making learning media, it must pay attention to the principles described below (Cao dkk., 2019).

Psychological Principle

In this principle, educators must use learning media in accordance with the nature or special characteristics of students.

Technological Principle

In this principle, utilizing existing technologies to disseminate various references in learning that aim to achieve the vision of learning well. Of course, this also takes into account the special characteristics of the learners.

Empirical Principle

In this principle, educators must adjust to the special characteristics of each learner. Educators must adjust to all class members, cannot rely on only one or two students,

especially on students who get 1st, 2nd or 3rd place in the class. In this principle, in making learning media, it must adjust to the conditions of the class and the characteristics of the students.

Philosophical Principle

In this principle, the media chosen is based on or must pay attention to the special characteristics of each learner. Whether to use new technology in learning or use technology that has been used before.

The media that we can use in the teaching and learning process especially during a pandemic like today are as follows:

Visual media

Audio media

Audio-visual media

So, this investigation is grouped into two parts, the first part consists of plan or plan, application, analyze and evaluate (Pantangi dkk., 2019). Then the second part also consists of a plan or plan, application, analyze and evaluate. These two parts with the same points because in the first part there are many shortcomings that eventually have to plan another way to minimize the shortcomings in the first part and increase the enthusiasm for learning of students.

The first part (Munajah, n.d.)

Plan

Learners are told to join the WhatSapp group that has been created. Then inform the material to be studied, namely Understanding and Characteristics of Living Things.

Application / application

Educators provide material about the Definition and Characteristics of Living Things by sending it to the WhatSapp group. Then the educator instructs students to read it. After that the educator opens a question and answer session.

Analyzing

After one week of learning using the WhatSapp Group, it turned out that it did not get maximum results, at each meeting there were no students who asked questions and even the lack of response from them.

Evaluating

At the end of the seventh day of learning, the educator asked students about their understanding of the material studied. It turned out that almost all of them said they did not understand and could not understand the material.

Figure 1. 3rd grade WhatSapp Group

Second part

Plan

The lack of enthusiasm of the learners and their difficulty in understanding the material then told them to join the Zoom Meeting link that has been provided. In this second part, educators use the Zoom Meeting application that can make educators and learners meet virtually.

Application

Educators start learning with enthusiasm because previously educators have explained to parents of students how to use the Zoom Meeting application. Educators start with motivational words and relate to the surrounding nature. Then the educator goes into the material by re-explaining the Definition and Characteristics of Living Things.

Analyzing

Using the Zoom Meeting application in learning gets better results than before. Educators can see directly the condition of students and the interaction between educators and students. It can be seen that there are several people who enthusiastically want to ask questions about the learning explained.

Evaluate

Explaining with the lecture method without using any media turns out to make students feel bored and sleepy when the educator explains the material, especially using the Zoom Meeting application. Some of the factors are the monotony of the educator in explaining, the difficulty of the internet network and the light from the Android screen which makes them easily sleepy during class hours.

All obstacles or problems that occur in the methods used in online learning, the solution is found, namely by utilizing technology, educators can create learning media using the KineMaster Application. An application that can be used via Android with a simple and easy-to-learn process as well as dhami which aims to edit videos (Shalikhah dkk., 2023b). Increase creativity in editing and creating learning media using Android (Shalikhah dkk., 2023a). In making learning media, it must

adjust to the curriculum and learning principles as well as the principles described above and no less important to pay attention to the cognitive, affective and psychomotor domains (Pontes dkk., 2019). It is very important for educators to pay attention to the competencies that exist in the lessons to be learned. Adjust to the points of discussion and provide real examples. An effective learning process must be balanced with creative teachers and stabilized by students by being enthusiastic about learning (Pappone dkk., 2022). The enthusiasm of students is a strength for educators, and vice versa, the smile of students is energy for students to always be enthusiastic in participating in the learning process.

The initial views that we will see when opening the KineMaster application

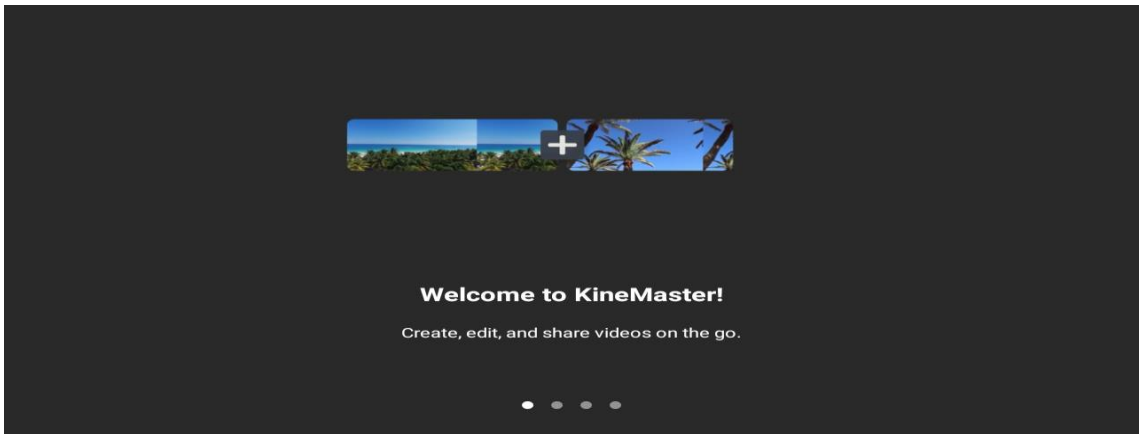

Figure 2. Slide 1

Slide 1 is the initial view when we just opened the KineMaster application

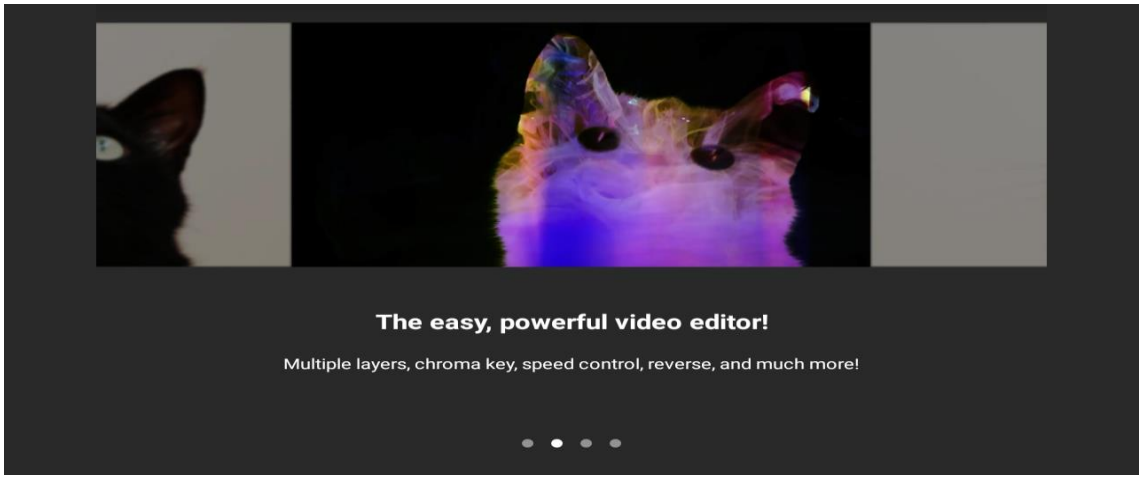

Figure 3. Slide 2

The second slide is also a view of the merge video. Then there are 2 more slides that can be skipped

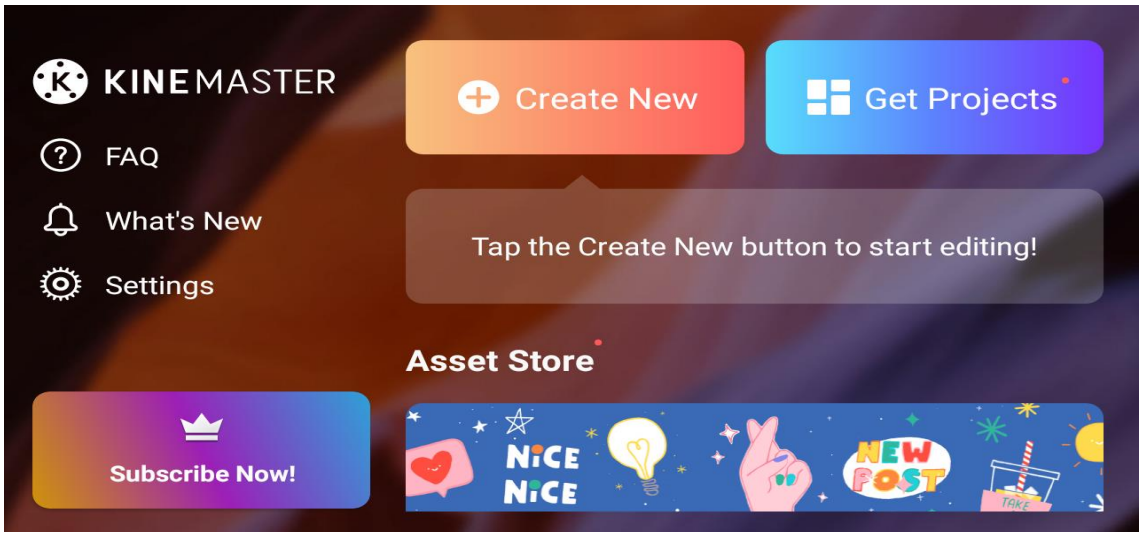

Figure 4: Initial display menus

Usually when we have entered or used this application before, when opening the application we will immediately see the display as in Figure 4. To start an activity or video editing, click Create New, the display will appear as in Figure 5.

Figure 5. Video editing duration

On this display is the duration or period of time that we will use or the length of the video that we will edit. Then click one according to the duration we need and click next on the top right.

Video creation/editing process using Kinemaster App

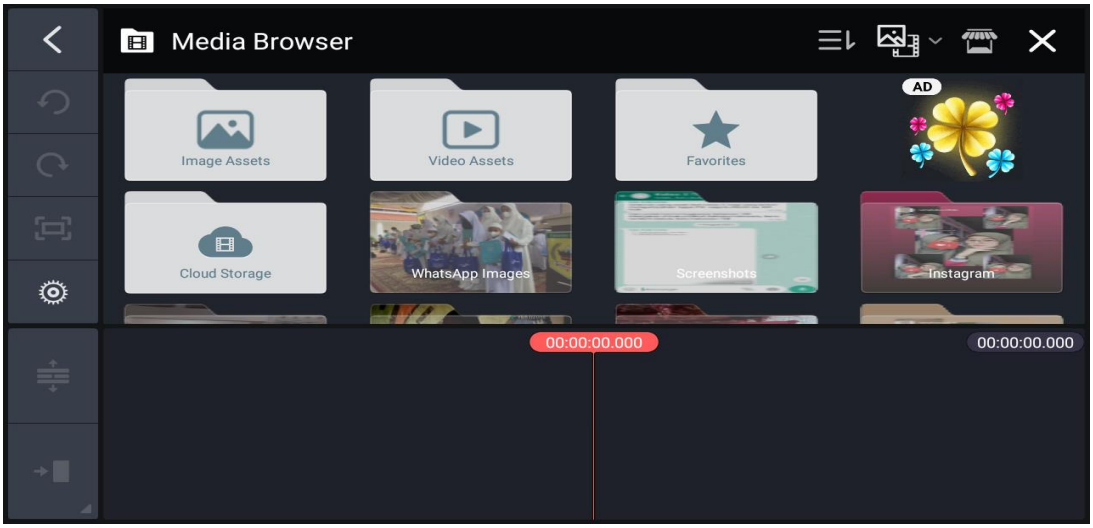

Figure 6. First process

In the first process, we must choose the media to be used as a background in editing, either from those already stored on the cellphone or those provided by the KineMaster application. If we want to use the background from this application, we can click Image Assets. After that, several backgrounds will appear that can be used, then click the one that we will use. Then we can also choose several backgrounds that will be used in one video editing, depending on our creativity and willingness.

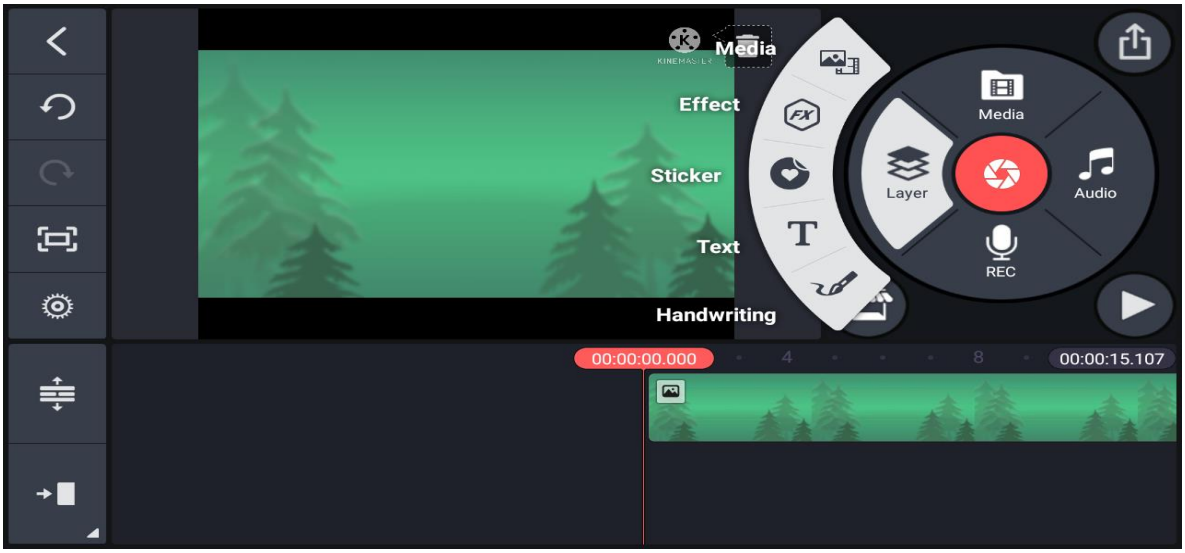

Figure 7. Second process

Figure 7 is an example of the background provided by the Kinemaster application. In this view there are 4 big menus, namely:

Media

This menu is used to search for backgrounds that will be used either from HandPhone storage or from the KineMaster application itself.

Layer

In this menu there are also several sub menus, namely:

Media, this media is used to add images or videos that we have provided on the HandPhone. We can enter the video that we have recorded before. In order to be adjusted to the background during editing, it is highly recommended that when making videos use a one-color background, or we can use one-color fabrics such as green, black and others. What is commonly used by others is green.

Effect, the effect is used for video editing by providing a blur effect on the edited media.

Sticker, there are several kinds of stickers available that we can use such as hats, gift crowns and others.

Text, this text is used to insert words or sentences into the video. It can be used to create titles, add explanations or enter materials in the form of letters or numbers. After entering the sentence we can also choose the type of font we will use.

Handwriting, if we want to draw or write something directly on the video then we can use handwriting.

Rec, if we want to give an explanation or want to enter the voice directly then we can click the rec menu.

Audio, by clicking the audio menu, we can insert music into the video.

In addition to these 4 menus, there is also a circle image in the middle of the red menu. If we click the menu, we are faced with two options, namely camera and camrecorder, which function to take photos or record videos directly through the KineMaster application.

The images above are some of the menus used in the video creation process using the KineMaster application. Through the picture above, we can see that the menus available are easy to understand and use (Shalikhah dkk., 2023a). Of course, this is through experimentation or practice first. Experimenting does not have to be done by attending formal training but by learning on our own we can also try it because the menus are easy to understand. The advantage of using KineMaster is that it helps educators develop and hone their skills and creativity by adjusting to the times and adapting to situations and conditions (Shalikhah dkk., 2023a). Educators can also include video and audio together so that each image can be included with an explanation from the educator. Although this is a new thing in the world of education, especially for educators in elementary schools, God willing, this Kinemaster application will be very helpful.

Some schreenshot images of the edited video

Figure 8.

In Figure 8 there is evidence of screenshots of material titles that have been made in the Kinemaster application, educators can adjust to the subject matter and the wishes of the educator. Many variations can be used in making videos and then there are also many font styles that can be chosen for use.

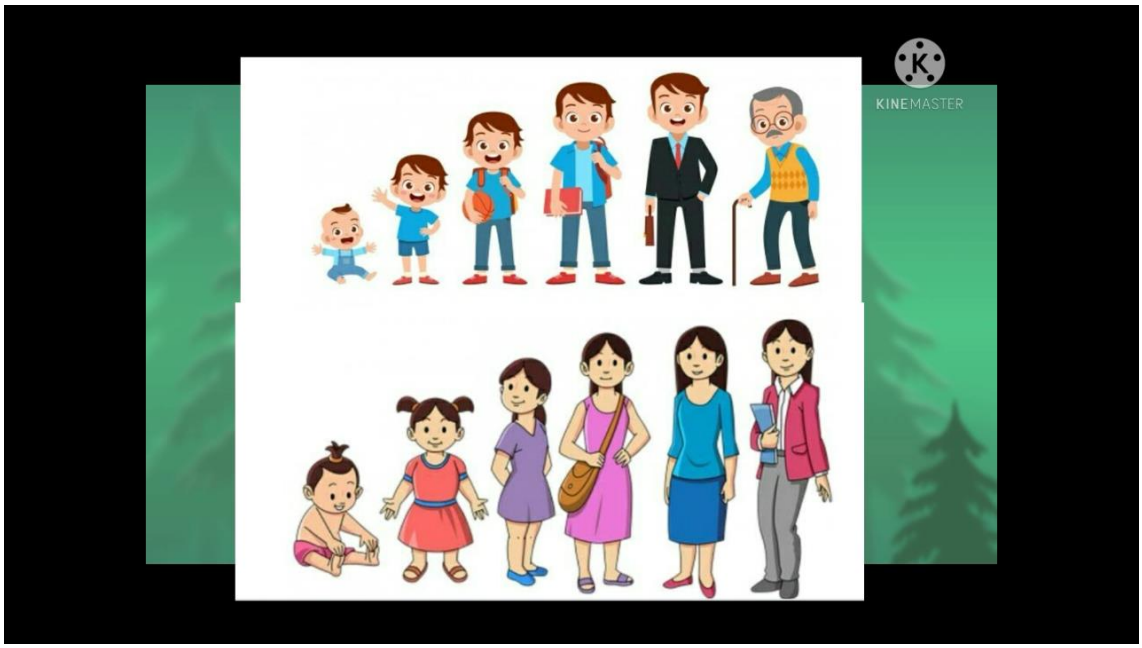

Figure 9.

This is one example of the screenshots in the video lesson on the development of living things. The screenshots are images that are inserted into the video during editing. Can be seen in Figure 9.

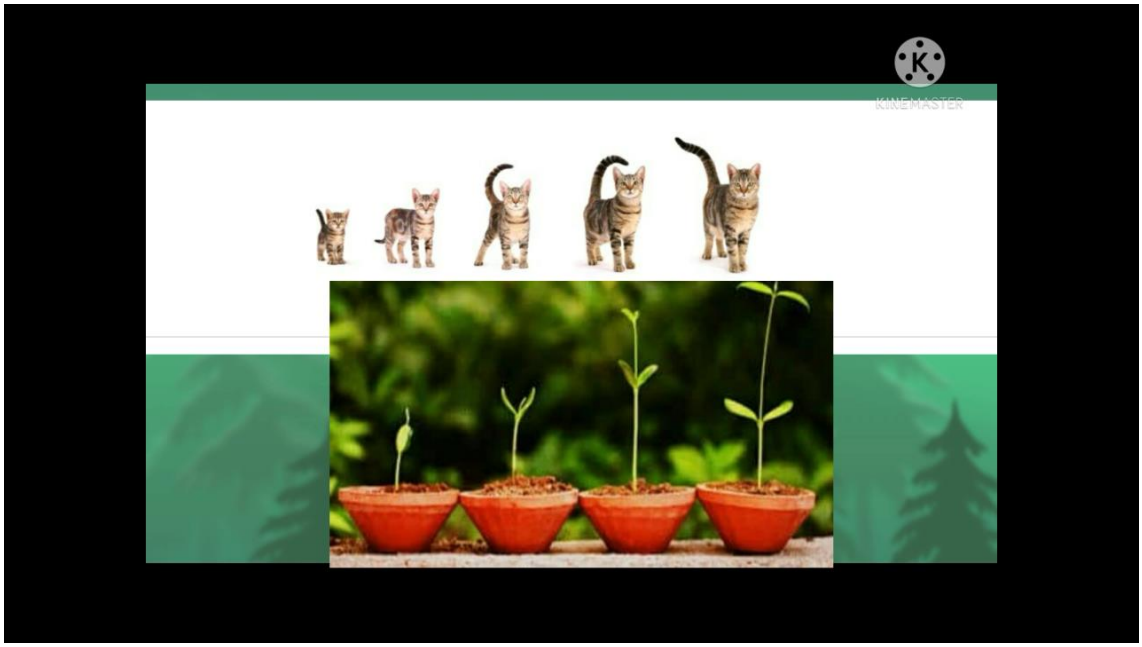

Figure 10.

In this figure is the development that occurs in animals and plants taken from the learning video of living things. In one view, 2 images can be combined. There are many more images that can be inserted for editing.

Well, the learning video is a teaching aid that intends to convey knowledge or information in which there are writings, sounds and images (Zhang dkk., 2019). The KineMaster application is one of the right applications used by educators because in the current conditions educators must be able to use existing technology to motivate students to always study hard (Shalikhah dkk., 2023a). Online learning carried out at this time makes most people, especially educators, use applications that were rarely used before (Shalikhah dkk., 2023a). This is also a challenge for educators to be aware of technological developments.

Of all the advantages of the kinemaster application, there are several disadvantages that occur, such as requiring a large storage capacity so that the videos we edit can be saved to the gallery or HandPhone documents and the images entered are not immediately neatly arranged. Here, patience and expertise in editing are tested. In this case, educators are required to be more patient in editing and it is hoped that educators will not be discouraged to always make learning media. Educators do not just provide material and then explain it, but there are so many functions of educators in education. The biggest task of educators is to guide. Educators are considered professional if they have and always try to hone and develop skills, proficiency, and proficiency in meeting quality standards and norms in education. In fulfilling this standard, educators must pay attention to applicable norms.

From learning Natural Science material about Living Things, educators can guide and build the characteristics of students because a person's character can be built and formed through education (Sajidan dkk., 2021). In carrying out all functions as an educator well, one must have a strategy that will be applied in teaching, one of which is to create learning media using the

KineMaster application . Virtual learning by making videos is very helpful for students who have minimal words or students who have weaknesses in hearing or speaking.

In the application of the second part, there was an increase in students. With the learning media, students are more eager to learn so that learning objectives are achieved well. Educators display videos that have been made and then provide explanations about the kinds of living things and the development of living things. The media created is an animated video that contains animated images that add interest to students in understanding the material. Educators' expertise in digital literacy is part of how educators use appropriate applications and media to encourage the online learning process through the internet network. Almost all students are interested in learning that prepares learning media that will be displayed during learning through the Zoom Meeting application.

All efforts made by educators cannot be separated from the help and monitoring of parents because children learn from home and 24 hours children are at home with parents. Of course this is also a matter of great concern for every parent because it is impossible to go to school in a pandemic situation and children will not go to school for a long time. There are factors that inhibit students from learning from home, namely the absence of a Handphone so that students join their friends when studying. Parents are the first educators for a child, parents play a role in overcoming all the obstacles that occur with their children.

Through the media provided by educators, it is very clear that students have a high curiosity about something new. This curiosity arises because of something new from the usual and sometimes present accidentally which causes happiness after the curiosity is fulfilled. One of the solutions from educators is to resend the learning media in the form of videos to the WhatSapp group so that students can study again at any time. Another advantage of KineMaster is that we can save the video edits to the gallery and share to other social media so that if we have deleted the application the video is still saved.

CONCLUSION

Natural Science is one of the subjects that is highly favored by students of SDN 13 Sungai Tarab. The spread of the Covid-19 virus has shifted the way of learning, which was originally offline or face-to-face directly at school, which is now shifted to learning from home online using the Zoom Meeting application. This Zoom Meeting application is one of the easy-to-use applications. Online learning has many obstacles both from the school, educators and parents at home. It can be recapitulated that there are 6 students with network constraints and 2 people do not have a HandPhone. 12 people have a Handphone with a stable network because 6 of them use Wi-fi Devnet and 6 of them have a good network at their home. It is a fact that the quality of educators in Indonesia is still low. Video is one of the media that is appreciated to be effective in arousing learners' expertise in choosing learning media, understanding the material to be taught and arousing learners' enthusiasm for learning. This investigation is detailed into 2 parts, in the first part, the application and the way of learning that is applied are not effective, in the second part all obstacles are corrected so that it can be concluded that the learning media created through the KineMaster application in the form of videos and shared through the Zoom Meeting application really causes a positive reaction to students. The data recorded is that students are very enthusiastic and often ask questions in the learning process so that at the end of the learning process given daily assignments they can complete properly and correctly.

AUTHORS' CONTRIBUTION

Look this example below:

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

REFERENCES

Alismaiel, O. A., Cifuentes-Faura, J., & Al-Rahmi, W. M. (2022). Online Learning, Mobile Learning, and Social Media Technologies: An Empirical Study on Constructivism Theory during the COVID-19 Pandemic. *Sustainability*, *14*(18), 11134. https://doi.org/10.3390/su141811134

Allen, J., Rowan, L., & Singh, P. (2020). Teaching and teacher education in the time of COVID-19. *Asia-Pacific Journal of Teacher Education*, *48*(3), 233–236. https://doi.org/10.1080/1359866X.2020.1752051

Arevalo, I. J. M., Errabo, D. D., & Prudente, M. S. (2021). Assessing Clarity and Difficulty in Online Personalized Learning of Earth and Space Lessons Using Students' Socioemotional Skill Levels. *2021 IEEE International Conference on Educational Technology (ICET)*, 215–219. https://doi.org/10.1109/ICET52293.2021.9563106

Arifin, S. R., Zaidin, M. A., Piu, S. W., Ruktiari, R., Rizal, M., & Arifin, A. (2021). Zoom Meetings vs Google Meet: Students' Experience. *2021 3rd International Conference on Cybernetics and Intelligent System (ICORIS)*, 1–4. https://doi.org/10.1109/ICORIS52787.2021.9649575

Astuti, R., Nisak, N. M., Nadlif, A., & Wulan Hajjatul Zamzania, A. (2021). Animated video as a Media for Learning Science in Elementary School. *Journal of Physics: Conference Series*, *1779*(1), 012051. https://doi.org/10.1088/1742-6596/1779/1/012051

Bosman, L., & Soto, E. (2022). Using Entrepreneurially-Minded Online Discussions to Drive Educator-Focused Community of Practice. *2022 IEEE IFEES World Engineering Education Forum - Global Engineering Deans Council (WEEF-GEDC)*, 1–6. https://doi.org/10.1109/WEEF-GEDC54384.2022.9996211

Bustamante, A. S., Bermudez, V. N., Ochoa, K. D., Belgrave, A. B., & Vandell, D. L. (2023). Quality of early childcare and education predicts high school STEM achievement for students from low-income backgrounds. *Developmental Psychology*, *59*(8), 1440–1451. https://doi.org/10.1037/dev0001546

Cao, L., Shen, W., Huang, J., Yang, Y., Zhang, D., Huang, X., Lv, Z., & Ji, X. (2019). Process to utilize crushed steel slag in cement industry directly: Multi-phased clinker sintering technology. *Journal of Cleaner Production*, *217*, 520–529. https://doi.org/10.1016/j.jclepro.2019.01.260

Chen, J., Chow, A., Fadavi, D., Long, C., Sun, A. H., Cooney, C. M., & Broderick, K. P. (2021). The Zoom Boom: How Video Calling Impacts Attitudes Towards Aesthetic Surgery in the COVID-19 Era. *Aesthetic Surgery Journal*, *41*(12), NP2086–NP2093. https://doi.org/10.1093/asj/sjab274

Dash, N., Nayak, S. K., & Majumdhar, J. (2021). Detection of Cut Transition in Videos Using Optical Flow and Clustering. *2021 Asian Conference on Innovation in Technology (ASIANCON)*, 1–7. https://doi.org/10.1109/ASIANCON51346.2021.9544553

Delač, D., & Purković, D. (2023). The Relationship between Extracurricular Activities and Student Achievement in the Affective Domain: The Case of a Vocational Electrical Engineering School. *2023 46th MIPRO ICT and Electronics Convention (MIPRO)*, 1590–1594. https://doi.org/10.23919/MIPRO57284.2023.10159807

Fadillah, M. F., Muslim, E., & Pane, F. E. S. (2020). *Analysis of environmental factors effect on cognitive performance and stress level in elementary school students*. 040025. https://doi.org/10.1063/5.0000932

Ford, S., & Minshall, T. (2019). Invited review article: Where and how 3D printing is used in teaching and education. *Additive Manufacturing*, *25*, 131–150. https://doi.org/10.1016/j.addma.2018.10.028

Gerth Van Den Berg, S., Harris, C., & Raja, R. (2023). Viral Zoom Karen: Attending to 'the scratch' with *Mapping the Affective Turn in Education*. *Discourse: Studies in the Cultural Politics of Education*, *44*(2), 309–321. https://doi.org/10.1080/01596306.2021.2012755

Glikson, E., & Woolley, A. W. (2020). Human Trust in Artificial Intelligence: Review of Empirical Research. *Academy of Management Annals*, *14*(2), 627–660. https://doi.org/10.5465/annals.2018.0057

Göbel, K., & Makarova, E. (2023). Introduction to the Special Issue "Emergency Remote Teaching during the COVID-19 Lockdown and Its Implications for Higher Education Institutions: An International Perspective." *Education Sciences*, *13*(6), 551. https://doi.org/10.3390/educsci13060551

Janatolmakan, M., & Khatony, A. (2022). Explaining the experience of nurses on missed nursing care: A qualitative descriptive study in Iran. *Applied Nursing Research*, *63*, 151542. https://doi.org/10.1016/j.apnr.2021.151542

Juggernath, A., & Govender, N. (2020). Natural Sciences Teachers' Beliefs as Barriers for Integrating ICTs in a Technology-rich Context. *African Journal of Research in Mathematics, Science and Technology Education*, *24*(1), 105–115. https://doi.org/10.1080/18117295.2020.1736854

Kang, S., & Kim, Y. (2021). Examining the quality of mobile-assisted, video-making task outcomes: The role of proficiency, narrative ability, digital literacy, and motivation. *Language Teaching Research*, 136216882110479. https://doi.org/10.1177/13621688211047984

Kaur, H., Pannu, H. S., & Malhi, A. K. (2020). A Systematic Review on Imbalanced Data Challenges in Machine Learning: Applications and Solutions. *ACM Computing Surveys*, *52*(4), 1–36. https://doi.org/10.1145/3343440

Komec Mutlu, A., Tugsal, U. M., & Dindar, A. A. (2022). Utilizing an Arduino-Based Accelerometer in Civil Engineering Applications in Undergraduate Education. *Seismological Research Letters*, *93*(2A), 1037–1045. https://doi.org/10.1785/0220210137

Maryani, I., Lestari, N. W., & Saifuddin, Much. F. (2019). Magazine Based On Guided Inquiry-An Innovation to Overcome Natural Science Learning Difficulties in Elementary Schools. *Pedagogika*, *136*(4), 51–66. https://doi.org/10.15823/p.2019.136.4

Mohaouchane, H., Mourhir, A., & Nikolov, N. S. (2019). Detecting Offensive Language on Arabic Social Media Using Deep Learning. *2019 Sixth International Conference on Social Networks Analysis, Management and Security (SNAMS)*, 466–471. https://doi.org/10.1109/SNAMS.2019.8931839

Noor, N. A. M., Saim, N. M., Alias, R., & Rosli, S. H. (2020). Students' Performance on Cognitive, Psychomotor and Affective Domain in the Course Outcome for Embedded Course. *Universal Journal of Educational Research*, *8*(8), 3469–3474. https://doi.org/10.13189/ujer.2020.080821

Pantangi, S. S., Fountas, G., Sarwar, M. T., Anastasopoulos, P. Ch., Blatt, A., Majka, K., Pierowicz, J., & Mohan, S. B. (2019). A preliminary investigation of the effectiveness of high visibility enforcement programs using naturalistic driving study data: A grouped random parameters approach. *Analytic Methods in Accident Research*, *21*, 1–12. https://doi.org/10.1016/j.amar.2018.10.003

Pappone, L., Cerasuolo, F., Persico, V., Ciuonzo, D., Pescape, A., & Esposito, F. (2022). Prediction of Mobile-App Network-Video-Traffic Aggregates using Multi-task Deep Learning. *2022 IFIP Networking Conference (IFIP Networking)*, 1–6. https://doi.org/10.23919/IFIPNetworking55013.2022.9829800

Pontes, A. I., Henn, M., & Griffiths, M. D. (2019). Youth political (dis)engagement and the need for citizenship education: Encouraging young people's civic and political participation through the curriculum. *Education, Citizenship and Social Justice*, *14*(1), 3–21. https://doi.org/10.1177/1746197917734542

Promyoo, R., Alai, S., & El-Mounayri, H. (2019). Innovative Digital Manufacturing Curriculum for Industry 4.0. *Procedia Manufacturing*, *34*, 1043–1050. https://doi.org/10.1016/j.promfg.2019.06.092

Ray, A. E., Greene, K., Pristavec, T., Hecht, M. L., Miller-Day, M., & Banerjee, S. C. (2020). Exploring indicators of engagement in online learning as applied to adolescent health prevention: A pilot study of REAL media. *Educational Technology Research and Development*, *68*(6), 3143–3163. https://doi.org/10.1007/s11423-020-09813-1

Sajidan, S., Adi, F. P., Atmojo, I. R. W., Ardiansyah, R., & Saputri, D. Y. (2021). Analysis of the Online Natural Science Learning Implementation at Elementary Schools in Central Java Province During Covid-19 Pandemic. *ICLIQE 2021: Proceeding of The 5th International Conference on Learning Innovation and Quality Education*, 1–6. https://doi.org/10.1145/3516875.3516924

Sano, I., Wang, Y., Kawai, Y., & Sumiya, K. (2023). A Method of Extracting Difficult-to-Understand Video Intervals for Generating Assignments using Keywords in Online Lecture Videos. *2023 11th International Conference on Information and Education Technology (ICIET)*, 98–102. https://doi.org/10.1109/ICIET56899.2023.10111432

Shalikhah, N. D., Sari, K. P., Iman, M. S., Oktradiksa, A., Nugroho, I., & Aufa, M. (2023a). *Utilization Kinemaster in making learning videos for elementary school teachers*. 020045. https://doi.org/10.1063/5.0125788

Shalikhah, N. D., Sari, K. P., Iman, M. S., Oktradiksa, A., Nugroho, I., & Aufa, M. (2023b). *Utilization Kinemaster in making learning videos for elementary school teachers*. 020045. https://doi.org/10.1063/5.0125788

Timulak, L., & Elliott, R. (2019). Taking stock of descriptive–interpretative qualitative psychotherapy research: Issues and observations from the front line. *Counselling and Psychotherapy Research*, *19*(1), 8–15. https://doi.org/10.1002/capr.12197

Varmedja, D., Karanovic, M., Sladojevic, S., Arsenovic, M., & Anderla, A. (2019). Credit Card Fraud Detection—Machine Learning methods. *2019 18th International Symposium INFOTEH-JAHORINA (INFOTEH)*, 1–5. https://doi.org/10.1109/INFOTEH.2019.8717766

Wolf, D. P., & Poulin, J. M. (2022). When questions are our best answers: Responding to the impact of COVID-19 on community-based arts education organizations: a special issue of *Arts Education Policy Review*. *Arts Education Policy Review*, *123*(1), 1–5. https://doi.org/10.1080/10632913.2020.1844833

Yang, H.-H., & Lin, J.-Y. (2021). Exploration on Factors Affecting Students' Persistence Intention in Completing MOOCs—Taking Psychomotor Domain Course as an Example. *2021 5th International Conference on Education and E-Learning*, 93–99. https://doi.org/10.1145/3502434.3502458

Zhang, Y., Zhao, P., Bian, K., Liu, Y., Song, L., & Li, X. (2019). DRL360: 360-degree Video Streaming with Deep Reinforcement Learning. *IEEE INFOCOM 2019 - IEEE Conference on Computer Communications*, 1252–1260. https://doi.org/10.1109/INFOCOM.2019.8737361