



The Utilization of the Camtasia Application in Making the Human Respiratory System Science Learning Media

Ahmad Firdaus bin Mohd Noor¹, Adhe Octaviandra², Azza Hassan Mohamed Hussein³,

¹Universiti Teknologi MARA Perak Branch, Malaysia

E-mail: firdausno1or@uitm.edu.my

²Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia

E-mail: oktaade712@gmail.com

³Alexandria University, Egypt

E-mail: azza.husseein@alexu.edu.eg

Corresponding author: oktaade712@gmail.com

Abstract— Camtasia is a software used to record screens and record voices to create interactive menus and create media presentations produced by Techsmith. This application can be used to create online-based learning media, namely making video tutorials or training to be presented. This article contains procedures for using the Camtasia application which aims to create learning media and aims to produce learning media that will be useful for achieving learning goals. The use of the Camtasia application is also very suitable to be applied at this time because the Indonesian education system already has to use a distance learning system. It is hoped that the making of this learning media video will later get a good response from students. The stages of using Camtasia application in this article are 1) Camtasia application, 2) Camtasia application features, 3) How to use Camtasia application, 4) Camtasia application use in making learning media, 5) Camtasia advantages and disadvantages.

Keywords— Camtasia Application, Science Learning Media, Respiratory System Science

I. INTRODUCTION

Education is an effort to shape the souls of students physically and mentally and by nature to become better human beings (Sujana, 2019). The process that is passed in education is continuous and never ending which aims to achieve a bright future (Sujana, 2019). Education in Indonesia itself has existed since ancient times such as the Hindu-Buddhist period, the spread of Islam, the colonial period, the colonial period before and after ethical politics, after independence, the new order, and the reformation period (Syaharuddin & Susanto, 2019). The passage of Indonesian

education certainly has a good impact on all aspects of life, one of which is in the field of Information and Communication Technology.

Information and Communication Technology is one of the aspects of life that is rapidly increasing because there will always be updates from every technology that has been created (Bondy et al., 1994). Information and Communication Technology itself is a useful technology for processing, processing, storing, manipulating, and many other activities that can be carried out by this Information and Communication Technology (Bondy et al., 1994). The point of this Information and Communication Technology is to simplify and

implement efficiency in doing things (Huda, 2020). ICT is also useful in the business field such as facilitating communication and transactions between businesspeople and so on. After Information and Communication Technology spreads in human life, the human life system increases with the prefix e, such as e-life, e-mail, e-commerce, e-library, and so on and of course all of this can be done with a system in a network or online (Haris Budiman., 2017).

Information and Communication Technology (Information and Communication Technology) itself in the field of education has been predicted by ancient education experts that education in the future will no longer have to go to school (Ri et al., 2015), but education can be carried out wherever students are. regardless of where and when learning should be carried out or roughly teachers are no longer needed in the future (Bondy et al., 1994). But behind it all, Information and Communication Technology is very useful in education such as ease of finding information, ease of accessing learning materials, and making teachers as facilitators, not as the center of education anymore (Komunikasi et al., 2013). Media that can be used in implementing an education system based on Information and Communication Technology is to use internet media to connect educators and students. Information and Communication Technology itself has penetrated into the world of education to assist teachers in working on classroom administration (Huda, 2020).

Then for Information and Communication Technology itself is very instrumental in the field of education. Changes in world demands make education have to innovate and be creative, especially in learning (Bao & Feng, 2022). The purpose of Information and Communication Technology is not only to focus on learning but can also be used in conducting research related to education (Haris Budiman., 2017). However, the problem that usually arises is the mastery of Information and Communication Technology by teachers, in which Information and Communication Technology should be able to help the teacher's task so that the teaching process carried out outside the room can run well. Therefore, teachers are required to understand Information and Communication Technology in improving the quality of these teachers

(Komunikasi et al., 2013). Judging from the use of Information and Communication Technology, of course in every learning it is very necessary nowadays, especially now the teacher is no longer the center but the facilitator (Komunikasi et al., 2013).

One of the uses of Information and Communication Technology in education is the creation of learning media. Learning media is an inseparable part of school (Aka, 2017). Utilization of learning media is an effort to create a creative and systematic learning process. Learning media is a material vehicle that aims to stimulate students to be active in learning (Rosidah et al., 2021). Learning media does not have to be offline only, but can also be online. For today, there are lots of technologies that can support and make it easier for teachers to create learning media (Rahmanto & Bunyamin, 2020). Online learning media are media that utilize Information and Communication Technology in their use, using mobile phones or laptops, websites, and using internet connections (Elianur, 2020).

In December 2019 in China there was a case caused by the corona virus which has a high transmission rate. Soon the virus has become a global virus and has touched Indonesia. The impacts caused by the spread of the corona virus are numerous, one of which is in the field of education (Dewi & Hilman, 2019). This epidemic forced the Indonesian education system to conduct distance education, which the distance system had never done before. So the only way to continue education in Indonesia is to use a remote or online system. This is a challenge for teachers and students to be able to rack their brains so that learning objectives can still be achieved. The practice is that students and teachers must interact via virtual by using applications, the web, social networks, e-learning and other platforms (Herliandry et al., 2020).

With the implementation of the online system, teachers are required to adapt to this online learning system. This online learning requires educators to evaluate the extent of their ability to use online-based applications but still pay attention to the comfort of students in receiving learning. Behind a system there must be obstacles, one of which is the network. As we know that the conditions in Indonesia are diverse, not all areas are covered by an internet connection. Such

constraints must be understood and responded to by the teacher. If it is not possible, it is possible to provide dispensation to students who are constrained by the network. Another obstacle is the ability of parents to provide educational services to their children, such as the cost of buying cellphones, internet packages and other costs (Herliandry et al., 2020)

Understanding Information and Communication Technology is a teacher's demand to support the implementation of their duties so that the desired competencies can be achieved. According to Wijayanti (2011) the function of Information and Communication Technology for teachers is to assist administrative work, packaging teaching materials, assist learning management, and technical support in increasing knowledge in order to realize an understanding of the existing arrangements in Information and Communication Technology (Aka, 2017). There are actually many competencies that must be mastered by teachers, but in general they are able to operate computers, assemble, install and set up computers, do programming, process data, process worksheets, manage databases, and present results (Aka, 2017)

Regarding online learning media, teachers really have to be competent because they have used Information and Communication Technology as a tool in making learning media. These demands require teachers to be familiar with several applications in conducting learning such as Whatsapp, Youtube, Google Meet, Zoom Meeting, and so on. These applications are often used to carry out learning (An-Nashr et al., 2021). Before stepping into the media, the teacher must prepare mentally for the current situation which is completely online, the teacher must be involved in this online system. One of them is making learning media. The thing that can be done so that teachers understand the use of applications to make learning media is to take part in training and assistance in making Information and Communication Technology learning media (Ri et al., 2015). Every complaint that is felt is immediately acted upon by the competent authorities, so that during the training it can be carried out optimally. Then, the applications studied are applications that are not too heavy or make it difficult for students to access our learning media (An-Nashr et al., 2021). A suitable application used to create online-based learning

media is Camtasia. The Camtasia application is suitable for use in making learning media videos because in it there are features that can make learning media videos interesting such as the addition of moving images, music that makes videos interesting, and suitable icons related to learning science of the Human Respiratory (Syahid, 2019).

II. METHOD

This study uses a descriptive method where here I use a Camtasia application that helps the learning process by using a learning video, during the current covid 19 pandemic, teachers are required to be more proficient in using technology because the learning process now uses technology that is more modern than what is expected. usually. This Camtasia application can be used by educators in providing material that will be discussed to students in carrying out the learning process that will be carried out. The Camtasia application, apart from being able to be used for learning in elementary School, can also be used to make presentations for office workers.

The advantages of using the Camtasia application are as follows: (Pranowo, n.d.):

1. It is easy to use, it doesn't look complicated, it's also easy and simple to run the application.
2. The final video quality can be set from best to lowest.
3. The Camtasia application can record the screen, display the full monitor screen and can also be combined with Powerpoint for presentations.
4. Does not require servers.
5. Can do further editing, such as being able to add videos in presentation videos, and so on.
6. Complete file format.
7. The features in Camtasia are all related to CMS (Course Management System) and LMS (Learning Management System) tools.

The advantage of using the Camtasia application for teachers is that with this application it can change and create teacher innovations to create an interesting, interactive, and interconnective learning media but still keep abreast of the times, namely still utilizing modern technology so that it

is not outdated but still refers to learning goals which is actually the intellectual life of the nation.

III. RESULTS AND DISCUSSION

The Covid-19 outbreak has changed several life systems, one of which is the learning system. The latest learning system that must be implemented is the distance learning system (Muhtarom et al., 2020). Of course this is a challenge for teachers to divert all learning systems that were originally face-to-face in class now must be far apart (Aka, 2017), and of course it will affect students to understand the learning they will get which learning can be obtained from learning media. online (Khaira, 2021). This online-based learning media can be in the form of text, sound, animation, and so on. The use of online media is an innovation that can help students understand the material, motivation and student learning outcomes. In making online learning media, it must be structured and can be used easily so that it can be easily accessed by students (Khaira, 2021).

This online-based teaching and learning activity is learning that must be done flexibly because students must be able to access learning wherever and whenever they are (Syahid, 2019). For now, there are still many students who have difficulty understanding distance learning. The reason is that most teachers only send photos and sounds without any explanation from the teacher. And no less parents also do not understand the material given by the teacher. From this case, teachers are required to be able to create innovative and more interesting learning media (Khaira, 2021). Learning media should be able to provide experience and increase student learning participation during the pandemic. In making learning media, attention must be paid to speed so that learning can run well (Elianur, 2020).

Media designed by teachers must be innovative and learning success is strongly influenced by the completeness of the media to be used (Khaira, 2021). For media can be divided into audio media, visual media, and audio visual. The basic ability of teachers to use a variety of media is very important. However, the cost of making the media is quite expensive. This can be minimized by using computer applications spread on the internet, one of which is Camtasia (Amelia & Arwin, 2021).

There are many ways to use learning media to create interesting learning media. Teachers must take advantage of learning media that can overcome time constraints, such as pictures, photos, films, slides, videos, and various others (Hikmah & Purnamasari, 2017). In this regard, learning will be more interesting if the teacher can combine the selection of material with the creativity of a teacher in making a media and appropriate learning methods (Rahmad et al., 2018). The application used is Camtasia Studio. Camtasia Studio is software that can record everything that is going on on the monitor screen and is used to make video tutorials or presentations (Rahmad et al., 2018).

There are several supporting features for making learning videos using the Camtasia application, namely in the form of media, view menus, play menus, and tools menus (Anggraeny et al., 2020). During the pandemic that we feel today, educators are required to be more active and smart in making learning media, so that when teachers provide learning, students are more enthusiastic in participating in learning and not easily bored (Pranowo, n.d.). There are several benefits that we can feel when using the Camtasia application, namely in the form of making it easier for teachers to convey learning material in using the Camtasia application (Saifudin & Mubaroq, 2021).

During the COVID-19 pandemic, we have experienced many losses, such as in the field of education, in the economy, in tourism (Yoga Purandina & Astra Winaya, 2020). An example that we can feel in the field of education is that we usually do direct learning, now we are actually doing education using information technology, and learning by using technology and learning by using this technology does not only apply to universities but also to kindergarten schools. childhood (Saifudin & Mubaroq, 2021). Even though in kindergarten schools must use face-to-face learning because in kindergarten they learn while playing and during the Covid-19 outbreak the learning process was stopped and transferred to online learning, students were only asked to carry out the learning process by watching the learning videos provided by the teacher. the desert, at the elementary school level students learn by taking school assignments once a week (Waruwu et al., 2020). For the Camtasia application itself, it is software that makes it easy to record all

activities as well as edit and publish for later in the presentation, audio can also be added (Pranowo, n.d.). Here are some features of the Camtasia application (Pranowo, n.d.):

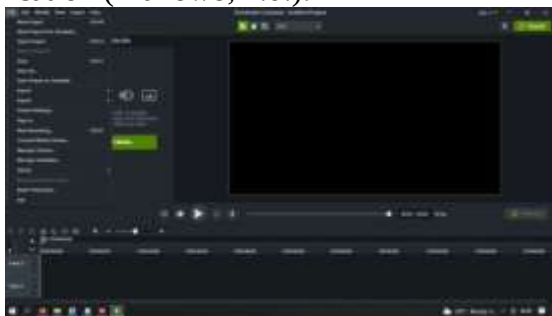


Fig 1. File menu display

1. File menu. In the file menu there are several features that can make it easier for us to prepare for editing such as New Project, Open Project, Recent Project, Save, Save As, Import, Export, Project Settings, Sign In, New Recording, Connect Mobile Device, Manage Theme, Librarian, Remove Device Frames, Batch Production, and Exit.



Fig 2. Edit menu display

2. Edit. The edit menu is used to edit the videos that we make such as Undo, Redo, Cut, Copy, Paste, Delete, Ripple Delete, Split Selected, Split All, Stitch Selected Media, Separate Audio and Video, Group, Ungroup, Arrange, Jump To, Add to Library, Preferences, and so on.



Fig 3. Display the Modify menu

3. Modify. Used to make changes to video objects such as Extend Frame, Duration, Add Animation, Add Behavior, Add Effects,

Generate Keystroke Callouts, Remove, Captions, Markers, Quizzes, Smart Focus, and so on.

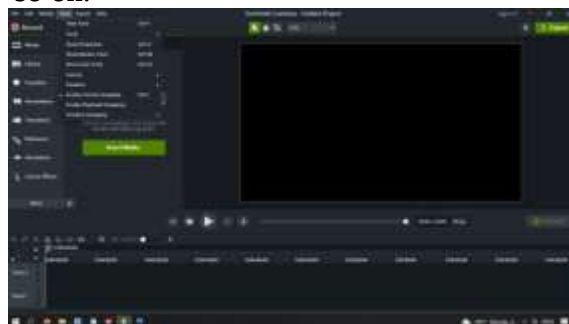


Fig 4. Display menu view

4. View. Used to set the appearance of the created video such as Hide Tools, Tools, Hide Properties, Show Maker Track, Hide Quiz Track, Canvas, Timeline, Enable Canvas Snapping, and Timeline Snapping.

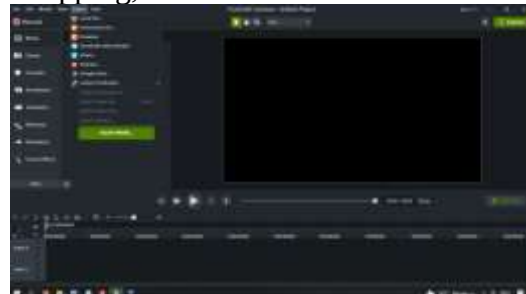


Fig 5. Display of the Share/Export menu

5. Share/Export. This menu is used to share videos to be shared.

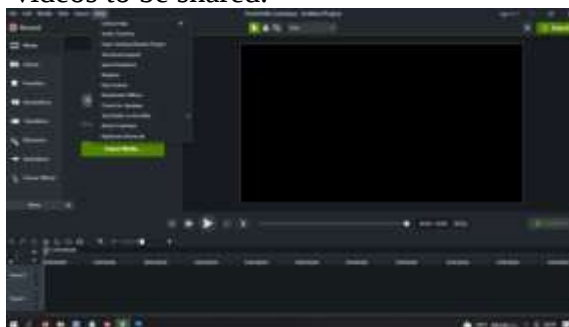


Fig 6. Display menu help

6. Help. Additional features where to ask if there is something in doubt. This feature is available online and offline
7. Media. Where to insert videos or photos from the file manager. Everything that will be edited must be entered into this Media menu.
8. Libraries. The Library menu can add additional icons to make the video more interesting.
9. Annotations. This feature provides supporting elements such as callouts, lines, arrows and

lines, shapes, specials, sketch motion and so on.

10. Transitions. Added video scene switching effect.
11. Behavior. Gives animation to text.
12. Animations. Provide some additional animations such as zoom in out, scale, rotate, and so on.
13. Cursor effects. Give effects to the mouse cursor and so on.

After we know about the features in the Camtasia application, we can proceed to how to use the Camtasia application in making learning media. The preparations are as follows (Oktaria & Putra, 2020):

1. Prepare the storyline of the video to be edited.
2. Prepare materials. The materials prepared can be in the form of videos, texts, images, music, animations, and other things that are deemed necessary to be added later when editing learning media videos. The selection of images, background videos, and music and others must be in accordance with the theme that will be used. Because we make learning media for elementary school children, the themes taken are colorful themes, lots of animated cartoons, cheerful music, and so on.
3. Create a title in the video. To create a title, you can open the Library - Intros Folder - Type according to the theme and then edit.
4. Adding images and text to the media. Once added, click and hold on the photo or text then drag it to the Tracks section in the lower left corner
5. Enter the Annotations menu – Callouts – Write material, then edit the writing position – Edit the font in the Properties section – Set the appearance and end of the text.
6. Add music. The default music in this application is there, so please choose between the music in the application or the music that we import from outside. As above, open the media and find the music you want to use. After that, click and hold on the music and drag it to the Track number 2 because Track number one is already filled with videos or

photos. For the duration of the music and the volume can be adjusted in the Tracks section itself.

7. Cutting the video can be done in the Track 1 section or where we put the video
8. Adding effects. The effects in Camtasia are a lot like transitions. The effect given to the transition is to give a little animation when moving photos, videos or whatever.
9. In video editing the teacher must pay attention to the theme used. If the learning is science, then use media in the form of plants or animals or anything that smells of science. Here, the teacher is asked to be alert to be able to select the media that will be used and edited in this Camtasia application (Rahmad et al., 2018; Pranowo, n.d.).

By explaining how to use the Camtasia application in making online learning media, it is hoped that elementary school teachers are able to maximize the learning process in their respective classes by using the Camtasia application as a place to make interesting learning media videos and can stimulate students' thinking abilities (Pranowo, n.d.). The use of the Camtasia application in making learning media should be able to increase student learning outcomes so that they reach the classical mastery target (Nafrin & Hudaiah, 2021). In this case the teacher must be able to understand the learning difficulties experienced by students in order to facilitate the provision of appropriate assistance and guidance according to the location of the student's difficulties, so that students who have learning difficulties will receive clear direction and can improve their learning outcomes (Saragih, 2019). In its use the teacher can also consider the application of using Camtasia learning media as a way of delivering learning and it can be used for other subjects as well as those that will be taught before being carefully designed so that the results are maximized. Students understand that teachers are also happy (Waruwu et al., 2020).

Because the current situation requires the learning system to be carried out using a remote system, the teacher must be able to rack his brain so that the learning objectives can still be obtained. Even though the current learning system is not full of schools, it does not dampen the enthusiasm of teachers in providing learning materials. In the

past, it was teachers who brought learning media to school (Permatasari et al., 2019). Nowadays, teachers can bring the media in front of their own students through online, namely in the form of videos that students can watch anywhere and anytime. This certainly has a positive impact because it can cut school operational costs because they don't use many school facilities. The positive impact for students is that students can study comfortably according to their own comfort (Indiani, 2020). Behind the positive impact there must be a negative impact. The negative impact we feel for teachers is that many students have not followed the learning process well, sometimes they do not understand the learning provided by the teacher, many obstacles are felt by students, such as internet network problems because not all students have a good internet location, and Another obstacle is that there are not many students who have Android to facilitate the learning process given by the teacher, which is in the form of a learning video.

IV. CONCLUSIONS

In the discussion that has been discussed above during the covid 19 pandemic, the learning process was shifted to online learning, which is usually the learning process that is carried out face-to-face, now virtually many obstacles are felt during the covid 19 pandemic, such as from students and teachers who are constrained by the internet network, and internet package quotas, because each of the teachers and students is located in a different place, during the covid 19 pandemic the teacher must be able to make learning videos that attract students' interest, so that students participate in the learning process more enthusiastically even though the learning is only done just watch learning videos. There were so many impacts that were felt at the time of covid 19 starting from the economic level, to the tourism level, schools were implemented starting from the kindergarten level to the university level, schools at the elementary school level started from students only picking up their assignments per week to school. , until it was enforced with teachers who came to their respective students' homes and felt that such a learning process was not effective enough to apply offline schools, but only partially taped students who came and

studied at school and that was done persistently, parents also felt that their children learning at home alone is less effective because many parents work so it is not usual to accompany their children to study at home because parents of students have their respective work assignments and parents hope that this corona virus will pass quickly so that learning can run as usual or nor mall back.

REFERENCES

- Aka, K. A. (2017). Pemanfaatan Teknologi Informasi dan Komunikasi (TIK) sebagai Wujud Inovasi Sumber Belajar di Sekolah Dasar. 1, 28–37.
- Amelia, V., & Arwin. (2021). Pengembangan Media Pembelajaran Berbasis Aplikasi Kinemaster Pada Pembelajaran Tematik Terpadu di Kelas III SD Negeri 36 Koto Panjang. *Journal of Basic Education Studies*, 4(1), 2656–6702.
- Anggraeny, D., Nurlaili, D. A., & Mufidah, R. A. (2020). Analisis Teknologi Pembelajaran dalam Pendidikan Sekolah Dasar. *Fondatia*, 4(1), 150–157. <https://doi.org/10.36088/fondatia.v4i1.467>
- An-Nashr, F. U. H., Harliansyah, F. E., & Diantoro, F. (2021). Kecakapan Pendidik dalam Menggunakan Media Pembelajaran Online di Masa Pandemi. *Attanwir: Jurnal Keislaman Dan Pendidikan*, 12(1), 100–114.
- Bao, J., & Feng, D. (William). (2022). “Doing research is not beyond my reach”: The reconstruction of College English teachers’ professional identities through a domestic visiting program. *Teaching and Teacher Education*, 112, 103648. <https://doi.org/10.1016/j.tate.2022.103648>
- Bondy, B., Klages, U., Müller-Spahn, F., & Hock, C. (1994). Cytosolic free [Ca²⁺] in mononuclear blood cells from demented patients and healthy controls. *European Archives of Psychiatry and Clinical Neuroscience*, 243(5), 224–228. <https://doi.org/10.1007/BF02191578>
- Dewi, S. Z., & Hilman, I. (2019). Penggunaan TIK sebagai Sumber dan Media Pembelajaran Inovatif di Sekolah Dasar. *Indonesian Journal of Primary Education*, 2(2), 48. <https://doi.org/10.17509/ijpe.v2i2.15100>

- Eliaur, C. (2020). Pilihan Media Pembelajaran Daring Oleh Guru Pai Di Bengkulu Tengah. *Jurnal As-Salam*, 4(1), 37–45. <https://doi.org/10.37249/as-salam.v4i1.142>
- Haris Budiman. (2017). Peran Teknologi Informasi Dan Komunikasi Dalam Pendidikan. *Al-Tadzkiyyah: Jurnal Pendidikan Islam*, 8(1), 31–43.
- Herliandry, L. D., Nurhasanah, N., Suban, M. E., & Kuswanto, H. (2020). Pembelajaran Pada Masa Pandemi Covid-19. *JTP - Jurnal Teknologi Pendidikan*, 22(1), 65–70. <https://doi.org/10.21009/jtp.v22i1.15286>
- Hikmah, V. N., & Purnamasari, I. (2017). Pengembangan Video Animasi “Bang Dasi” Berbasis Aplikasi Camtasia Pada Materi Bangun Datar Kelas V Sekolah Dasar. *Pengembangan Video Animasi “Bang Dasi” Berbasis Aplikasi Camtasia Pada Materi Bangun Datar Kelas V Sekolah Dasar*, 4(2), 182–191. <https://doi.org/10.23819/mimbar-sd.v4i2.6352>
- Huda, I. A. (2020). Perkembangan Teknologi Informasi Dan Komunikasi (Tik) Terhadap Kualitas Pembelajaran Di Sekolah Dasar. *Jurnal Pendidikan Dan Konseling (JPDK)*, 2(1), 121–125. <https://doi.org/10.31004/jpdk.v1i2.622>
- Indiani, B. (2020). Mengoptimalkan proses pembelajaran dengan media daring pada masa pandemi covid-19. *Sipatokong BPSDM Sulawesi Selatan*, 1(3), 227–232.
- Khaira, H. (2021). Pemanfaatan Aplikasi Kinemaster Sebagai Media Pembelajaran Berbasis ICT. *Prosiding Seminar Nasional Pembelajaran Bahasa ...*, 39–44.
- Komunikasi, I. D. A. N., Paramita, S. M. K., Mojokerto, K., Riwayadi, P., Perkembangan, P., Informasi, T. E., Komunikasi, D. A. N., & Sandry, R. (2013). 4 Purwo Riwayadi PEMANFAATAN PERKEMBANGAN TEKNOLOGI. *Perkembangan Teknologi Informasi Dan Komunikasi*, 1, 16.
- Muhtarom, Nizaruddin, & Aryan Eka Prastya Nugraha. (2020). Pelatihan Pembuatan Media Untuk Pembelajaran Jarak Jauh. *Jurnal Abdimas Bina Bangsa*, 1(1), 98–106. <https://doi.org/10.46306/jabb.v1i1.19>
- Nafrin, I. A., & Hudaidah, H. (2021). Perkembangan Pendidikan Indonesia di Masa Pandemi Covid-19. *Edukatif: Jurnal Ilmu Pendidikan*, 3(2), 456–462. <https://doi.org/10.31004/edukatif.v3i2.324>
- Oktaria, R., & Putra, P. (2020). Pendidikan Anak Dalam Keluarga Sebagai Strategi Pendidikan Anak Usia Dini Saat Pandemi Covid-19. *Jurnal Ilmiah Pesona PAUD*, 7(1), 41. <https://doi.org/10.24036/108806>
- Permatasari, I. S., Hendrapipta, N., & Pamungkas, A. S. (2019). Pengembangan Media Pembelajaran Video Animasi Hands Move Dengan Konteks Lingkungan Pada Mapel Ips. *Terampil: Jurnal Pendidikan Dan Pembelajaran Dasar*, 6(1), 34–48. <https://doi.org/10.24042/terampil.v6i1.4100>
- Pranowo, T. A. (n.d.). Membuat Video Pembelajaran Berbasis Screen Recorder dan Video Editor Menggunakan Camtasia.
- Rahmad, R., Yuniastuti, E., & Wirda, M. A. (2018). Pengembangan Media Pembelajaran Video Tutorial Menggunakan Camtasia Studio 8.5 Pada Matakuliah Sistem Informasi Geografi (Sig). *Jurnal Imiah Pendidikan Dan Pembelajaran*, 2(1). <https://doi.org/10.23887/jipp.v2i1.13040>
- Rahmanto, M. A., & Bunyamin. (2020). Efektivitas Media Pembelajaran Daring Melalui Google Classroom. *Jurnal Pendidikan Islam*, 11(November), 119–135.
- Ri, Q., Wklv, L. Q., Qrzdgd, O., Jlyhq, V. K. D. V, Fkdqjhv, P. D. Q., Lq, L., Hgxfdwlrq, W. K. H., Kxpdq, L., Frqwhqw, U., Dv, O., Dv, Z., & Dqg, S. (2015). Integrasi Teknologi Informasi Komunikasi Dalam Pendidikan: Potensi Manfaat, Masyarakat Berbasis Pengetahuan, Pendidikan Nilai, Strategi Implementasi Dan Pengembangan Profesional. *Jurnal Pendidikan Teknologi Dan Kejuruan*, 21(3), 1–1. <https://doi.org/10.21831/jptk.v21i3.3255>
- Rosidah, C. T., Amelia Widya Hanindita, Ida Sulistyawati, & Apri Irianto. (2021). Peningkatan Kompetensi Guru Sekolah Dasar Dalam Pengembangan Bahan Ajar Daring di SDN Margorejo I Kota Surabaya Provinsi Jawa Timur. *Kanigara*, 1(1), 23–31. <https://doi.org/10.36456/kanigara.v1i1.3154>
- Saifudin, I., & Mubaroq, S. (2021). Pemanfaatan Aplikasi Camtasia dalam Meningkatkan Kebutuhan Multimedia Pada Video Pembelajaran Daring Bagi Guru di SMP

- Muhammadiyah Bondowoso. 21(2), 140–147. <https://doi.org/10.24036/sb.01430>
- Saragih, E. M. (2019). Available online at www.jurnal.una.ac.id/indeks/jmp Available online at www.jurnal.una.ac.id/indeks/jmp PENDAHULUAN Pendidikan yang mampu mendukung pembangunan dimasa mendatang adalah dinamis. Matematika merupakan salah satu bidang ilmu pokok dalam dunia. III(2), 177–181.
- Sujana, I. W. C. (2019). Fungsi Dan Tujuan Pendidikan Indonesia. *Adi Widya: Jurnal Pendidikan Dasar*, 4(1), 29. <https://doi.org/10.25078/aw.v4i1.927>
- Syahrudin, & Susanto, H. (2019). Sejarah Pendidikan Indonesia. In *Program Studi Keguruan dan Ilmu Pendidikan Universitas Lambung Mangkurat* (Vol. 53, Issue 9).
- Syahid, A. A. (2019). Bagi Guru Sekolah Dasar Bagi Guru Sekolah Dasar Development of Ict Training Structure For Basic School. 132–136.
- Waruwu, N. A., Silaban, P. J., & Sinaga, R. (2020). Peningkatan Hasil Belajar Siswa Dengan Menggunakan Media Camtasia Studio. *Jurnal PGSD: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 13(2), 155–160. <https://doi.org/10.33369/pgsd.13.2.155-160>
- Yoga Purandina, I. P., & Astra Winaya, I. M. (2020). Pendidikan Karakter di Lingkungan Keluarga Selama Pembelajaran Jarak Jauh pada Masa Pandemi COVID-19. *Cetta: Jurnal Ilmu Pendidikan*, 3(2), 270–290. <https://doi.org/10.37329/cetta.v3i2.454>