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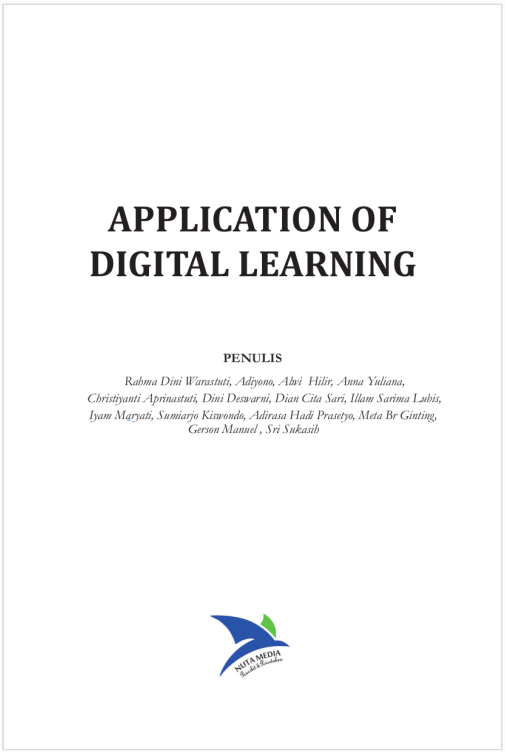

APPLICATION OF
DIGITAL LEARNING

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Digital Learning Using LINE Aplication

by Aprinastuti Christiyanti

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preface

Praise be to Allah SWT, who has given His grace and guidance so that the book entitled "Application of Digital Learning" has been completed. This book is the result of collaboration between lecturers across government and private campuses. The presence of this book is the result of an extraordinary struggle of fellow lecturers who took part in this writing project.

This book answers various issues regarding the use of digital media in learning. The understanding of digital media for the learning process will foster awareness of the importance of the current digital era. The discussion in this book is easy-to-read, straightforward, and comprehensive.

We are indebted to all involved parties and hope that this book provides beneficial information. We are aware of many limitations in this book; therefore, suggestions and criticisms are very welcome. Happy reading.

Author team

Daftar Isi

CHAPTTER 1.

Extensive listening 2.0: TED Talks and Elllo mediated listening instruction, students' listening proficiency level perspective

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Abstract

Intensive listening approach has dominated in almost listening class in teaching English as a foreign language. Most listening class activities is arranged by the teacher, and the students do not take a big part in the listening class. In the last decade, recently, a new approach of listening class gives the students opportunity to build their own listening autonomy involving the internet. This technology have been taking apart as an important tool in listening class. The listening approach is called extensive listening 2.0. One principles of this approach is adjusting to the student's level. This paper provides two listening tools that are able to fine-tuning the students' listening proficiency level.

Keywords: extensive listening2.0; listening proficiency level; TedTalks; Elllo

Introduction

In teaching of foreign language listening, the Intensive listening approach has been the dominant. Here, the teacher delivers some oral

texts (audio-only or video) to the students and guides them through a three-phase classroom procedure including pre-activities, while, and after listening. The teacher play the audio material can be many times. Broadly described, the most of listening class activities is arranged by the teacher, and the students do not have strong role in the listening class.

In the last decade, at least, there are two situations that influence this foreign language listening approach. First, at least, there are three the different language teaching experts have built a case in supporting of extensive listening (Renandya & Farrell, 2010). The second one is, in educational environment, today, where many students with their smartphones that are used for communication using text or multimedia messages, email, and look at a wide variety of sources. Students use their mobile devices to communicate everywhere by using oral language, written language, and visuals as well. (Anderson, 2010). Overall, in other words, these technologies have really expanded the ways to communicate each other. Hopefully, the use of this technology can provide a meaningful and interesting atmosphere for language.

Unfortunately, this approach, named extensive listening 2.0, is not being applied sufficiently. It requires a teacher with clear goals, with an effective curriculum and instructional strategies (Schwartz & Pollishuke, 2013) besides, mostly for reasons of lack of school equipment necessary resources and insufficient qualification of teachers for the implementation of this approach. (Stošić, 2015). To fill this gap, this paper will bring the good collaboration of two listening teaching resources, they are expected to fulfil the students' need especially in their proficiency level in learning and practicing listening with extensive listening 2.0 approach

Extensive Listening 2.0 as a teaching platform media

Extensive listening (EL) is all types of listening activities that allow the students to receive many comprehensible and enjoyable listening input (Renandya and Farrell, 2010) The aim of extensive listening is to develop listening proficiency which will help the students to improve automatic processing of the target language when done

properly (Waring, 2008). This approach can be implemented in outside of the class. In addition, teachers should try to increase the students' motivation for listening by choosing interesting materials with the meaningful content (Basturkmen, 2010; Alm, 2013), by encouraging listening to English outside the class, and by showing students how to find their own materials. Today, accessing internet in teaching learning context is a must. There are literally hundreds of online ELT communities nowadays with an open membership system. In other words, teacher or student can now join online communities without having to pay a single cent (Dixon, 2017). Web 2.0 technologies like blogs, podcasts, social networking, online videos, and microblogs can be used by students to practice both productive and receptive skills. These are not only useful for understanding students who are using these technologies already but can also provide new ways for teachers to engage with their students. (Giordano, 2017). Here is the collaboration of two listening teaching technology resources.

Adapting TED Talks and E for mediating Elllo the students' listening proficiency level

Listening is kind of a mysterious skill because it seems that it just happens. How can the teacher actually teach the students to listen better? One of the best answer is a technology. Student in listening class need the appropriate materials, and they can find them on the internet that supplies students with multimedia input including visual support, such as photographs, texts, captions, illustrations, etc. Teachers can find many resources to help teach listening on the internet, and actually, the student can access too. Actually,

there are some benefits from listening with internet supplies. First, listening with visual support helps to promote students' listening comprehension and is more facilitative for less proficient language learners (Suvorov, 2008,). According to Peterson (2010), listening to digital audio or watching a video clip on the internet provides learners with the opportunity to control their listening processes through the optional use of repeated viewings, subtitles, transcripts, and feedback. Moreover, the audio-video input visualizes what is being said and

facilitates the task of guessing and expecting what is going to be said so it helps learners to enhance their comprehension.

To adapt these internet resources, first, it must be realized that, the concept of extensive reading is applicable to extensive listening (Renandya, 2011). Based on this understanding, extensive listening must be applied with ten principles of extensive proposed by Day and Braimford in Widodo (2016). The first principle is that extensive listening is easy (1). Easy, in this context, means fit to the student's level. The second is a wide range of topics must be available (2). Students should have access to listening materials outside of the classroom. In this internet era, students who have access to this technology can find a lot of listening resources (e.g. TED Talks and Elllo). Next principle is learners should choose what to listen or pick audio or video texts (3). It means that the students have autonomy to pick and choose the video, audio, or spoken texts at their own taste or need. The forth principle is learners should listen to spoken texts as much as possible they can (4). The next principle is about the purposes of EL (5). The purposes of listening are appropriate with the listening for pleasure, listening for information, and listening for general understanding. The sixth principle is listening is its own reward is principle which the teacher must hold in extensive listening (6). The word reward in this context refer to something that student must be received after doing listening comprehending. The reward could be give unique sensation when they have listening experience. Here, the students will be engaged and enjoy toward the experience and by end of the activity they will build their own builds listening autonomy. The next principle is listening is a meaning-making activity (7). It refers to the activity which students focus on the discourse or substance of spoken texts. Students must understand the meaning of statements and utterances of the audio or video in particular way. The eighth one is listening is personal (8). This principle goes to the idea that every student is unique person who needs to be treated as a private person. As private person student listen at their own speed and step. It means that the students must be guided by teacher to schedule their time to listen, thus in this context student should have their own agenda to listen. The next principle is that the teachers play roles as supporter and co-listeners who always

support learners' learning to listen and listening to learn (9). This role leads teacher to co-listener who is ready to be their peer and support them in a ways. As a Co-listener, the teacher must also listen to audio, video or spoken texts that teacher assign student to listen and must be able to recover all the problems or questions raise after student listen to the materials and provide supportive learning environment. The last principle is teachers are role models of listeners (10). Role model means that teacher must not only to perform how listening exercises should be done but also teacher must to maintain extensive listening in their learning activities.

Some principles above lead to understanding that extensive listening covers some indicators, they are level capacity of learner, autonomy, variety, personalization, quality and quantity, meaning making, scaffolding or support, and sustained engagement with spoken texts. Widodo and Rozak (2016) state that extensive listening is more than an approach that helps EFL students deal with their listening problems. Extensive listening will embrace any listening activities or tasks that provide students with resources for meaning making and with access to quality learning opportunities. These learning opportunities come out of listening tasks. Here are two resources that meet the students' level

ELLLO

One great resource is found on the ELLLO. ELLLO, which stands for English Language Listening Lab Online, is a web-based learning center with over 1,000 samples of listening experiences that can be downloaded for free on the internet, as well as an immersive self-study website with voice interviews and additional resources that provide authentic dialogues with English speakers and a variety of interviews to help students develop their listening skills (Piasetski, 2004). The audio files for the listening materials can be downloaded in MP3 format. There is also a transcription and fun quizzes included.

The listening materials on ELLLO pages are designed to meet the interests and desires of learners who are studying English. The website www.elllo.org has a variety of listening media, including videos,

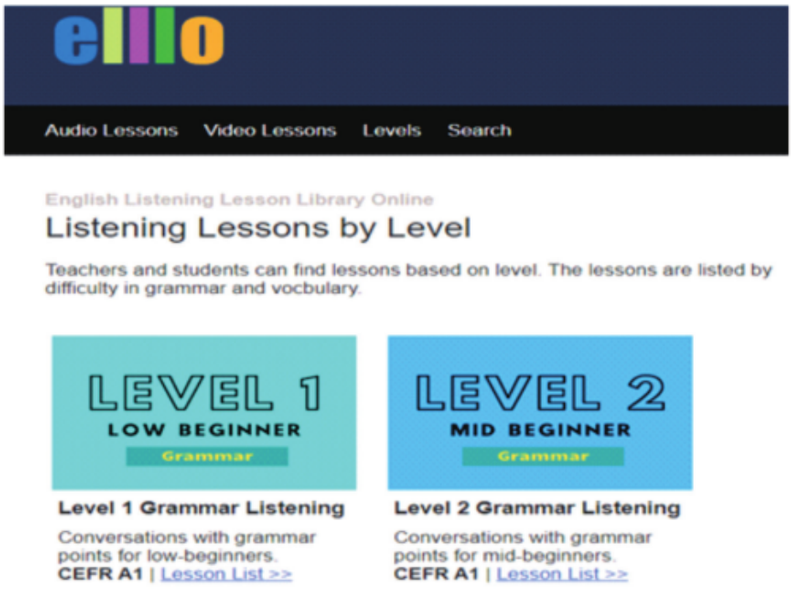
pictures, and audio slide shows. Learners may use their spare time to explore this platform in order to develop their listening skills by listening to English for fun or excitement in their daily life.

From the above, it is clear that *www.elllo.org* is a viable option for providing innovative teaching and learning practices in listening. This website is a great resource for teachers who want to improve their media in teaching English or for students who want to learn to listen on their own, so that they will understand someone's expressions better and feel more excited about learning English. This would help them improve their English communication skills.

Besides, the www.elllo.org website has a variety of benefits for developing the learners' listening skills. The below is an example of how www.elllo.org will help the students improve their listening skills:

1. Use vocabulary to prepare the students for real-life situations by providing authentic materials. It means that when the students use English in their daily life, they will be more effective to become more familiar with the language and to have a better understanding of it
2. The students would be attracted to modern materials if they are attractive and creative. www.elllo.org has great source suppliers as well as delivery methods; the materials are attractive, innovative, and easy to comprehend.
3. Downloading materials is easy. Learners can learn outside of the classroom, the website allows learners to easily archive the materials so that they can re-listen to them even though they do not have access to the internet or use them for daily practice.
4. As long as we have an internet connection, we have free access. The students do not have to pay extra to access this website as long as they have an internet connection, making it simple and cost-free to use.
5. Elllo offers a variety of instructional resources at various levels, allowing the students to choose the materials that best fit their needs based on their English proficiency. This

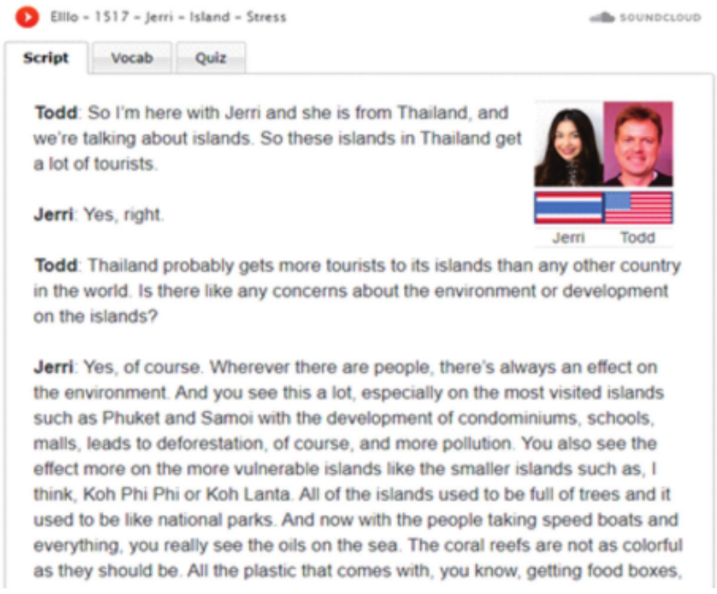
has certain advantages because, for example, novice level students will access certain listening tools suitable for their level; they will not be uncertain about which materials to use.



Source: https://elllo.org/english/levels/index.htm

6. Providing games to keep students from being bored during study time. The games shown here are educational games designed to assist them in developing their English skills in a fun way.
7. Including an audio slide show to arouse students' interest. The students can learn the speaker's language, as well as the proper time and expression for using something, by using a slide show.
8. Providing opportunities for the students to engage in conversation with people from other nations in order to get a better understanding of other cultures. Learning about other cultures is important for students to broaden their horizons and become more aware of other ways of life.
9. Elllo provids a transcription so that the students can quickly learn the vocabulary used in the dialogue. For students who

tend to see the words clearly and for some visual learners, transcription will help them understand the words better.



Source: https://elllo.org/english/1501/1517-Jerri-Island-Stress.htm

10. Using interactive quizzes to assess students' comprehension of what they've seen. Interactive quizzes are very beneficial because the students will not be intimidated by taking the quizzes and will get their results immediately.

Here are some process that the students can follow to practice and to improve their English proficiency:

- Step 1: Choose a Task

  Students will go at the activity lists and choose a job that they are interested in. With over 2000 lessons to choose from, there is enough for everyone. Students may use the Advanced Search Page to find a subject by sorting by stage, speaker country, topic, and level.

- Step 2: Just Listen!

  Play the audio on every activity page and listen for fun. The key point is to listen for fun as well as to hear the message. There

are a variety of ways to listen to audio in certain activities. For most Views, Mixers, Scenes, Games, and News Center lessons, a student can listen to audio or view multimedia on a PC.

- Step 3: Read and Review

  It's a smart thing to read the text and study the vocabulary after the first listening. Students will learn new vocabulary and expressions and see how fluent speakers communicate in real life by reading the text with or without the recording. There is also vocabulary support in most audio lessons.

- Step 4: Interact and Test your Knowledge

  Students may take a quiz and/or refresh vocabulary for each activity. These tests can be completed at any time. Many students choose to take the quiz while listening, while some prefer to take it instead. The quizzes, on the other hand, are designed to make the lessons more interesting (it's fun to get the right answers!), but students are not required to take them in order to benefit from the lesson.

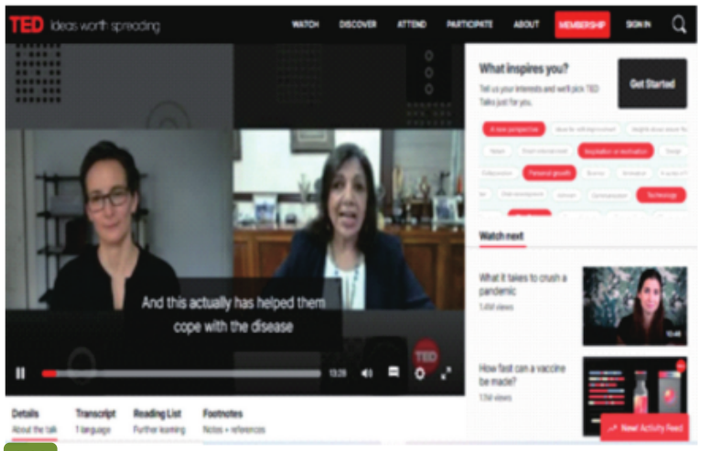
- Step 5: Keep Going

  Each lesson is fairly short, and can be completed in about five minutes. After doing one listening, students are encouraging to keep using English by listening to a new activity. The aim of Elllo is to provide a large supply of listening activities so students can always keep going!

Source: https://www.elllo.org/about/lesson_guide.htm

TED Talks

TED Talks are well known around the world for interesting lectures on human interest stories that are spoken by very effective speakers. Ted Talks is one section of that website intended for educational purposes. The link address is www.ted.com



Source: https://www.ted.com/talks/kiran_mazumdar_shaw_the_global_cooperation_that_accelerated_the_Covid_19_vaccines/transcript

Here, the teacher can find a number of different topics that can be developed into listening materials in class. it is an examples of the kinds of listening that students can find on the internet. Students can find interesting talks with excellent content like this example of Ted Talks which are very popular around the world.

As the teacher, before explore TED Talks, here is some procedures that must be done: (1) This teacher facilitates the student in completing a variety of pre-listening, while-listening, and post-listening activities. (2) The teachers are supposed to introduce TED Talks to the students and remind them that the goal of using TED Talks will help the students to engage them in collaborative autonomous and reflective listening. By experiencing with this, the students will aware that it is one of a pedagogical innovation that they never experienced before because video.not.es, as a resource of extensive listening 2.0, is rarely taught in many English class. Besides, the teacher must demonstrated how to find the address www.ted.com ; how to sign – in ; how to copy and paste the URL of the TED Talks video , how to load video or change video to load another video.; how to play and stop the video and how to use the available script or subtitle.

There are some activities that must be delivered, they are:

Students choose an interesting video from ted.com

Students watch the video without subtitles and take notes

Students watch the video with English subtitles and add to their notes using a different-colored pen.

Students watch the video with subtitles in their native language and take notes using a different-colored pen.

Students choose a one- to two-minute section of the transcript and create a gap fill using the cloze test creator. Students complete the gap fill twice or until they get a satisfactory score.

Each of this listening teaching resources has a special advantage that meet the students' needs, the students are given opportunities to select a video or appropriate with their level and interests (Mayora, 2017). TED Talks exercis improved their listening comprehension, and it's important to note that the TED talks inspired some students to explore their own interests and study further. They were also able to get used to actual aural feedback thanks to the authentic listening tools (Takaesu, 2013).TED Talks give the opportunities the students to select the topic by they own interest. Here more, the students are given the transcription hile listening the video. Moreover, when the students use Elllo, the possibility of listening at their own level and as many times as they need is given, it might help them find these authentic materials more comprehensible. Shortly, by self-selecting listening materials or texts, they could realize that extensive listening 2.0 as a personal activity. They were encouraged to listen to a variety of video texts that they found easy for them

Role of Teachers in EL

. There are specific duties for teachers, too, in spite of extensive listening being mostly under the control of learners. First of all, teachers should direct the learners to choose the appropriate listening materials for their proficiency level, or, if possible, they can provide a large number of materials from which learners can choose. Otherwise, the learners, if they are beginners, may select more difficult listening texts than they can understand, which would decrease their motivation and discourage to continue. This should not be understood that teachers

should choose the listening materials for learners and be involved in the listening activities, but they should just make some suggestions about what and how learners should do in extensive listening.

Conclusion

Technologies today are widely used not only for communication but also for learning. In many teachings learning process, materials are delivered by computer, and books are not being used anymore but instead computer technology is used. Computer technology is particularly powerful because it allows students to draw on resources that can support their listening; through the use of subtitles, transcripts and images as well the capability to repeat language again and again. So the collaboration of ted Talks and Elllo is very needed for the students. It offers the whole thing the students' need in any level. Then, it comes to last saying that extensive listening is fresh and innovative way to move from the 'traditional way of teaching listening. It brings learners a lot of privacy, happiness and meaningful activities and finally learner will get listening fluency not only in 'linguistics parameters' but also in social and cultural areas.

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CHAPTER 2.

When Technology Solutions Become Disastrous: Online Learning in the Covid-19 Period

Adiyono

1. Introduction

Technology, which has been considered a solution for education during a pandemic (Windhiyana, 2020; Sadikin & Hamidah, 2020), has resulted in various problems (disasters) in society. Students face problems with the internet access both due to bad networks, as well as by low student purchasing power (Oktawirawan, Windhiyana 2020). Technology tools are needed as a requirement to fulfil online-based learning (Jamaluddin, et al, 2020), however, INOVASI's research shows that only 28% of children can access online learning properly. In addition, using the internet is a new experience for students who need an adequate level of literacy (Yolanda, 2020). However, until 2020 online learning is still considered a threat. Technology does not work as imagined due to student difficulties in meeting the requirements for the use of technology in learning (Ratu, Uswatun, & Pramudibyanto, 2020).

The study of the relationship between technology and learning has developed from an initial study that raised the issue of rejecting technology in education (Alhumaid, 2019) to a study that focuses more on technology functions (Bray & Tangney, 2017; Lai & Bower, 2019; Pyrkin et al., 2019). Here and now technology in education is seen as a solution in times of pandemic (Chick et al., 2020; Iivari, et al., 2020; Goldschmidt, 2020). At first technology was rejected in the learning process on the grounds that it could eliminate teacher authority in education and foreign values brought about by technology (Kahma

& Matchoss, 2017). Recent studies see technology as a factor for educational progress that provides many possibilities in the learning process (Siahaan, 2012; Andri, et al, 2017). During a pandemic, as shown by Chick et al, (2020), technology has become a solution of social and physical distancing policies. Looking at the trend of existing studies, it appears that technology has been positioned as an objective force that has human coercive power. However, the subject's perspective in adapting and the difficulties in dealing with technology is not well mapped.

This paper is a response to the limitations of previous studies by specifically showing the subjective dimensions of students' experiences of low economic status in undergoing online-based learning during the COVID-19 period. Apart from identifying the types of difficulties faced, this paper also shows the strategies adopted in dealing with learning problems. The use of technology in learning provides a burden to students and also to parents (families) of students. The use of technology in learning creates new traditions in education that require adaptation. In other words, this paper aims to test that behind the ease with which technology provides for the advancement of education, there are many difficulties that must be faced by students and parents.

This paper is based on the argument that technology not only offers functions for the advancement of education, but also creates new problems that must be faced. Technology as a factor and process requires complete requirements and facilities to be used optimally (Patmanthara, 2012). At the same time technology has the power to force a new system in the learning process (Prastomo, 2015). Technology-based learning changes the educational tradition from conventional (teacher-centered) education to internet-based (technology-centered) (Hasibuan, 2016; Sudarsana, 2018). Thus, technology-based learning demands adaptation and presents new problems for students and parents.

2. Literature Review

Existing studies have shown that technology plays an important role in various aspects of people's lives (Karakara & Osabuohien,

2019; Zilian & Zilian, 2020). Technology has driven fundamental changes for the socio-economic development of a nation (Dlodlo, 2009), including in the development of the world of education (Raja & Nagasubramani, 2018). However, in its development, technology cannot be separated from public resistance. At first, technology was considered a foreign object that had a bad influence on the lives of Indonesian society (Sudibyo, 2011; Dangnga, 2013; Ameliola, 2013). Therefore, the use of technology as a learning medium also reaps pros and cons (Chandra, 2012; Watrianthos, 2020). The pros and cons that occur result in technology not being implemented easily. In various studies on technology, there are at least three modes of conversation that can be found, namely talk of debate about technology as a threat, talk of technology as a part of progress as believed in the field of education, and talk of technology as part of the process of forming traditions.

2.1. Technology as a Threat

At first, the entry of technology was considered a foreign object (Nuryanto, 2012). Technology that is present in line with modernization is considered part of westernization. This raises rejection of technology because it is considered a threat to the nation's culture. The technology seen is loaded with will

load of western values (Riwayadi,P 2013; Daryanto Setiawan, 2017; Rais, Dien, & Dien, 2018) is considered to have a bad influence on the nation's values and culture. In addition, the entry of technology has also received strong resistance from religious circles. The emerging technology is considered to carry a different ideology and contradicts religious values (Terre, 2010; McClure, 2017). Therefore, it is not uncommon for the use of technology in various aspects of Indonesian people's lives to give rise to pros and cons even though it cannot be denied that the role of technology has led to increased progress in all fields (Setiawan, 2018; Febriyantoro & Arisandi, 2018; Mutia, 2016; Ngafifi, 2014) . Apart from the rejection of the inclusion of technology in people's lives, currently technology has become

an inseparable part of human life and has created dependency in human life (Ngafifi, 2014).

2.2. Technology in Education

Technology in education is a systematic and critical approach through a problem-solving process using technological methods or tools in solving educational problems (Akbar et al, 2019). In line with that, technology is no longer just something students "learn", but technology is something "with it" students learn (Buchanan et al., 2015). Various studies show that technology brings fundamental changes in the field of education (Zilian & Zilian, 2020). Fundamental changes in education that are influenced by the presence of technology are seen in the learning system. Along with advances in technology and information, the learning approach has also changed with the implementation of various technology-based learning models, such as e-learning (electronic learning), Computer Assisted Instruction (CAI), Computer Based Instruction (CBI), and e-teaching (electronic teaching). which facilitates the development of the world of education. The use of technology in education is carried out to increase effectiveness in the learning process which in the end is expected to improve student learning outcomes in terms of using technology in a more precise and useful manner (Digital transformation of everyday life - How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care?

2.3. Online learning as a changing tradition

The use of technology transforms conventional education into an effective and efficient online-based system. Technology-based learning models allow educators and students to find their own learning materials directly from sites on the internet with learning tools computers (Divayana, Suyasa, & Sugihartini, 2016). The implementation of the online learning system changes the one-way learning method with material coming from the

teacher (teacher) in the classroom (Salay, 2019) into learning that requires learners to be more active so that the learning system is learner-centered (Sohibun & Ade, 2017). Therefore, technology in education has brought changes to the role of teachers in teaching and the role of students in learning that provides open access to interactive material and information through networks, eliminating time and space constraints in the learning environment. supports learning and education management and opens opportunities for collaboration between teachers and between students (Fitriyadi, 2013; Ruliene & Namsaraev, 2016). The application of technology becomes a way out of student objectification and opens opportunities for student involvement in knowledge production.

2.4. Pandemic Education

The COVID-19 pandemic has had a major impact on education around the world (Xue, Li, Li, & Shang, 2020). Many countries have ordered educational institutions to stop face-to-face instruction and require educational institutions to switch to online (virtual) teaching (Daniel, 2020). These restrictive measures aim to reduce the incidence rate of influenza and clinical, social, and economic problems during a pandemic (Espocito & Principi, 2020). Thus the use of technology and digitalization of education is something that cannot be avoided and becomes a force in education during a pandemic. However, sudden digital transformation requires significant adjustments not only from students, but also from teachers and school administration (Iivari et al., 2020). Digital transformation has led to problems with access to and use of technology - both among the adults and children involved - as well as with the skills and competencies needed to integrate digital tools into learning practices (Iivari et al., 2020). In addition, sudden digital transformation has also increased the gap in the education sector globally (Onyema et al, 2020). Experiences in Arab countries found difficulties in the application of online learning such as methodological challenges, content perception, technical and behavioral challenges. On the

other hand, in African countries, the use of digital technology in education during the COVID pandemic has encouraged increased access in the education sector as well as a solution in solving social distancing problems (Mhlanga & Moloi, 2020).

The existing writings have explained the pros and cons of using technology due to the interpretation of technology as a foreign object that is in line with the modernization process. In the world of education, it has been shown that technology has a major contribution in advancing education even though at first technology was suspected of bringing along values that could potentially erode the cultural values of the nation. During the time of the COVID-19 pandemic, it has also been shown that technology can be a problem and a solution. However, research tends to be objective by measuring the needs, effectiveness and consequences of technology in the world of education. Technology basically has the power to structure classes and legalize structural inequality, which really needs to be researched. Inequality in the use of technology as a result of inequality in access to technology is at risk of forming imbalances in competence and achievement. In other words, technology can discriminate against the poor in education and reproduce poverty in the name of differences in competence and achievement in the field of education.

3. Method

3.1. Type and scope of research

Research on online learning experiences during the Covid-19 period is qualitative based on online news data. Online news was chosen randomly based on news themes that met the criteria of the research focus, which involved students' obstacles in the online learning process during a pandemic. Student constraints include constraints in technology, learning administration systems, learning processes, and support systems for learning. In addition to being grouped according to relevant themes, the

news that was selected included students 'direct experiences, parents' experiences, and cases that reflected the difficulties experienced by students and their parents. Thus, the learning difficulties covered in this study include personal, infrastructural, and structural difficulties.

3.2. Participants in studies

The data obtained from the online news mapping were confirmed to groups of students as participants in the study. Participants are limited to groups of high school level students who are relatively unfamiliar with the use of technology on the one hand, on the other hand they are faced with the necessity of using technology in learning. They are a group that already has an interest in technology but with a limited level of literacy. At the same time this group of students is facing a process of transformation in the world of education in line with the pandemic.

Thirty students were selected for in-depth interviews. Student selection takes into account gender balance and variation in junior and senior high schools. Schools are selected taking into account the socio-economic categories that are relevant to the use of learning technology. Students from various school categories come from three regions that have different characteristics, from the western, central and eastern regions which represent Indonesia.

3.3. Research instrument

In the data collection process, interview guidelines were used as the basis for formulating questions. Open-ended questions cover five data fields. First, data related to technology ownership among students which is an important factor in student involvement in learning. Second, the internet network which shows the variety of students' abilities in accessing learning materials. Third, support from parents in learning to remember the learning process takes place from home. Fourth,

the involvement of teachers in the learning process that takes place from home. Fifth, the online education system and the support of educational institutions in the learning process and solving problems in learning.

CODING	AVAILABILITY	QUALITY	FUNCTION
Ownership of HP / Laptop	enough	good	facilitator
Internet Network	adequate	Pretty good	facilitator
Parental support / role	available	attention	motivator
Teacher involvement / role	good	good	inovator
School support system	good	good	Motivator

3.4. Research procedure

The research took place during September 2020 when the pandemic was at its peak of transmission. At the same time, education with an online system was initiated which directly showed the new experiences students were experiencing. Students who become participants in research interviewed for awareness and willingness. Questions were asked one by one openly in an atmosphere outside the home or inside the house. Part of the interview was conducted by chatting via WA. Students are asked to share their experiences during the online learning process. At the same time probing is carried out, a way of exploring answers, as shown by Singarimbun and Effendi (2000).

3.5. Data analysis

Online news mapping data and interview data were classified thematically to reinforce the types of difficulties students

experienced in the learning process. Data classification is carried out not only on the basis of themes but also by considering the aspects covered. The context of differences in experience is analyzed for significance based on applicable parameters, such as gender, school category, and socioeconomic class.

The data were analyzed through three stages: data restatement, data description, and data interpretation. Restatement was carried out by referring to the interview excerpt based on the student's point of view. Data description conducted to show patterns or trends in data regarding the typology of student difficulties in learning online. The process of interpretation is carried out by paying attention to the individual, social and institutional contexts which form the basis of the difficulties experienced by students. The three stages of analysis form the basis for drawing conclusions (inference). Data sourced from students is a comparison that mutually reinforces data sourced from online news.

4. Results (Findings)

Online learning is experienced differently from one student to another. Many students have difficulty undergoing the learning process, especially in disadvantaged social groups. These difficulties can be found in terms of technology availability, internet access, and institutional support. These three forms of difficulty are discussed in the section the following section.

4.1. Difficulties with internet equipment and networks

The difficulties experienced by students are related to the application of class variables in the conception of learning difficulties. Various forms of difficulty cannot be separated from the economic limitations that characterize some students. Difficulty in its various forms has broader consequences.

Online learning systems change the learning tradition not only by moving places to homes (from schools), but also by using

information technology and telecommunications devices in the teaching and learning process. Changes in tradition have forced adaptations from various parties, including students. Students experience various difficulties in adapting to the learning model during the pandemic.

The difficulties faced are not only related to the availability of the device but also internet access. A common difficulty faced by students concerns the availability of devices, as is evident from the experience of R21:

"My family only has a cellphone that is used alternately between my parents, my younger sibling. Every morning my father brought his cellphone home to work at the factory at 4:00 p.m. When my father arrived home, the younger sibling who was in elementary school immediately learned to use his cellphone to complete his assignments. Then I had the opportunity to study online with my cellphone, which often made me have to study and finish school assignments until late at night before I could hand over assignments to the teacher. Father's cellphone is old school, can be used to study by opening assignments from the teacher via WAG and accessing some information on Google, but it is not enough to download heavy applications, such as Kinemaster, Pics Art, Ibis Paint x (applications for editing videos, photos, 3D) and other applications. If I get the task of making a video, I can only record and send it in its original form, without being able to edit the recording so that the video becomes more attractive, so the artistic results of my video cannot be maximized and the results of the value cannot be maximized "(R21, 14 years old MTs Roudlatul Ulum).

In another case (R22) a student cannot even attend the lesson due to not having the equipment. He said that:

"I live with a mother who does not have a cellphone, I have never held a cellphone during online learning. In families that have cellphones, only older siblings are in high school, bu[illegible]n't live in the same house, so we can't take turns. While online I have never been able to do the learning process and I cannot do the assignments that the teacher gives me. Towards the end of the semester I went to school offline to meet the teachers asking for assignments and doing them that I had not done online. I really find it very difficult to study during a pandemic, in addition to

the course material provided in the form of soft files that can only be accessed by technological devices such as cellphones or laptops, all assignments are also given online. my condition did not have these two technological tools, so that my score in this semester dropped dramatically, ranking 19 out of 26 students, which previously ranked 1-2 (R22, 14 years, SMP 12).

Another difficulty faced by students is inequality in internet access. R22 has to study on the terrace of the house or even have to walk a few meters to a higher location to get internet signal. This is due to the position of students who are in rural areas.

The limitations of students in online learning, in the form of lack of facilities and insufficient internet networks, have had far-reaching consequences. The data show at least three consequences commonly experienced by students: low student motivation in learning, the inability of students to follow all learning programs determined by the school, and an effect on student competence in the long run. One student (R22) even experienced a decrease in achievement from the original rank 1-2 to rank 16.

4.2. Limited support from parents and teachers

Students need parents in online learning who make their home a place to study. However, the data shows that expectations of parental support are not being met as they should. Many parents apart from not being skilled enough in operating technology, they also do not have enough time to assist their children in learning. The parent of a student (R25) said that "I myself have to leave the house every day and come home at night so that it is no longer possible to help children. When I got home the children were asleep "(R25, 48 years old, construction worker).

Three forms of difficulty experienced by students, namely the large number of assignments given by the teacher, the absence of teacher involvement (commitment), and the weak support of parents.

The limited support from teachers and parents, on the one hand, causes children's enthusiasm to learn to be reduced, on the other hand it threatens the role of education in the long term. Children are f[illegible] with complicated problems when the expectation for the presence of a teacher is not achieved, at the same time the role of parents cannot be given maximally. Education that was originally based on school spaces with the legitimacy of regulations and curricula that were enforced under teacher supervision was disengaged. Thus, online learning requires changes at the institutional level.

4.3. The problem of weak institutional support

The facts show that online learning has shifted the responsibility of education from educational institutions (schools) to personal (homes) involving parents of students. This burden becomes too heavy to bear that institutional involvement is needed in solving difficulties faced by students in online learning.

Online learning takes place and is faced by [illegible]lents without institutional support. Schools do not attend the teaching and learning process because learning is entirely left to students and parents. The involvement of teachers is also limited and gives more meaning to the burden on students. This can be seen from the results of a survey conducted by FSGI, "There are 53 percent of school respondents who are not ready in terms of learning support infrastructure to support the new normality ...," said Deputy Secretary General of FSGI Satriwan Salim (Kompas.com, 2020, June 26).

Teacher absence and weak institutional support have eroded students' enthusiasm for learning. Students still really expect the presence of teachers as educators who teach and also guide them in times of difficulty. In addition, the weakness of institutional support has reduced student achievement in various indicators. Student achievement as determined by access to technology has become the basis for long-term social inclusion and exclusion.

5. Discussion

This study shows that social class differences have become a significant factor in student access and competence in undergoing online learning during a pandemic. The lower social classes are unable to access adequate facilities and learning resources due to limited mastery of technology. Students who do not have sufficient access have the risk of not being able to achieve the expected competencies.

The difficulties that students face in online learning reflect the conditions of inequality in education and the risks that will be faced in future human resources. The experience of students with various types of difficulties is an important statement about the difficulty of fulfilling the mission of education for all. Education with these conditions can be a force that reproduces social inequality.

Results that show learning difficulties are made possible because online learning is a new experience in the world of education (which requires readiness). Educational institutions are not prepared to transform the learning tradition from offline to online. At the same time this transformation requires a shift in educational responsibilities from individuals (students) to institutions.

Research on pandemic learning has demonstrated various types of difficulties, in addition to the advances made with online learning models. However, existing studies have failed to analyze the long-term implications of the current difficulties faced by students. This research shows a serious threat in the world of education in the future. Education will reproduce social (class) inequality through technological discrimination.

Based on the research results that show the threat of education in the future, an institutional responsibility is needed to avoid the heavy burden of education financing on the shoulders of the public. Funding by the state is very much needed in the stages of technological transformation in the field of education.

6. Conclusion

It turns out that technology, which has been considered a solution for the continuity of education during a pandemic (COVID-19), has become a problem for many students and families. The findings of this study (in contrast to previous findings) indicate that the problems in learning originate in the classroom factors that structure learning and learning outcomes. Poverty factors have limited access to and participation of students in learning during a pandemic. Those who come from economically weak families are unable to provide adequate facilities in online learning. Limited facilities and access in the long term will put risks on learning outcomes. Students who are deprived will simultaneously mean underachieving in education during a pandemic.

The concept of class used in this study has made it possible to find a space for explaining how education not only becomes a way for social class mobility but also reproduces class inequality. The ideology of education for all will not be achieved because education (during the pandemic) has actually created class inequality. On when online learning takes place, education at the same time establishes class inequalities in society. As Ivan Illich said, schools should be able to liberate not create segmentation in society (Illich, 2010).

This study is limited to the perspective of students and has not integrated the perspectives of teachers and educational institutions. The role of teachers and schools is very central in the development of education. Integrating the perspectives of teachers and institutions (schools) with those of students / parents will allow a comprehensive understanding to be obtained. This method allows the finding of solutions for the teaching and learning process that is more solutive in times of a pandemic. In line with that, further research is needed that involves all three perspectives by accommodating the experiences and problems faced by schools and teachers in the delivery of education during a pandemic. In this way comprehensive problem solving is possible.

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CHAPTER 3.

Implementation of Digital Learning in Improving Current Education Innovation

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Education in the disruptive era is characterized by a paradigm shift, namely student-centered learning and lifelong learning that transcends the boundaries of time and space. This change is inseparable from the impact of the development of digital technology as a sign of the fourth generation industrial revolution. The integration of information and communication technology into the learning and teaching process is needed in education in a disruptive era. The use of digital learning in education in a disruptive era includes distance learning, e-learning, blended learning, mobile learning as well as MOOCs. The use of digital learning allows humans to learn anywhere and anytime without the boundaries of space and time so as to encourage the realization of life-long learning (lifelong learning).

An important benefit of using technology / internet in learning is a matter of access. With the internet, accessing millions of sources of information is very easy. The internet is also a cheap, easy, and worldwide publication medium. Educators use the internet media to increase their competitiveness, improve services to learners or stakeholders and increase the effectiveness and efficiency of real learning activities. Fast and easy internet access, via the internet, opens up opportunities for increased learning known as online learning or e-learning. The use of e-Learning in learning as an aid to electronic devices, especially computer devices. The learning process is made into a digital form that is bridged by internet technology. The use of e-learning in the learning process has advantages including:

1. increase learning interactions (enhance interactivity), facilitate learning interactions from anywhere and anytime (time and place flexibility),
2. has a wider reach (potential to reach a global audience), and
3. facilitate the improvement and storage of learning materials (easy updating of content as well as archivable capabilities).

E-learning has a principle, as a tool for the learning process so that it can solve problems, generate creativity, make the learning process easier, more directed and meaningful. E-learning as an alternative in the high-tech-high-touch education system, namely the process depends more on sophisticated technology and more importantly the high touch aspect, namely teachers or students. E-learning with the readiness of teachers, students, facilities and learning system culture

Implementation Of Digital Learning In Current Edcation

Education in the disruptive era is characterized by a paradigm shift, namely student-centered learning and lifelong learning that transcends the boundaries of time and space. This change is inseparable from the impact of the development of digital technology as a sign of the fourth generation industrial revolution. education in the disruptive era includes distance learning, e-learning, blended learning, mobile learning, as well as MOOCs.

a. Distance learning

Distance learning is defined by the Commonwealth of Learning as a way to provide learning opportunities characterized by a separation of distance, place and time between teachers and students; learning that is certified in a particular way by an institution or agency; use a variety of media, including print and electronic; two-way communication that allows students and tutors to interact; the possibility of occasional face-to-face meetings; and a special division of labor. Distance education

allows students to study alone at home or in the office and communicate with other students and teachers via e-mail, electronic forums, video conferencing, chat rooms, instant messaging and other forms of computer-based communication.

The Indonesian government covers a kind of distance learning with a legal policy. In the Law on National Education System of the Republic of Indonesia Number 20 of 2003, Article 1 paragraph 15 states that distance education is education in which students are separated from educators and that learning uses various learning resources through communication technology, information, and other media. Furthermore, Article 31 of the National Education System Law states that distance education can be held at all channels, levels, and types of education. Distance education serves to provide educational services to community groups who are unable to attend face-to-face or regular education. Distance education is held in various forms, modes and coverage supported by learning facilities and services as well as an assessment system that ensures the quality of graduates according to national education standards.

Several things that must be considered in the application of distance education, namely: 1) the interaction between lecturers and students, between students and the educational environment, and between students; 2) active learning, active student participation; 3) visual imagery, visual media can motivate and stimulate students' desires in learning; 4) effective communication through both audio conference and group conference.

b. E-learning

Includes learning at all levels, both formal and informal, using information networks - the Internet, intranet (LAN) or extranet (WAN) - either in whole or in part, for transmission, interaction. This learning is also known as online learning. Web-based learning (web-based learning) is part of e-learning and refers to learning using an Internet browser (such as Netscape or Internet Explorer) (Tinio, 2002). E-learning is a development of

distance learning where learning crosses the boundaries of time and space, can be done anytime and anywhere.

The philosophy of e-learning is as follows:

1. e-learning is the delivery of information, communication, education, training on-line;
2. e-learning provides a set of tools that can enrich the value of conventional learning (conventional learning models, study of textbooks, CDROM, and computer-based training), so that they can answer the challenges of globalization;
3. e-learning does not mean replacing conventional learning models in the classroom, but strengthening the learning model through content enrichment and educational technology development;
4. The capacity of students varies, depending on the form of content and the way it is conveyed.

E-Learning consists of two types, namely:

1) synchronous learning, where the learning process occurs at the same time when the teacher is teaching and students are learning. This type allows direct interaction between teacher and students, either via the Internet or the Intranet. This type is also known as virtual classroom.
2) asynchronous learning, the learning and teaching process takes place in the presence of time delay (different times), educators and students are physically in different places. This type provides more advantages, because students can access training anytime and anywhere. The lesson packages can be in the form of reading with animation, simulations, educational games, or exercises or tests with the answers. Students can discuss or comment and ask the teacher through the media discussion.

c. Mobile Learning

Is a learning model that utilizes ICT and mobile devices, which are part of e-learning and distance learning, the term mobile learning (m-Learning) refers to the use of handheld and mobile information technology (IT) devices, such as PDAs, mobile phones, laptops and tablet PCs, in teaching and learning. M-learning learning devices must have the ability to connect to other equipment (especially computers), the ability to present learning information and the ability to realize bilateral communication between teachers and learners.

Mobile learning is different from e-learning, where e-learning tends to use personal computers (PCs) and the internet as its main media, while m-learning tends to use mobile devices such as cellphones, smartphones, PDAs, and so on. In addition, both have several differences, including the features, functions, and convenience of each device; output (i.e. screen size and resolution capabilities, etc.); input (ie keyboard, touch-screen, voice input); processing and memory capabilities; supported applications and media types.

The content on m-learning varies, related to the capabilities of the device. The content includes:

1) Text, which nowadays tends to be supported by all kinds of ICT tools;
2) Images, where almost all ICT devices support the use of images;
3) Audio, where almost all ICT devices already support the use of audio;
4) Video, which is dominated by large files that must be converted and adapted to the limitations of the device and software applications such as Java, Symbian,

d. Blended Learning

Refers to a learning model that combines classroom learning practices with e-learning. For example, students in class are given both printed and online versions of subject matter,

hold online mentoring sessions with teachers through face-to-face discussions, as well as via class email. The term "Blending" emerged in response that not all learning is best achieved in electronically mediated environments, especially subject matter that requires face-to-face contact with the teacher. Therefore, blended learning must consider the subject, objectives and learning outcomes characteristics of students, in order to achieve optimal results Blended learning is a combination of several learning approaches, usually includes face to face learning, self-pace learning, online collaborative learning

e. MOOCs (Massive Open Online Courses)

Which is the development and renewal of distance learning. MOOCs are one of the phenomena that occur in the higher education sector which initiates the disruption of higher education and indicates the increasing spread of open education, online learning, and other changes in the era of globalization. MOOCs are a new student-centered way of learning and using technology with unlimited reach, across classrooms, campuses and even countries, allowing consumers to acquire knowledge and / or skills for free (as long as they do not want recognition of mastery of the material by obtaining a certificate. graduation) and even taught by professors from world-renowned universities.

In America, there are three prominent providers of MOOCs: Coursera, Udacity, and EdX, linked to well-known colleges. Coursera is created by Stanford, which already provides more than 200 courses, contracts with 30 colleges and has 1 million registered attendees. EdX was created by MIT (Massachusetts Institute Technology) and Harvard to open courses globally and free of charge, and Udacity was founded by Sebastian Thrun, a former Stanford professor who prepared courses in science and computer programs. EdX and Udacity will use the 4,500 final exam centers in various parts of the world owned by Pearson VUE (Gardiner et al 2017).

In Indonesia, MOOC is also known as an online lecture site, where through this site, everyone can study for free without being tied to a schedule and is free to choose courses. From 2007 to 2016, there are 16 MOOC sites produced in Indonesia that are still active. Most of them are managed by private institutions with a freemium business model; only some of the content is free and the rest is paid. In addition, there are six Indonesian online lecture sites (MOOC) that provide all of their content for free, namely: CodeSaya, FOCUS Fisipol UGM, IndonesiaX, MOOCs Open University, Sibejoo and UCEO Ciputra University. IndonesiaX is an Indonesian MOOC website that was launched on August 17, 2015, and is managed by a non-profit organization. This MOOC is supported by various institutions and universities, namely edX, HarvardX, ITB, ITS, UI, UNAIR, UNPAD, PT Bursa Efek Indonesia, House of Change, and PT Net Mediatama Televisi. IndonesiaX as a free online education platform that anyone can participate in can be accessed through the website www.indonesiax.co.id (editor, 2016). The main idea of this discussion is that a new learning strategy is needed, known as a "revolution in learning methods if the wider community wants to reap the benefits in this global era. This is not only for the children and young generations, but also for the older generation. However, learning will only be effective if it enables us to relate directly to the needs that are emerging in this new era. The learning revolution shows how this method can be implemented - and is currently being implemented. However, our future, students, students, and our current generation depends on how we learn quickly, pleasantly and effectively. To increase the role of education, it is necessary to find new ways, namely the mindset of using technology. The current learning process can be faster due to internet access and social media. "The growth and development of a country is ultimately determined by the speed growth of its human resources. One of them depends on how to educate HR.

Digital Learning Learning Prospects

In the digital era or the information age, science and technology are currently developing rapidly. This development has the impact of the increasing openness and distribution of information and knowledge to and from all over the world across the boundaries of distance, place, space and time. In fact, human life in this digital era will always be related to technology. Technology is essentially a process to get added value from the products it produces to make it useful. Technology has influenced and changed people in their daily lives, so that if they are now 'technologically illiterate' it will be too late in mastering information, and they will also be left behind to obtain various advanced opportunities. Information has an important and real role in the information society or knowledge society. Information and communication as part of technology is also developing very rapidly, affecting various lives and giving changes to the way of life and daily human activities, including in the world of education. Education has also developed very rapidly, including through digital learning. By utilizing the development of information and communication technology, education can reach all levels of society. Education is not antipathy or allergic to the development of science and technology, but instead becomes a subject or a pioneer in its development. People with an interest in education are required to have the ability to understand technology according to their needs or technology literacy which is also called technological literacy, because it will play a role. in the present and future life. As a result, in the world of education at present and in the future there are several trends, including the learning system which is increasingly developing with the ease of carrying out education. The application of information and communication technology which is the development of technology, including computer media. Computers are information and communication-based technology tools and applications that are used as the main equipment for processing data into useful information by processing, presenting, and managing information. Processing data with computers is called Electronic Data Processing (EDP). Electronic Data Management is the process of manipulating data into more useful information. Data is an object that has not been processed and will

be processed which is still raw. Meanwhile, information is data that has been processed and its nature becomes other useful data. One of the priorities for improvement in education is related to the quality of education, particularly the quality of learning. From the various conditions and potentials that exist, the effort that can be made to improve the quality is to develop learner-oriented learning. Learner-oriented learning can be done by building a learning system that allows learners to have the ability to learn more interesting, interactive, and varied. Learners must be able to have competencies that are useful for their future. Along with the development of technology and its supporting infrastructure, efforts to improve the quality of learning can be made through the use of this technology in a known system. with Digital Learning (digital learning). Digital learning is a system that can facilitate learners to learn more broadly, more and more differently. Through the facilities provided by this system, learners can learn anytime and anywhere without being limited by distance, space and time. The learning material being studied is more varied, not only in verbal form, but also more varied, such as text, visual, audio, and motion. Education is a source of national progress which greatly determines the nation's competitiveness, so that the quality of the education sector must be continuously improved. Current facts indicate that the education gap factor is one of the main factors in improving the quality of education. The gap in the quality of education is not only caused by inadequate facilities and infrastructure, limited human resources and a curriculum that is not ready for the future. The application and development of information and communication technology in learning is one of the strategic steps in welcoming the future of education. The use of information and communication technology in learning is not just following global trends but is a strategic step in the effort improve access and quality of education services to the community at present and in the future. Future information and communication technology needs to be developed to lead to the realization of an integrated education system that can build an independent, dynamic and advanced nation. Of course all of this must be followed by the readiness of all components of human resources in terms of thinking, behavior orientation, attitudes and value systems that support the development

of information and communication technology. The implementation of digital learning has a good prospect to be used as an alternative to the education system due to technological developments. Information and communication as well as its tools greatly support the creation of facilities for this digital learning. The development of information and communication technology will make it easier for people to access educational programs that are distributed via the internet network. Another supporting factor is the number of customers and internet users that continues to grow rapidly, which shows how big and enthusiastic the community is about internet services that can support the creation of digital learning. Digital learning is an educational alternative with a bright prospect because the community has begun to feel its benefits. This web-based digital learning is not only followed by learners, but also by employees, managers, directors, retirees, the elderly, and even housewives. They are interested in online learning because the delivery of learning materials can be accessed via the internet. This internet is to complement the previous digital learning delivery methods, namely by means of correspondence, audio and video materials. Computer based learning is developed with e-learning which is very effective to make education better, with shorter time and cheaper costs. Ease of internet access and cheap devices to access the internet make internet users continue to grow. Digital learning programs (both electronic based learning and the internet based) have begun to be organized by many educational institutions, and are continuing to grow. Many teachers have created personal blogs to be used for digital learning. The government has also provided and created several portals that can be used as learning places for learners. With the increasing number of internet users and awareness of healthy internet use, it is predicted that the development of digital learning through the internet in learning will increase rapidly. Digital learning by means of the internet is very prospective and is expected to continue to develop rapidly in accordance with the trends that occur in this era of globalization. Moreover, learners who are potential internet users are increasing from year to year, because the internet allows learners to learn on their own freely without being limited by time and place. This development is of concern to the world of education and also of the world of information

and communication technology. The application and development of information and communication technology will form the backbone of the future education system. Information and communication technology that will be developed must be able to uplift human dignity by creating higher quality and efficient educational services, so that they can meet human needs in this digital and competitive era

Conclusion

The industrial revolution 4.0 which has the characteristics of automation and the digital economy has encouraged the birth of a phenomenon of disruption innovation. Education is one of the areas affected by the rise of digital technology in an era of disruption marked by a paradigm shift in learning to become student-centered and lifelong learning that transcends the boundaries of time and space. The integration of ICT in education can answer the challenges of education in a disruptive era. ICT applications that can be applied in the disruptive era, namely: distance learning, e-learning, blended learning, mobile learning, and MOOCs (Massive open online courses) The digital era in the 4.0 industrial revolution currently being experienced requires us to face it. With various digital-based technologies that are increasingly sophisticated, we must master or at least follow the flow, E-learning is one that we can use in the world of learning in class. As educators, we are also required to be more creative and innovative in delivering learning material in class, because the duties or responsibilities of an educator are inseparable from producing children who have competencies, one of which is in mastering digital-based technology so that they are able to face world developments. which is getting faster.

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CHAPTER 4.

Quizizz : An E-Learning Assessment Tool for Science Learning in the Pandemic Era

Anna Yuliana

STIKes Bakti Tunas Husada Tasikmalaya

This pandemic has an impact on education where traditional learning has been mostly replaced by E-learning. E-learning is categorized into various types that lectures may implement it in their teaching learning process such as Learning Management Systems (LMS), Web-based instruction (WBI), Internet-based training (IBT), Computer Based Training (CBT), distance learning, mobile learning and etc.[1] E-learning technologies appear in the literature under different names such as audience response systems, electronic voting systems, personal response systems, and classroom response systems.[2] Classroom response system uses wireless handheld devices like smart phones and tablets to collect and aggregate student responses instantly then display the aggregated results in the class and gather immediate feedback in response to questions posed by instructors.[3]

One of the components in E-learning is assessment. Assessment is the core of education, which provides teachers much information from their students and technology helps to achieve the learning goal more easily.[4] Teachers are able to take the advantages of the integration of technology and assessment to get really detail information of students test to create a good teaching process. Assessment itself is not just to find a row of numbers without meaning but more than that as part of a feed back to the planning and implementation of an activity in this case the assessment of lectures in universities. To support the online assessment process, a precise and fast application that is also based on information technology is needed. The use of information technology

in online assessment can increase student involvement and enjoyment so that assessment becomes more effective. Online assessments are also able to provide accurate and colorful feedback regarding student work in exams Students as users or parts that cannot be separated from the assessment are very critical of the assessment results so that with open access and fast response the assessment results as part of the assessment really need it.[5]

One of the digital applications that support online assessment is Quizizz. Quizizz is an application with game-based educational that can be played by many people working on problems with an interactive and fun display.[6] Quizizz provides statistical data from quiz results and is quite flexible because there are time settings in administering the quiz. Students can use Quizizz via Android, iOS, web browsers, and Chrome Apps as long as they are connected to the Internet. Quizizz also allows students to compete with each other and motivates them to learn because they can see their immediate ranking on the scoreboard, and also Lecturers monitor the process. To evaluate student performance, lecturers can download reports when the quiz is finished.[7]

Quizizz is an educational application that applies the gamification concept. Educational gamification usually engages with human motivational behavior. Gamification in education is an approach of online learning among students that has continuously increased these days. Gamification has identified as a new concept in fostering the student's motivation. It is being associated with game mechanics when involving in students learning outcomes[8]. Generally, motivation distinguished through intrinsically and extrinsically argues that both intrinsic and extrinsic motivation should be considered in designing the gamification as a reason that gamification can be used as an evaluation and assessment tool. This can ensure that all of the standard criteria needed in education for a game to be a motivational game. Gamification is the process of adding game elements to something in this case education to increase motivation to do it. Gamification takes part in the game including points, badges, challenges, leader boards, rewards, incentives, and so on and applies it to pedagogy to motivate students to a higher and more meaningful level of involvement.[9]

Gamification is non-game contexts in using game design element. The element of game included are Achievements, Badges, Avatars, Leader Board, Levels, Content Unlocking, Points, Teams, and Virtual Goods. Those element will be designed for enhancing instruction, engagement and motivation.[10]

As we know, most of the students like to play game and they play it most of the time in their lives. The statistical data obtained by the game company that there are 43 million players who are monthly active in Southeast Asia and Indonesian players are almost 50 percent of the total. It indicated that most of the people are engaged with something game-like.[1]

There are some previous studies describing the application of Quizizz and examining student's perception of using Quizizz. Gonzalez (2019) conducted research to learn assessment using the Kahoot!, Plicker, and Quizizz, the results prove how promising the application is for increasing student grades and their satisfaction with studying the lessons.[11] Bal (2018), proved that Quizizz can improve student vocabulary.[12] Zhao *et al.* (2018) made use of Quizizz in Arabic classrooms and it was found to be effective in improving student learning as a game-based learning tool.[13] Quizizz can contribute to student concentration, participation, happiness, motivation and student satisfaction (Chaiyo & Nokham, 2017).[14] Quizizz also can help teachers assess their students language learning skills as well as their curricular skills (Bury, 2017).[15] Purba (2020) which utilizes the Quizizz application as an effort to increase student learning concentration in physics chemistry courses and concluded that learning evaluation using quizizz helps improve student learning concentration.[16] Dewi (2019) uses the Quizizz application as an effort to improve completeness in learning physics combined with the problem-based learning method and the conclusions have been achieved.[17]

Quizizz is a game-based educational app, which brings multiplayer activities to classrooms and makes in-class exercises interactive and fun. free assessment instrument functioning on the computer, tablet, and smartphone. Each of participants or student groups needs one set, but it is unnecessary for them to make account in quizizz, because

they can join by entering game code only. Quizizz question and answer appear on computer or cellular phone screen of each participant; thus it tends to be individual but can give answer analysis.[18] The use of quizizz make the learners active and concentrating on the learning material and for formative evaluation, quizizz informs and identifies both incorrect and correct answer for each of learners and thereby is more effective because the material needing correction can be found out. It is because Quizizz can transfer many assignments, repeat, and entertain, and accommodate many participants. Quizizz is a formative test tool that is suitable for getting information about how the overall class condition in understanding the content of the material being taught. Quizizz supplies hundreds of quizzes that we can use or create ourselves.[19]

Using Quizizz, students can do in-class exercises on their electronic devices. Unlike other educational apps, Quizizz has game characteristics like avatars, themes, memes and music, which are entertaining in the learning process. Using this app in the accounting classroom helps stimulate students' interest and improve students' engagement. Students take the quiz at the same time in class and see their live ranking on the leaderboard. Instructors can monitor the process and download the report when the quiz is finished to evaluate students' performance.[20]

Quizizz is available online at http://quizizz.com. This application is free and works in different browsers, including Android and IOS platforms and user-friendly interface.[21] By using the join my quiz.com page and the code provided by the lecturer, students can access the questionnaire, lecturers can set a deadline for student work with a certain day and time, Quizizz has a game-based design such as scoreboard, music, ranking, time, and more-other.[22] This allows lecturers to insert image or videos related to questions, use symbols and formula, and analyze the performance of each student or the whole group using Excel spreadsheets that can download when session is over.[23]

To start assessment with the Quizizz, we need to log in as a teacher with our own account. After logging in we can search and choose which usable quiz is available. We can also easily create our

n quiz according to our wishes and our subject that can be created[24]. Then we can even create a set of questions that we have prepared from the Excel file. In every asked question, we can insert a picture or video, as we need. By setting the app, we can arrange questions and answered randomly or not. We can also determine if our quiz is private or public.[25]

The code number will be send to the students when the quiz is ready. The quiz can be access by the students with entering the code number and their name, after that can start to answer the questions[26]. The students do not have to log in to take part in the quiz. The current quiz can be in live-game form, which takes place simultaneously in the classroom, or as a homework assignment. Quizizz allows us to create a student-paced formative assessment tailored to the student's speed. The teacher will ensure the students who join the quiz with the students' attendance list to avoid intruders so not everyone can allow to join the quiz. The students possibly to practice together in Quizizz with multiplayer activity, and the teacher determined total player who will do the quiz.[13,27]

Step to create or join Quizizz :

1. As a lecturer, we can sign in by Google account or Facebook account. In other way we can sign in by create username and password individually. In other hand, as a student, can enter the code by clicking from the menu bar.
2. After logging in, in left bar show the menu that can be chosen. If we already some quiz or test, we can choose My Library. But if we don't have some quiz, we can choose Create. In display bar, we can also pick quiz that already set conduct by another author, so we can choose the quiz as we need.
3. By clicking create, there are menus, Lesson and Quiz. Lesson with Beta service can create an instructor experience where slides and multimedia are combined with quiz and poll question. Quiz with engage with live and poll question that participants complete at their own pace. Both Lesson and Quiz menu can be scan by QR code.

4. Create a quiz by input name of quiz and choose relevant subject.
5. We choose type of quiz: multiple choice, Checkbox, Fill in the blank, Poll, Open Ended and slide (its new menu from Quizizz)
6. After choose type of quiz, we can start to create the question and answered at the same time. We can create how many questions that can be used. Don't forget to click save after we finish one by one the question and the answered.
7. To start a quiz. From library menu, select the test to be performed. Select start live quiz, then the code will be appear. The code can be share by copy link or by send the number via social media.
8. To evaluate the quiz, can be show by select reports menu and we can see all quiz reports that we have done.[28]

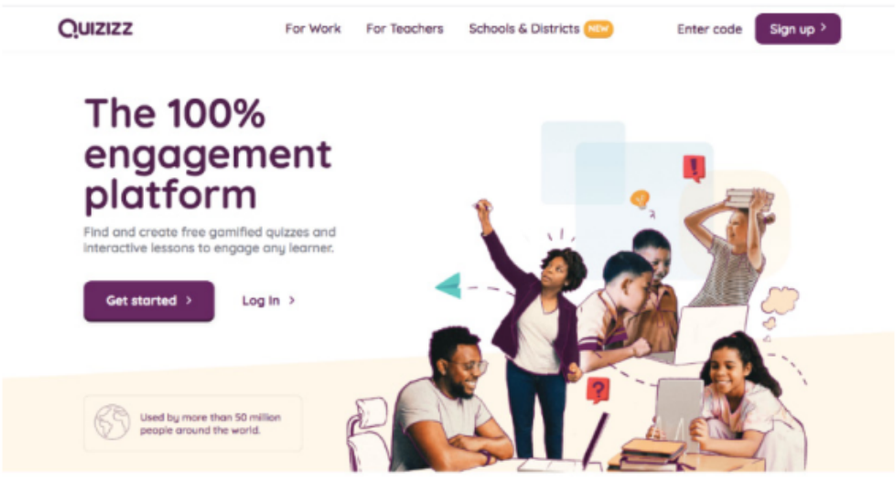

Figure 1. Website page of Quizizz (Quizizz.com)[28]

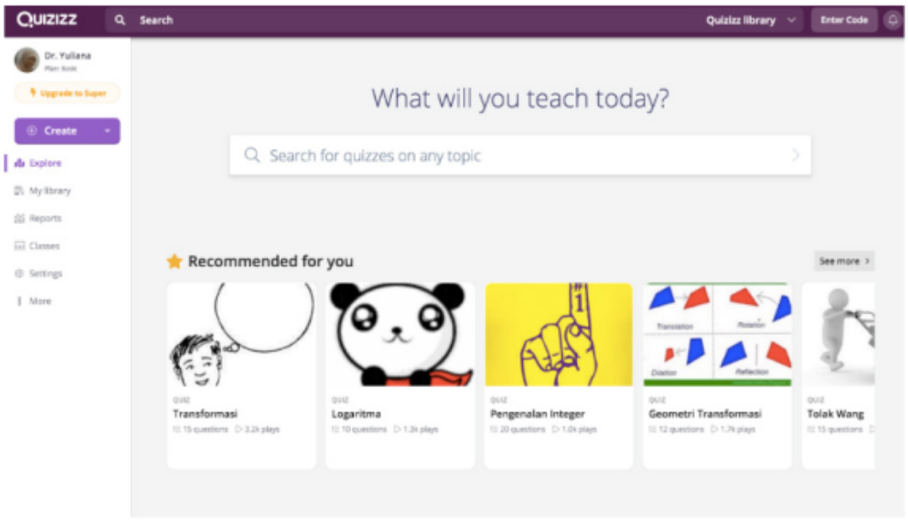

Figure 2. General display menu of Quizizz (Quizizz.com)[28]

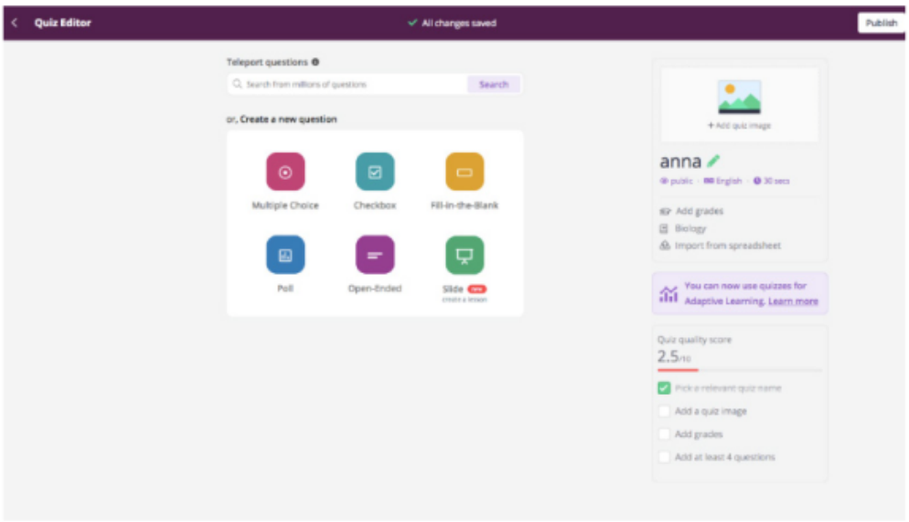

Figure 3. Menu to choose type of quiz that can we create (Quizizz.com)

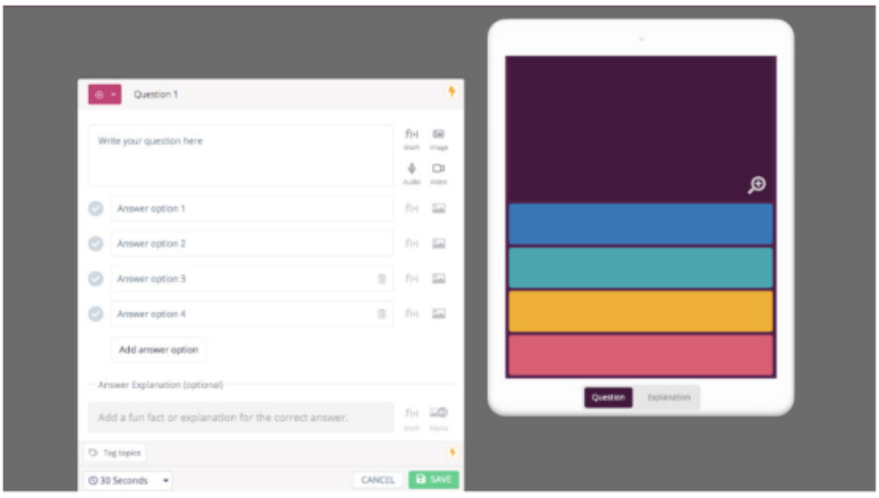

Figure 4. Menu to create a question and answered (Quizizz.com)[28]

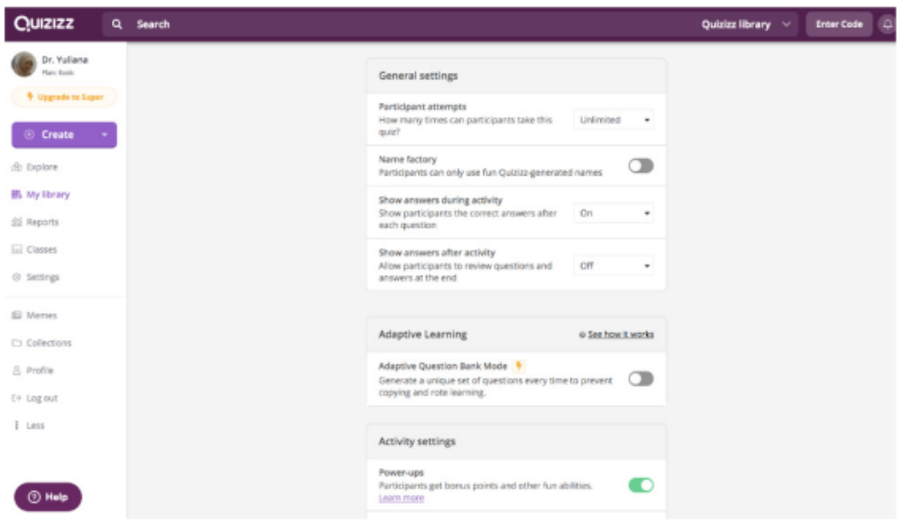

Figure 5. Menu of General Settings in Quizizz (Quizizz.com)[28]

Use Quizizz application in E-Learning Assessment Tools for Science Learning very supportive for the situation in The Pandemic Era. Lecturers can take the test online without having to meet students and can provide the result of test quickly along their analysis. The students can carry out the test with fun and get responded positively because they could find out the answer wrong or right directly. Quizizz

as interactive media evaluation can use to one of assessment tool in pandemic era.

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CHAPTER 5.

Digital Learning Using Line Application

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With the development of technology, e-learning-based learning has been promoted several years ago. Adjustments continue to be made so that the implementation of e-learning can be maximized. In some developed countries, e-learning based education is very easy to implement. In Indonesia, e-learning-based education has started to be implemented. However, initially, this has not become a comprehensive habit at every level of education. Some education experts predict that Indonesia will implement e-learning based distance learning in the next 5-10 years. However, the story changed when the Covid-19 pandemic came.

The Covid-19 pandemic that has hit Indonesia since March 2020 has finally forced learning to be done online. Learning that was originally done face-to-face now has to turn into an online system. Face-to-face learning sometimes still has several obstacles related to student understanding of learning material. Moreover, online learning, of course, also has more challenging obstacles. However, this sudden change occurs, it is felt that sometimes it is necessary to add another alternative platform so that learning can be maximally implemented.

The limited data quota for students to access the platform as a means of learning or virtual face-to-face is also an obstacle for students. Online learning has not been fully prepared optimally, so there needs to be the creativity of lecturers to formulate "friendly" learning in the quota but can also hold face-to-face virtually.

Not only that, it seems that generation Z-style learning is not enough just by giving them lectures via video, but the platform used also

needs to accommodate the learning styles of Generation Z students. Therefore, there is a need for applications that meet the criteria, (1) having quota, (2) saving storage, but also (3) having sufficient features to support the effectiveness of learning.

Of course, the learning method using this online system is closely related to the effectiveness of learning. Learning effectiveness is the success rate of learning from an effort by the learning objectives to be achieved. According to Slavin (2000), the effectiveness of learning can be measured by indicators (1) the quality of learning (quality of insurance), namely how much information is presented so that students can easily learn it, (2) The appropriateness of the learning level (the appropriate level of instruction) is the extent to which where the teacher ensures the level of readiness of students in receiving new material, (3) Incentives, namely how much the teacher tries to motivate students to complete or work on assignments and study the material given, (4) Time, namely the time needed to complete learning activities. Learning will be effective if students can complete the lesson according to the specified time. The characteristics of an effective learning program can also be seen from (1) the success of students in achieving predetermined instructional goals, (2) providing an attractive learning experience to support the achievement of learning objectives, (3) having facilities that support the teaching and learning process. Online learning certainly greatly affects the effectiveness of learning both in terms of time, facilities, data quota, etc., it is necessary to choose a platform that can accommodate these interests. One application that has been widely used by students is LINE. The characteristics of an effective learning program can also be seen from (1) the success of students in achieving predetermined instructional goals, (2) providing an attractive learning experience to support the achievement of learning objectives, (3) having facilities that support the teaching and learning process. Online learning certainly greatly affects the effectiveness of learning both in terms of time, facilities, data quota, etc., it is necessary to choose a platform that can accommodate these interests. One application that has been widely used by students is LINE. The characteristics of an effective learning program can also be seen from (1) the success of students in achieving predetermined instructional goals, (2) providing an attractive learning

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LINE App Features

LINE was developed by a Japanese company called NHN Corporation. LINE was first released in June 2011 and initially can only be used on iOS and Android systems. After the success of these two systems, LINE entered the BlackBerry operating system. Then in 2012, LINE officially launched an application that can be used on Mac and Windows devices.

Figure 1. LINE Application Symbol

LINE is an instant messaging application that allows users to communicate with each other via the internet network.LINE is claimed to be the best-selling application in 42 countries, including Indonesia. LINE users can communicate with each other by sending text messages, pictures, photos, videos, audio, and more. In its development, LINE

has been supported in various ways operating systems such as Android, iOS (iPhone), Windows, macOS, BlackBerry, and Firefox OS.

For Android smartphones, users can download the LINE application fromGoogle Play and iOS (iPhone) can download it viaApp the Store. Meanwhile, Microsoft Windows can download it via the Windows Store. Or it could be through third-party download services that are widely available on the Internet. In addition to presenting the Standard LINE which is relatively large in size, the company has developed LINE with a lighter size and usage, namely, line Lite.

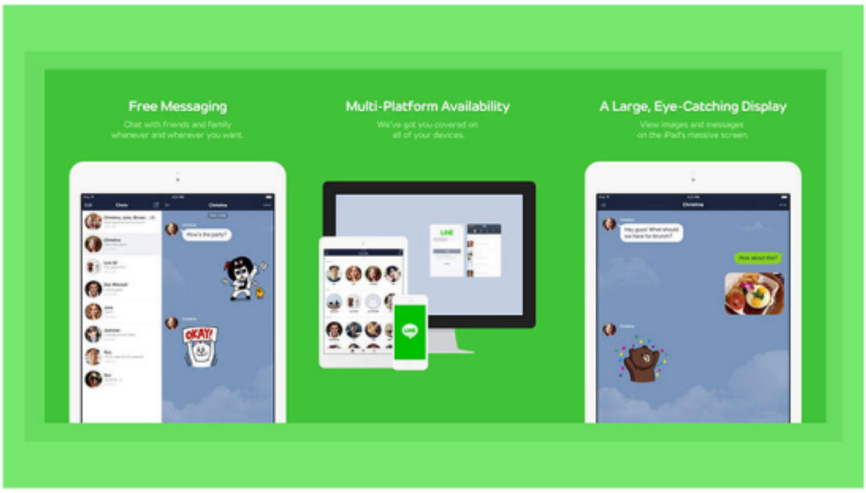


Image source: TechCrunch

Figure 2. Features of the LINE application

As a social messenger application, LINE has presented a variety of interesting features that have not been presented by many other similar applications. In Indonesia alone, LINE is mostly used for entertainment such as LINE Today and Webtoon. For more details, here is a list of interesting features in the LINE application.

Table 1. LINE features

No	Features	Uses
1	**Chat, Voice Call, Video Call, Live Streaming, Story, and Group**	to send text messages, stickers, pictures, photos, video, make voice calls, video calls, create and join a group/community, and share other activities through features story. Also, users can share attachment file formats or attachments, such as documents, RAR, ZIP, JPG, PNG, and others. Apart from that, users can also share contacts, locations, keep (files that you save), split bills, polls, schedules, and more.
2	**Stickers and Themes**	to display more interesting emoticons. LINE presents a variety of cute and unique stickers that are rarely found in other chat applications. Apart from stickers, LINE is also available with customization views by downloading a wide selection of unique themes.
3	**LINE meeting**	Can be used to create virtual meetings for multiple users
4	**LINE Jobs**	users can search for job vacancies through the LINE Jobs feature. This feature can allow users to search for jobs according to the closest location
5	**LINE Shopping**	Users can search for marketplace products through the LINE application
6	**Watch Now**	users can watch a variety of entertainment videos and interesting information provided by LINE Today
7	**LINE Today**	is a news portal that contains interesting information about the world of artists, entertainment, games, automotive, music, technology, and others
8	**LINE Webtoon**	Users can find a variety of fun and entertaining comics every day freely and for free

No.	Features	Uses
9	**Keep**	a cloud storage feature that allows users to save files for photos, images, videos, links, text, and more. The file storage limit on LINE Keep is 1 GB
10	**LINE Pay**	allows users to send money to other LINE users and make payments at a store/ minimarket.
11	**LINE Taxi**	allows users to order a taxi online.
12	**LINE TV**	users can watch a wide array of exciting streaming services such as TV Shows, Original TVs, and a wide selection of other interesting categories

Use of LINE in Online Learning

The use of the LINE application for learning, of course, does not take advantage of all the features above. Based on the author's experience, the features used in learning are chat, Video Call, Live streaming, and Group. The steps for learning a class using the LINE application are as follows.

1. Installing LINE on the cellphone

   How to install the LINE application is done by

   - download the LINE app from the play store or Appstore

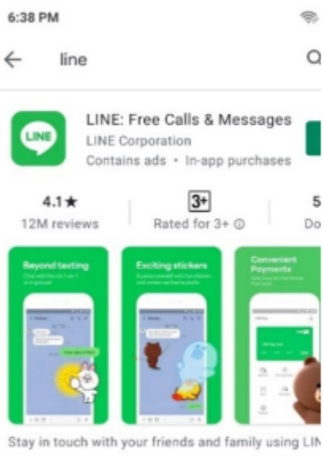


Figure 3. The LINE application on the Appstore

- installs on Android based on email and mobile number

2. Create class groups

- Open the LINE application then click the following icon

Figure 4. How to create a class group

- Then select group members and add / enroll student LINE accounts that are included in the class

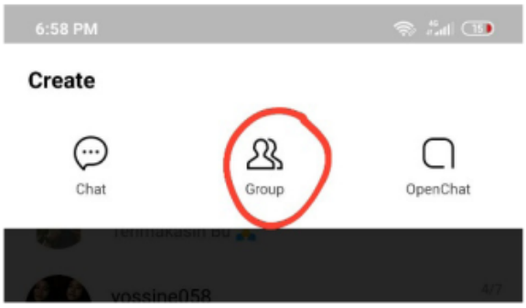


Figure 5. How to input group members

- Write the name of the group as the name of the course

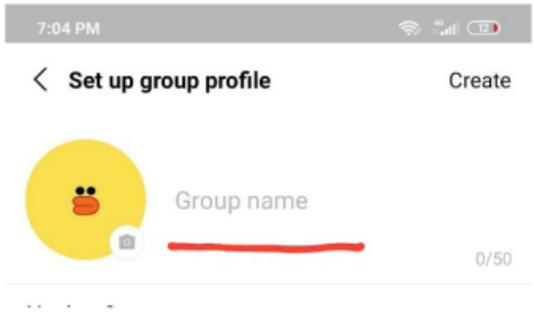
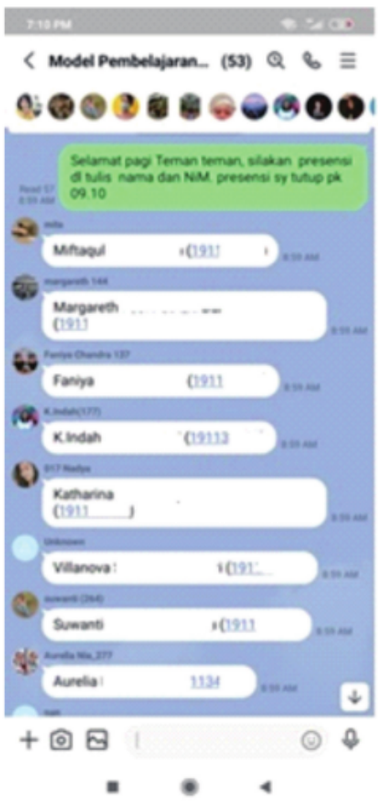


Figure 3. How to name a group / class

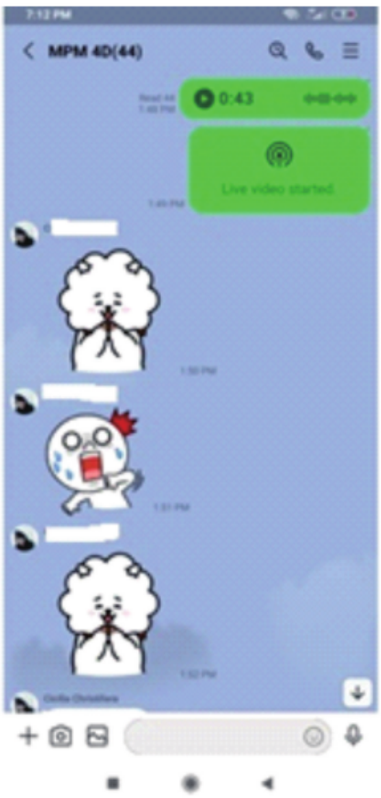
3. Start learning

   a. Provide information or announcements with chat features



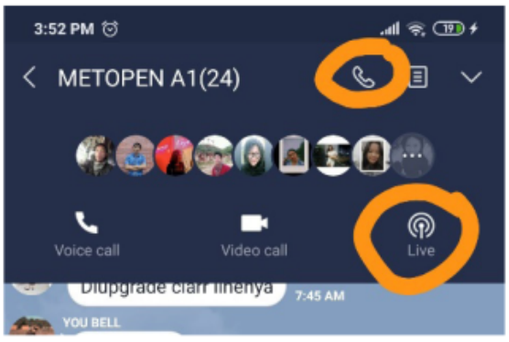
Each user can type a message via chat, in addition to information or chat features announcements can be used to create attendance for each meeting.

b. Send voice messages via voice notes



To send a voice message, the teacher can record a voice note on the audio symbol then send it to the group room.

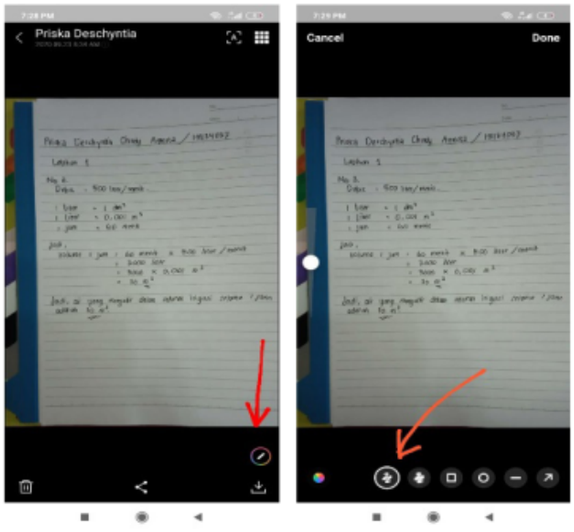
c. Live stream

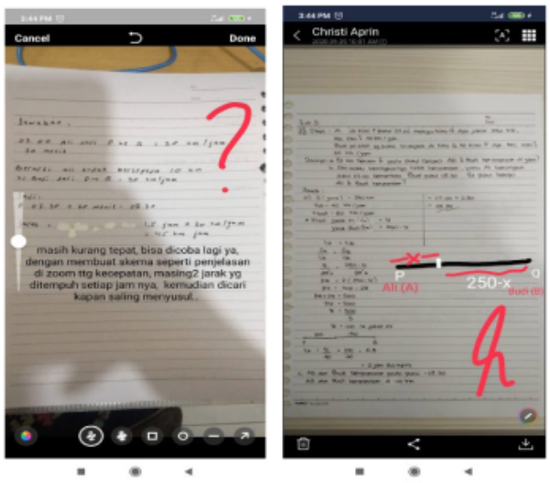


To do a live streaming, the teacher can click on the part marked with the telephone and then continue the part "live". Live streaming can be used as shown below.

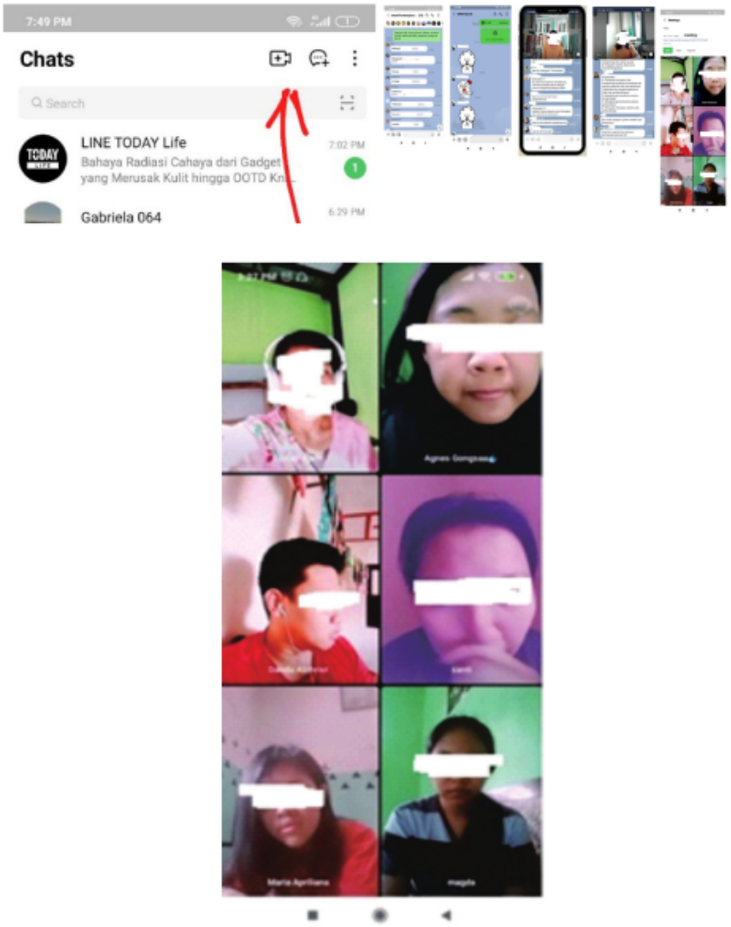
d. Provide notes on student work

To check or provide comments for student work





e. Create a virtual meeting



Examples of learning designs using the LINE application

The following is an example of learning activities using the LINE application

Courses	: SD Geometry and Measurements
Topics	: Measurement of the area of an irregular shape
Study Program: Primary School Teacher Education	
Learning Activities:	
1.	Lecturers open lectures through LINE voice notes
2.	Students make presence via chat in the LINE group
3.	The lecturer conveyed the learning activities that will be carried out today through the explanation on the LINE chat feature
4.	The lecturer provides a practical video link to measure the area of irregular objects using the unit square principle
5.	Students work on Worksheets which are sent via an attachment on the chat feature
6.	Students are given time off to work on the worksheet
7.	Lecturers do LINE live streaming or use virtual meetings to confirm the material
8.	Students do the final evaluation of the activity

The advantages of the LINE application for learning

1. Can be used for free and practical.

   The LINE application is a free, free application that makes it easier for every user. In addition, LINE is also very practical to use, you don't have to use a computer so that learning activities are more practical and only use a cellphone

2. The number of group members is quite large.

   The group members in the LINE group are able to reach 500 accounts, so the LINE application can accommodate large classes.

3. Supports multiple platforms.LINE has been developed on many popular operating systems today such as Android, iOS, Windows Phone, Microsoft Windows, Mac OS, Nokia Asha Series, and Firefox OS
4. Complete supporting features and very easy to use

The Weakness of LINE application for learning

1. Requires a stable internet connection.When using LINE, users need a stable internet connection to keep their activities optimal, especially when viewing LINE Today content, playing Watch Now videos, or reading comics on LINE Webtoon.
2. Relatively large application size.LINE has a relatively large size so it is very draining on internal storage and RAM when running. An alternative for low-end smartphone users can use LINE Lite which is relatively smaller in size.
3. Live streaming or virtual meetings cannot be recorded.

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CHAPTER 5.

Teaching Innovation through Digital Learning

Dini Deswarni

Background

Technology progresses rapidly with the advancing of era. The presence of technology enters to many aspects. In essentially, technology is a kind of process to get more value from the product produced. Technology cause many changes especially in human life. This condition bring the human tendency to use the technologies as the need of their life.

One of aspects that is greatly influenced by technological developments is education. Along with technological advances, education has also progressed very rapidly. The landscape of education will be thought of a revolution with technology as the engine to powering. Digital technology has born for the biggest generation. It shows that there is one thing newer in education, wherever it's develop throught the employment of technology.

The existence of technology in education can be seen from a digital standard of bloom taxonomy, known as the Bloom's Digital Taxonomy, which shows a correlation between digital technology and learning outcomes. Bloom's Digital Taxonomy is more regarding to the use of technology and digital tools to facilitate learning process. The type of engagement is outlined by the power of verb that may be used for everything from the lesson coming up with the rubrics creating, curriculumn and additional. It can be seen from the picture below :

Picture.1.Source. https://www.mtvt.org/wp-content/uploads/2014/09/PadWheelV2_280513small.jpg

Digital Learning System

The advancement of technology has driven the teachers and students to collaborate in teaching and learning process by using ICT features. This condition need a better concept and materials related to digital system which allow the learning process runs well. Actually, digitalization will be more effective and efficient in learning process.

Digital Learning System is a new breakthrough in learning that applied for students to learn digittally by using technology, both software and hardware, online and offline. All material of the subjects will be integrated in an exceedingly package, either within the kind of text, pictures or animation or videos. The application of digital learning make students more independent in learning and understanding the teaching materials, as a result the students can study anytime, anyplace. For the evaluation process, the teachers can carried out automatically through a digitaal method, thus there is no need to do manual corrections through paper. The analysis will be quicker and objective.

In view of the fast rate of technological development, teachers constantly need to adapt to new technologies and refine their skills in order to integrate technology into the classroom. One such new technology is a digital learning environment. Based on this statement it can be seen that every teacher have to master technology so that

they can give the lessons by using digital devices, because the teacher will teach the young people. Young people have become increasingly reliant on ICT to create, connect, collaborate and learn.In collaborative learning environment, students takes on roles, brainstorm, contribute ideas and solve some problems.ICT brings new opportunities for idea generation and collaboration.

Digital Learning and Tools

The Covid 19 cases has caused many significant changes in various ways, including in learning activities. This condition brings all parties involved with education to make decisions about the continuity of the learning process at the whole levels of education. The best solution offered for the first time in this learning process is by utilizing technology. As the statement of Wang Tao the Vice president of tencent Cloud and Vice President of tencent Education that He believed about the integration of information technology in education will be further accelerated and the online education will eventually become an integral component of school education. In order to beat the challenges faced by academic establishments, on-line teaching tools are currently being enforced across totally different levels of education among many colleges and universities in the world.

During online learning the implementation of digital learning will make students more independent in understanding the materials, because they have no limitation in the learning process. In this digital learning, some teaching materials will be enclosed as a reference which will create it easier for students to know the lessons, like theoretical e-book, video tutorials, observation, experimental simulation, and it may be the type of consultation and even enlightenment or motivation option for the students. Teachers and educators faced with conditions that require them to push themselves to be able and understand about technology and the use of it, so that there is no term clueless for them.

This media could be a great tool since the learners reportedly offer a lot of thought to the exercises being instructed here than in associate degree otherwise schoolroom. Virtual learning as associate degree approach considerably advances the environmental conservation

facet. Since all the data and study material is shared on-line, there's no wastage of paper. If you want to use a set of tools which are all in one place to deliver your online course content or whether you will use a variety of separate tools such as email, text and voice chat programs. A Virtual Learning Environment (VLE) is an online platform which is accessible to learners, and which course resources (such as documents, video, audio, etc.) can be stored. One of the biggest advantages of using a Virtual Learning Environment for online course delivery, rather than a collection of disparate online tools, is that everything is on one place, and learners' work.

Teaching Innovation in Language Learning

Currently educators are facing learners who are referred to as the millennial generation. Where the learners who are referred to as the millennial generation are fluent in technology, they are the digital generation who are proficient in information technology and various computer applications. They can access various information they need quickly and easily, both for the benefit of their education and for the benefit of their daily life. This condition requires the teachers to always improve their knowledge and abilities in using technology, because the generation faced is a digital generation that is very sensitive to various technology-related devices and applications.

The teachers must be able to upgrade their ability to use technological devices that are always developing and innovating.

At the equal time, there are some questions and issues that echoed round the matter on equalization pedagogy and technology in learning particularly in acquisition. Technology utilization in distance education has demonstrated its significance in the transfer of knowledge for both the instructors and the learners. This also made possible through the use of the internet which helps change the traditional teaching approaches into more modern methods when integrated with the pedagogical instruction. Mobile devices together with other forms of technology-based tools in education have established their potential in language teaching. Such integration of mobile learning with English language teaching may offer great innovations in the pedagogical delivery.

Mobile Learning could be a new trend in education communities. It matches the speed of fast-paced methodologies in education world. The theories of activity-based learning, problem-based learning, work-based learning, and opinion-based learning, learner-centered learning, then forth, is integrated with these small hand-held devices. Students and lecturers communicate effectively and with efficiency with these straightforward clicks to get the formative or informative and additive feedbacks the educational outcomes for each ability and information is neatly measured and determined through the most recent ICT technologies.

Learning with mobile technologies, hand-held devices and sensible phones, innovative ways presents a group of innovative analysis that focuses on learning within the digital world with advanced mobile technologies. This reference can aim to bring researchers, professors, and lecturers and industrial coaching associations teachers and learners along to introduce a replacement era of teaching and learning societies. Mobile devices like alternative technologies, initially appeared peculiar for education use however, they need become a district of our life. Nice changes in utilizing personal organizer, IPod, Podcast, and telephone for the teaching and learning of languages have verified the potential of mobile technologies.

Here are some pictures that shows some applications that can be used on mobile phone for language learning, especially English.

1. Vocabulary and Grammar

Apps such as Yodio and ThingLink enable audio or video to be added to texts or photos. Pictures and audio / video clips can be sourced online or can be taken / recorded with the students' devices, done outside of class. Alternatively, the teacher could supply a set of images for use in class. The multimedia glosses could be sent to a teacher-designated location (for example, through text messaging or email), or could be added to a multimedia

sharing site such as Snapguide or Pinterest or saved to a virtual learning environment (VLE) such as Moodle, if used. In class, the submissions could be displayed and discussed through the teacher console.

2. Reading and Writing

One of the factors to consider in reading and writing on mobile devices is the limited screen size, which may limit the functionality in both areas. In fact, mobile users are used to dealing with short text formats, not long form writing.

One recent study that compared student writing on mobile devices with writing on computers or by hand found that writing on mobile devices tended to be more superficial, less reflective (Heflin, Shewmaker & Nguyen, 2017). In line with this reality, it comes as no surprise that reported projects focusing on second language writing on mobile devices have used text messaging (SMS, WhatsApp or other messaging platforms) or tweets (Twitter).

3. Listening and Speaking

Watching video clips or listening to podcasts can serve as models for students themselves creating multimedia. This is in fact one of the most used features of modern phones, to take pictures and record audio/video. The voice recording feature can be used to record selected classroom activities for later study, reflection or transcription. Voice and video recording are ideal vehicles for practising presentations, assigned dialogues or classroom skits. Final versions can be posted online to a class webpage, a video-

sharing service, or to a public folder on a cloud service such as Dropbox. Students might use their phones to conduct video interviews with each other, related to. Using mobile devices for language learning topics currently being studied. They could use available models on YouTube to create how-to tutorials related to a hobby or particular interest.

Mobile learning applications in acquisition has its benefits and its potential must not be unnoticed, for the long run holds good prospects for this sort of technological device for pedagogic use.

Summary

The Covid 19 pandemic, which has been going on more than a year, has brought so many changes to the life in the world. The changes include all parts of community life, starting from the economic, education and socio-culture. Many have felt negative impact of this pandemic, but when viewed from the different side, it can be seen that there are some positive things that can be taken from this phenomenon. Especially in terms of education and technology. It cannot be denied that the pandemic force a very significant change in the learning process. Learning today is more dominated by the use of technology, which previously not everyone was interested and understood about the functions and benefits of it.

The changes and advancement in digital technology have led to radical changes. The digital technology has increased the intensity of innovations. During this context, digital technology, together with ICT, plays terribly important roles, so as to survive the disruption and take the advantage of the technology available. Everybody must develop continual innovations, networks, and manage relevant price chains, so they'll build necessary adaptation to evolve new innovations. However, new ways of teaching and learning English need to be develop by integrating of ICT.

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CHAPTER 6.

Digital Learning in Globalization Era

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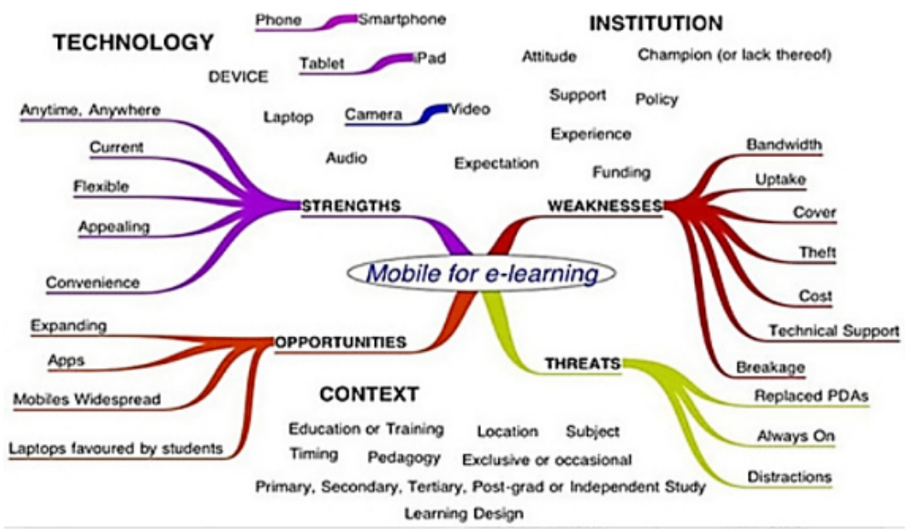
Introduction

60 According to digital learning is defined as the ability to use technology effectively to find and evaluate information, connect and collaborate with others, produce and share original content, and use the internet and technology tools to achieve many academic and professional goals



Picture 1. Introduction E-Learning (Source: www.zdnet.com)

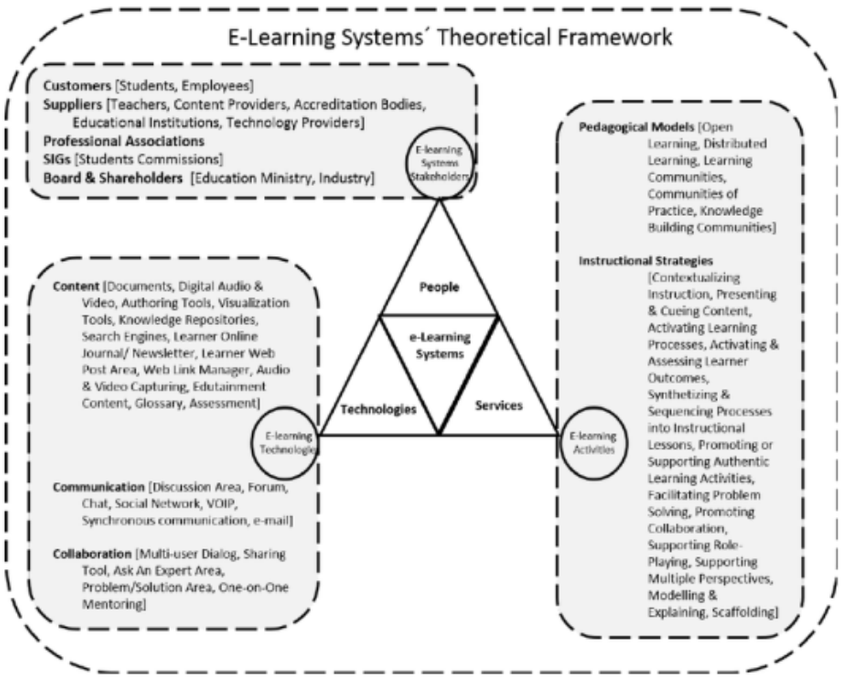
Generally, there have not been consistent agreement by researchers when describing digital learning (Bawden, 2001). Gilster (1997) determined digital learning as the ability to critically analyze resources from multiple electronic formats. Aviram and Eshet-Alkalai (2006) illustrated that it is a mind-set that enables individuals to function naturally in digital environments. Digital learning consists of several aspects of information and communication technology (ICT), including media learning, network learning, and media education (Sherman, 2011). It is also supported by Covello and Lie (2010) that the terms digital learning, technological learning, and ICT learning are used interchangeably in the literature. Further, ICT derives from the concepts of computer learning (as it was used in the 1960s) and information technology (Martin, 2003; Martin & Grudziecki, 2006).

As definitions of digital learning are consistently changing, most operational definitions focus on the individual's comfort with critical thinking and digital technology in order to solve problems. Digital competence is defined as an individual's ability to face new technological situations in a flexible manner to facilitate problem-solving (Calvani, Cartelli, Fini, & Ranieri, 2009). In order to function well in the digital environment, digital learning needs to integrate the repertoire of skills, knowledge, and understanding. There are several aspects of digital learning such as information learning, media learning, multi-literacies and critical digital learning.

Digital learning has many different terms to measure how students use the information. They are digital competence, digital skills, technology learning, information learning, and community learning. However, the focus of this study is the use of digital technologies, including how students can take advantage of them during classes and other learning activities. Students who are digitally literate are those who can find the information needed for their questions or decisions, acquire quality information from a variety of sources, and also determine the importance of said information.

Digital Learning Domains

According to Gilster (1997), Digital learning is determined by the ability to critically analyse resources from multiple electronic formats. Digital learning has many different terms to measure how students use the information. They are digital competence, digital skills, technology learning, information learning, and community learning. Outlines eight key elements that characterize digital learning.



Picture 2. E-Learning Systems' Theoretical Framework
(Source: line.17qq.com)

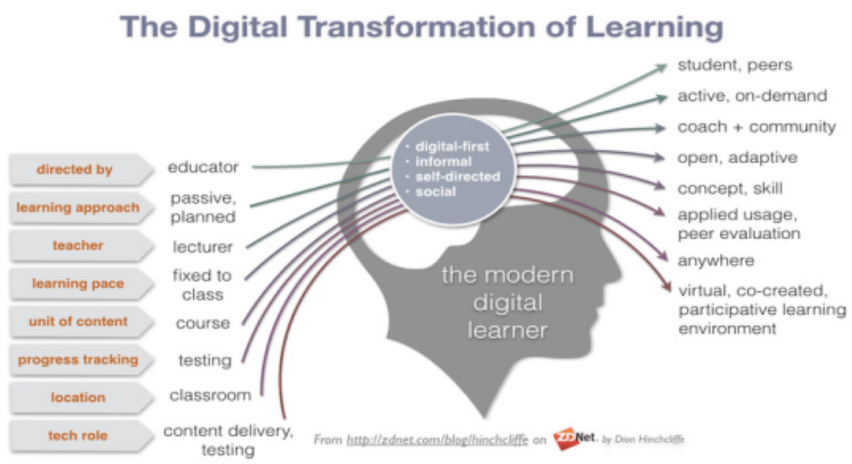
The key elements are cultural, cognitive, constructive, communicative, confidence, creative, critical and civic. Cultural is the need to understand different online contexts and how to interact appropriately with them. Cognitive is about ways of conceptualizing 'digitalism' rather than the practice of using tools. Constructive is the ability to create remixes. Communicative is about understanding how communications media work. Confidence is about the need to be confident users of technology and having enough technical expertise to be able to use technology for our own ends, rather than be manipulated

by it. Creative is the ability to find new ways to do new things with new tools. Critical is the need to learn to 'curate' and critically understand the resources that people find and not just superficially skim over information. Civic is about knowing how to use technology to increase civic engagement and social action.

There are seven Digital Learning Domains (DLDs)-namely, social responsibility, team-based learning, information research and retrieval, information management, information validation, processing and presentation of information, and digital integrity. The 65 Performance Statements (PSs) will help a teacher to identify the level of competency the learner has in each DLD. Hence, the result will determine students' strengths and weaknesses in digital learning level that must be addressed in order to facilitate learning in the current era.

Digital Learning in Globalization Era

Definitions of digital learning include three principles. The first is skills and knowledge. These skills and knowledge use a variety of digital media software applications and hardware devices. The second is the ability to critically understand digital media content and applications. And the third is knowledge and capacity to create with digital technology (Media Awareness Network, 2010, p. 4). In addition, the concept of digital learning is broader than computer learning.



Picture 3. The Modern Digital Learner (Source: www.zdnet.com)

Digital learning represents an umbrella framework for integrating other inter-related sub-disciplines and skill-sets such as technology learning, information learning, media learning and visual learning (Nelson et al, 2011; Covello, 2010).

1 . Digital Devices

The growth of digital devices such as smartphones, tablets, and laptops, have been steadily expanding in the past decade. These devices are very important tools for students and teachers for educational purposes. They help students learn by providing wider access to information outside classroom walls. As more students use digital devices, research shows that students are using smartphones in the classroom, causing distractions in the learning process. Research by McCoy (2013), found that students' use of digital devices in the classroom makes them pay less attention. .

Smith, Rainie & Zickuhr (2011) found almost 100% of college students have Internet access. 92% of undergraduate and 88% of graduate students are connected to the Internet via wireless cell phones, laptops or tablets. In addition, digital devices used in the classroom have drawbacks as well. Richtel (2012), found that teachers believe that constant use of digital technology hampered their students' attention spans and their ability to persevere in the face of challenging tasks.

2 Computer learning

Abu Bakar et al. (2015), in their study about computer learning and e-resources used among postgraduate students, found that there is a positive relationship between computer learning and postgraduates' usage of e-resources. The data showed a very strong and significant positive relationship ($r = .740$; $df = 2284$; $p < .05$). This indicates that the more the postgraduates' are exposed to computer learning skills, the better the use of e-resources for their research. Hence, computer learning is necessary for students to enhance their use of the electronic-resources.

Lorenz et al. (2015), using a multi-level path model, found that professional Australian teachers who integrated IT in their teaching and learning appeared to be a supporting factor for the students' computer and information learning. In the Republic of Korea, they found that the lack of hardware and the priorities of the school in facilitating the use of ICT for the teaching staff is positively related to students' competencies. They also found that in Poland, school leaders' priorities is only important factor contributing to students' computer and information learning.

Taher & Ahmed's (2015) study on students' computer learning and their attitudes towards its use in Medical Education in Cairo University, found that 81.3 percent of students had access to the computer at home, and 82.1% used the computer for various tasks daily. Digital learning among students was found to be high, at 94.9 percent. The majority showed a positive attitude toward the utilization of computers and the internet in medical education. There is a high level of self-rated computer ownership among medical students in the faculty of medicine-Cairo University. However, students do not fully utilize the internet as a source for medical education purposes.

Alarape & Suleiman (2014), in their study on computer learning among primary school teachers in Bida, found that teachers have a high level of computer learning. 70.9% of the teachers have considerable knowledge and experience of computer usage. 55.7% are familiar with computer application packages and internet usage. 76.4% of teachers had positive feelings about e-products. It showed a high acceptance level of e-governance system by the respondents.

In their study on computer learning among Nigeria university students, Patrick & Ngozi (2014), found a significant difference in computer learning among male and female undergraduate students. The study also found that the students' socio-economic status affect their exposure to computer resources. In addition, there was a significant difference in computer usage between students from the urban and rural settings.

Moila & Makgato (2014) studied teachers' and learners' level of computer learning to enhance E-education in the classroom and found that the level of computer learning determined the use of ICT in teaching and learning in the classroom by both teachers and learners. Although teachers and students were eager to implement ICT in their education, their attitudes were dampened by various challenges in the schools, such as lack of ICT knowledge/skills, insufficient copies of software, limited time in teaching, poor internet connection, not enough supervision staff, inadequate infrastructure; slow network performance; lack of interest among teachers and lack of support.

3. Information Learning

Ramamurthy et al. (2015) investigated students' knowledge of information learning and search skills in five selected Engineering Colleges in Chittoor district, Andhra Pradesh. They found that the students have low information learning skills. It showed a great need to enhance users' education in identifying diverse information sources and the various information learning programs. Students' perception of blended learning/ teaching strategy, and the effectiveness of the blended course in medical education, found that the majority of students perceived it positively. They expressed that they can understand more about information learning, and enhance their ability in applying information learning skills in nursing. Systematic application of the course can be used to cultivate and improve students' competency in nursing informatics.

Beutelspacher et.al.(2015), in their case study on evaluating an information learning assessment instrument of a bachelor course in Business administration, found that a multiple-choice questionnaire can be used to determine the level of students' information learning. 18 out of 27 students found the information learning questionnaire reasonable for such a purpose.

4. Media Learning

Hallaq (2016) identified the main constructs of media learning in the teaching and learning process, namely, ethical awareness, media access, media awareness, media evaluation, and media production. The study showed a reliable .919 overall coefficient on a 50-item instrument that allows a quantitative measurement of digital online media learning. In their study on the challenges of assessing media learning education, found that the participants have a strong desire to move beyond the assessment of lower order thinking skills and content knowledge, but there are several challenges preventing them from doing so. There are difficulties of pedagogy, and a lack of teacher preparedness and training in this area.

Boulton's (2016) study on confessions of media learning scholar-practitioners, found that media learning helps students to understand their contemporary surrounding. In addition, it also invites students to imagine and create alternative futures.

5. Digital Learning

Sherman's (2011) study regarding the importance placed by adult participants on digital learning, revealed five key elements of program development for adults. They are needs identification, planning, design, climate, and evaluation. The study described adult learners with special characteristics and traits regarding digital learning and related learning activities. The findings can be helpful to the teachers for designing, organizing, and implementing ICT courses for adults in the context of the SCS and elsewhere.

The research by Argentin et al. (2015) on the impact of students' digital learning on their educational outcome found that there was a strong positive relationship between digital skills and academic achievement. The stronger impact is not only for students with low academic performance or low family background but also for students in technical or vocational schools.

Research conducted by Mohammadyari & Singh (2015) found that there was a statistically significant relationship between digital learning and users' performance and effort expectations. Also, performance expectations on users' intentions to continue using Web 2.0 tools was significantly associated with continuance intention on performance. They suggested that individual digital learning is a critical component of e-learning.

Digital learning can be very effective in the blended learning environment. A study by Tang & Chaw (2016) investigated whether students require digital learning to be effective in a blended learning environment. The finding showed that digital learning had a statistically significant relationship with effective learning in the blended learning environment.

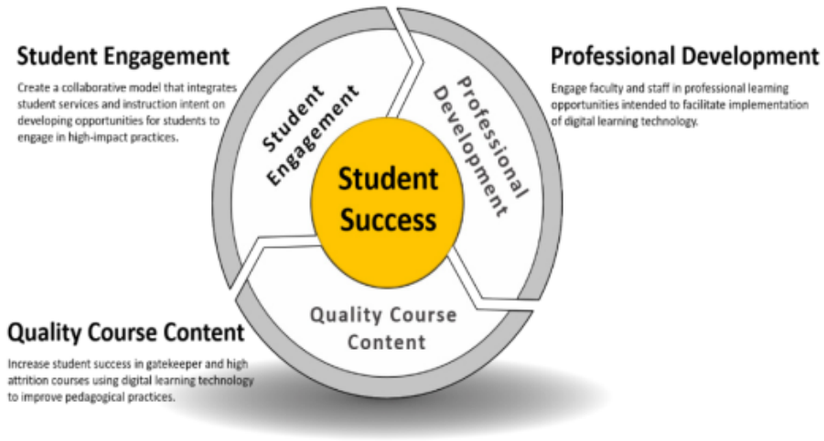
This was also supported by Martin et al. (2017), that there was a positive perception among pre-service teachers in the use of Web 2.0 tools and they were satisfied with the training in digital learning competencies and psychological and educational measures such as learning strategies, motivation and thinking styles.

In addition, watching a YouTube beauty guru's video influenced viewers to engage in video production, hence increasing their digital learning skills. Choi & Morawitz (2017) found that there was a statistically significant relationship between YouTube beauty guru exposure and digital learning skills.

Greene et al. (2014) found that students had increased their understanding of learning the subject as a result of learning with the Internet, and the data-driven through the internet approach to understanding relations among self-regulated learning and epistemic cognition. Based on the resulting study, self-regulated learning is required during online learning as the learning activities need searching, vetting and integrating information into the meaning-making process. Therefore, one of the critical components in digital learning is self-regulated learning skills.

6. Google as a tool for digital learning

Google has been chosen as a tool which provides Google Apps as a comfortable learning environment and offers basic services for universities. Google Apps proposes to utilize the technologies in order to increase student's learning and implement innovative educational technology at the same time with the best universities in the world. Google is not only providing some customized applications for free for educational institutions and for teachers, but also it helps teachers to meaningfully integrate them into learning.



Picture 4. The Student Success with Google as tool for digital learning
(Source: www.laredo.edu)

Haris & Hodges (2016) also found that students had a positive experience in using Google sites and Google+ for learning. The majority (93.2%) of them agreed that they enjoyed using these Google tools for the course. According to the students in this research, implementing Google platform into the teaching-learning process increased interaction and collaboration among students. Using Google Apps for education purposes is a good strategy to engage undergraduate and graduate students to create learning content in collaboration with teachers. Studying the effectiveness of training teachers in using Google tools for teaching and learning in Romania found that trainer teachers felt

more efficient to solve administrative tasks, participate more in collaborative educational projects and succeed to create more interactive activities for their learners when they use Google tools in the teaching process. Brown & Hocutt (2015) also found that students perceive Google Apps as useful tools when they incorporate these tools into learning objectives in the college.

Google Apps offers many Apps to guide teachers and students in the teaching and learning process. Brown & Hocutt (2015) mentioned that Institutional users who manage Google's account and connect with the existing campus student information system (SIS) have access to Google Docs for word processing, Google sheets for spreadsheet use, Google Slides for creating presentations, Google Hangouts for real-time video collaboration, and other Google applications. In addition, Google Form in conjunction with Educational video channels allows teachers to implement innovative self-learning techniques, and students can obtain a means of accessing knowledge indefinitely, and learning all the time. On students' experience of collaborative and individual learning in relation to the dimensions of vocabulary gain, motivation and the perception of web-based learning, found that collaborators using Google Docs had higher levels of motivational belief, self-efficacy, lower level of test anxiety and better vocabulary gain. The students also had a positive perception of learning with Google Docs. Some previous research on Google Docs also found that students had a positive perception of collaboration in the web-based Google Docs for writing in terms of linguistic knowledge.

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CHAPTER 7.

Learning Gamification with the Kahoot! App

Iyam Maryati

The advancement of information technology today has influenced many changes in people's lives. Changes that occur in learning cannot be avoided, from those who are accustomed to conventional classes switch to virtual classes. Especially with the Covid-19 pandemic making this ability in information technology a necessity. In measuring the success of a learning material, it is necessary to provide a test. Giving tests in learning is the process of giving a series of questions to measure the success of students in understanding certain learning topics. The test can also measure skills, intelligence knowledge, abilities or talents possessed by individuals or groups (Arikunto, 2002; Sari, 2013; Nuryadi & Khuzaini, 2016). As a source of assessment, the provision of application-based tests is very effective for teachers.

Kahoot application! is an on-line learning media application that contains features of quizzes, games, discussions, and surveys. Kahoot! application as a learning technology platform combines learning evaluation experiences with interactive games and is equipped with a student activity monitoring system. Kahoot! innovation as the development of information technology it also provides an interesting, interactive, and conducive experience in the evaluation of learning that is needed by the academic community (Putri, A. R., & Muzakki, 2019; Correia, M., & Santos, 2017).

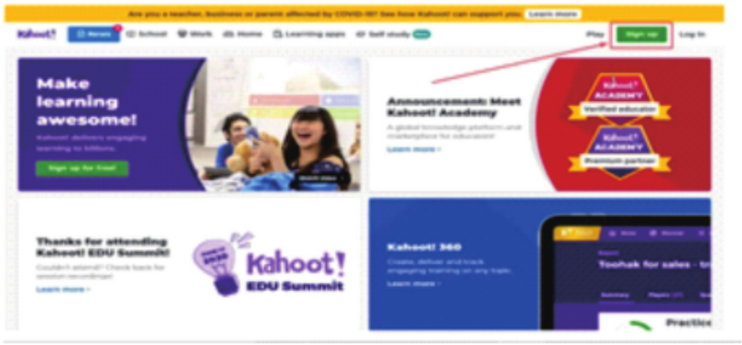
Kahoot! on-line learning media it is effective in learning in elementary schools (Bahar et al., 2020; Imania & Bariah, 2019). Students' perceptions of Indonesian lessons using Kahoot! show that almost all students have a good perception (48% Very good; 44% good) on the use of Kahoot! media in Indonesian language learning (Perdana et al.,

2020; Sugiyanto et al., 2015; Licorish et al., 2018). The development of interactive English learning media through the Kahoot application is very feasible to be used as an interactive learning medium because it can make a positive contribution to improving student achievement (Kartika Rini et al., 2019; Tompong & Jailani, 2019). This media can be used as an alternative in increasing students' interest in learning physics based on observations (Suyidno et al., 2019; Alamanda et al., 2019; Jones et al., 2019). Based on this research, the kahoot! it can be used at various levels of education.

As for the steps in implementing the Kahoot! application this is as follows.

Creating an account

a. Create an account at kahoot.com, by visiting in a browser, type URL "https://kahoot.com"in the web address field and press Enter. Then click the Sign Up button located in the upper right corner area.



b. There are four choices of account types, namely:

- ✓ Teacher.

  If you are a teacher at an educational institution such as a school or university.

- ✓ Student.

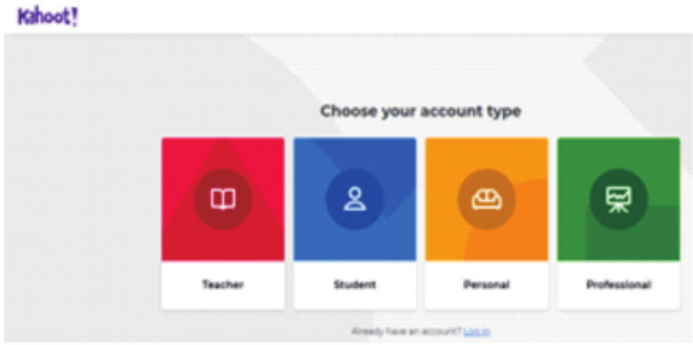
  If you want to hold a study with friends or for group presentations in class.

- ✓ Personal.

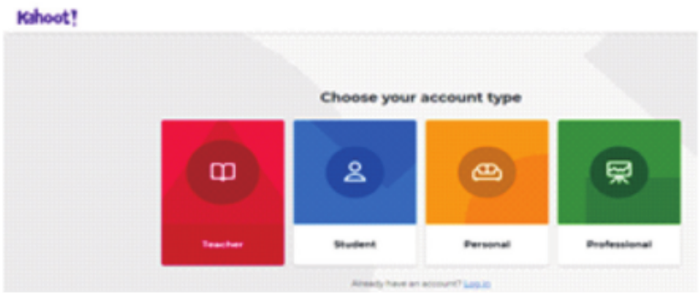
  If you choose not to affiliate yourself with the status of a teacher, student, or employee.

- ✓ Professional.

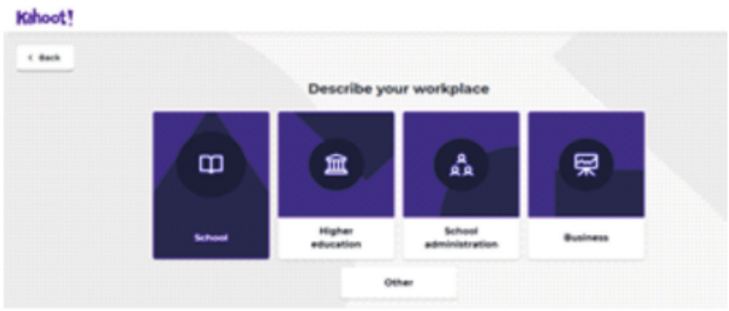
  If you will hold a town hall meeting



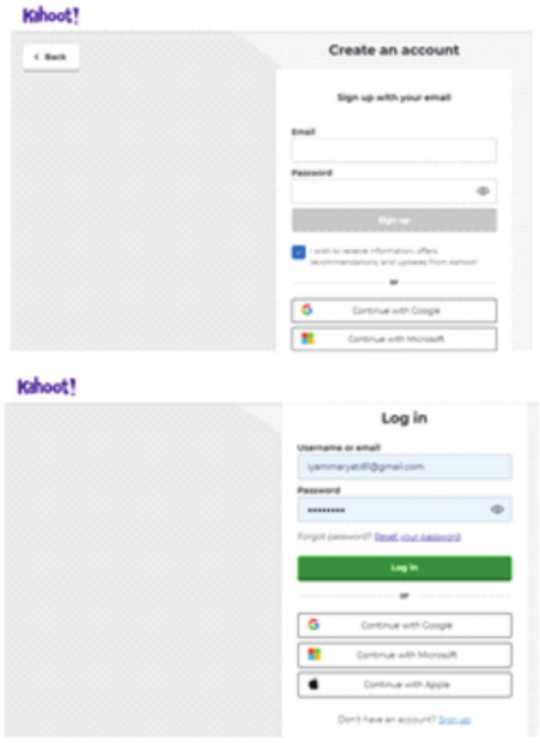
c. Click on one of the desired or appropriate account types. For example, choose Teacher.



d. Then click school. If previously selected student, click Higher Eduation, and so on.



e. Next, create an account by entering your email data and password to register an account. You can also choose to register with a Google or Microsoft account for a faster process.



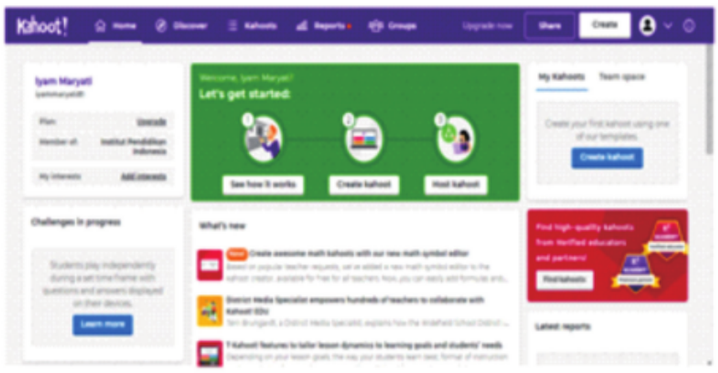
f. There are four price packages such as Basic which can be obtained for free and can accommodate up to 10 players. Then there is the Plus package with a maximum player limit of 20 people. For the Plus plan, you need to pay $ 48 per year or the equivalent of Rp.700-thousand per year. Other options are Pro which can be

played by up to 50 people and Kahoot! 360 Pro for large office use (up to 2000 people). To continue the registration process, just select the free package by clicking the Get Basic button as shown below.

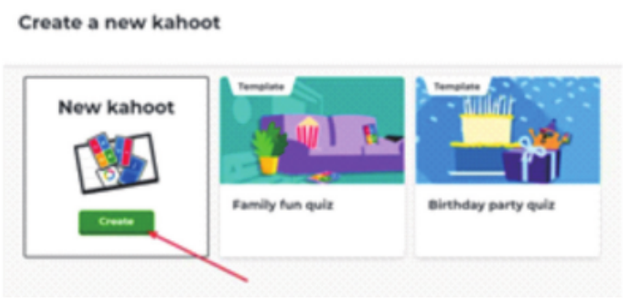
Making a game

After you have successfully created an account, now you can create a game with the following steps.

a. Enter the dashboard page that displays various information and menu options.



b. Click the See how it works menu to participate in the demo game. But if you want to immediately make a game, click on the Create kahoot button.



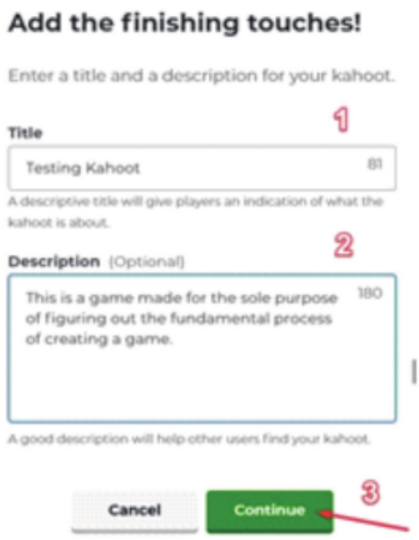
c. Select a quiz type and enter a question.

The image above is an interface for entering information about the game such as questions, answers, points, and others. The following is an explanation of each of the elements above:

1. Write quiz questions in this column as a placeholder for questions that will be displayed in the game.
2. Set the time limit for answering the questions, the options consist of 5 seconds, 10 seconds, 20 seconds, up to a maximum of 120 seconds.
3. Each question that is successfully answered will add points. This section can move the slider left for 0 points or right for 2000 points. By default, a question will give you 1000 points if it is answered correctly.
4. **Answer Options** is an option that regulates whether the player can only choose one answer or more than one answer.
5. Click Image library to select photos provided by Kahoot! or click Upload Image to attach the photos you have on your

hard drive. In this section, you can attach pictures, whether it's just an illustration or a guide. You can also insert videos using a YouTube link.

6. Make at least 2 answer choices and choose the correct answer by clicking inside the circle. You can also make this question so that it has more than one correct answer. The answer choices do not have to be in writing, you can replace them with pictures.
7. Click the Add question button to add the next questions.
8. Click Question bank to add various questions that have been made by Kahoot! other.
9. Click the Done button to complete the game creation process.



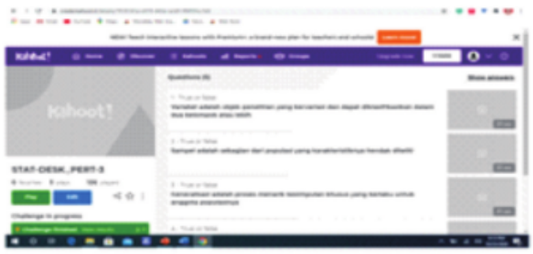
10. Enter the game title and description in the fields provided, then click the **Continue** button**.**

(*Https://Kahoot.Com/*, 2021)

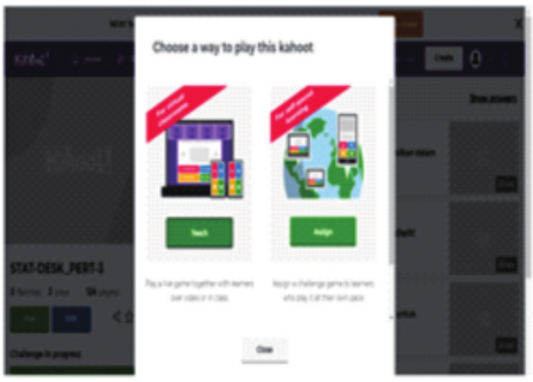
Delivering a Game

After successfully making the kahoot! Game, it can then be given to students with the following steps:

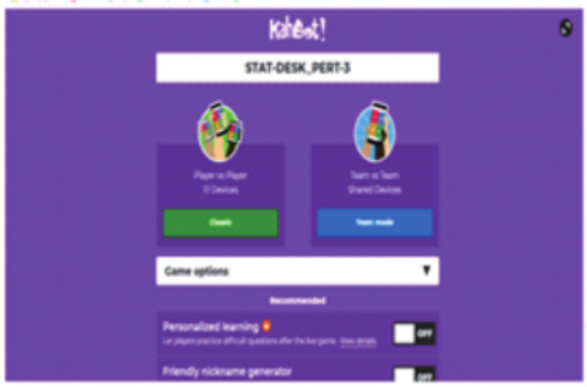
a. Clik Play now



b. There are two options, namely Host and Challenge. The Challenge option is useful if you are going to play individually. To play it together in class or meeting room, choose the Host menu.

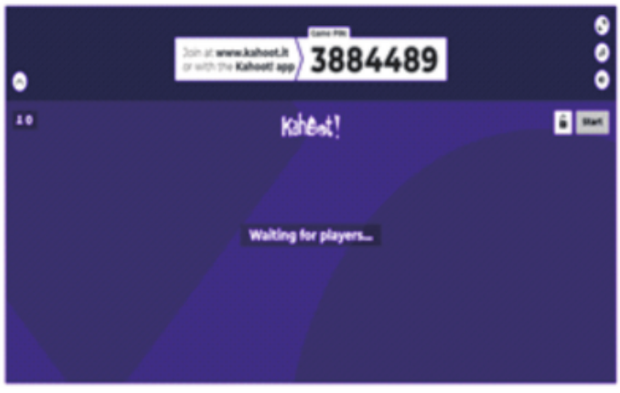


c. Kahoot! offers two types of games, namely Classic and Team Mode. In Classic mode, each student plays using one device. Meanwhile, for Team Mode, a team can consist of two people who use the same device. For example, we will use Classic mode.



d. Next screen display to start the game. Can connect a laptop to a projector or share screen with media zoom so that all players in the room can see the Game PIN clearly.

e. Display to wait for students to join by opening a browser with the link www.kahoot.it.

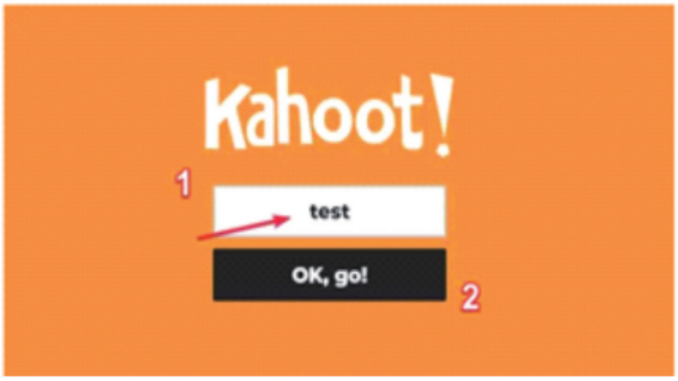


Join as a player or student

After a Host displays the Game PIN on the screen, Students can enter the PIN on a device. The steps are as follows.

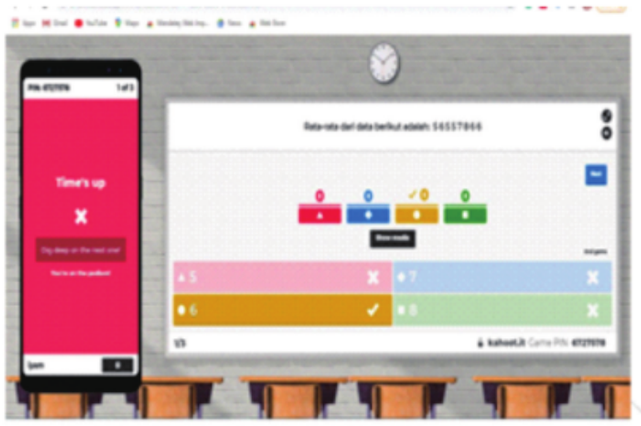
a. Students can use a PC, cell phone, or tablet, select a browser, type www.kahoot.it in the address bar and press Enter. The browser displ[237]a column to fill in the Game PIN. Type in the Game PIN shown on the host screen and press Enter to start the game.

b. Enter **a nickname** in the column if prompted. Certain cases only allow the player to choose a random name, depending on the rules imposed by the host before starting the game. When finished, click **OK, go**! to continue.

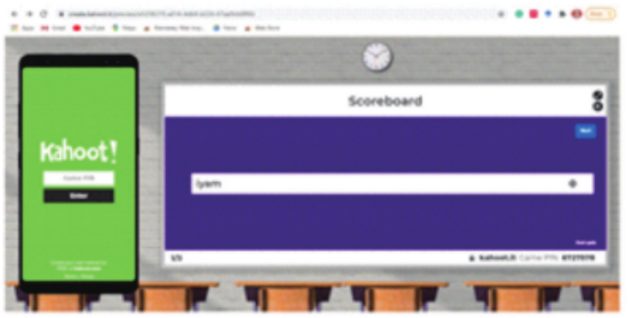


c. Students see the question and immediately give the correct answer.

d. The number of students who answered the questions



e. Display of students who obtained the highest score



(*Https://Kahoot.It/*, 2021)

Kahoot! application this will give an assessment and rank him who answered the most questions correctly he will be the top with the highest score. Each question can be made with different points. Kahoot application! this is very useful in learning. Especially with the interaction of the trivia quiz which is very unique and contemporary, it can make students more enjoyable in receiving learning. Thus, hopefully this is useful.

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CHAPTER 8.

Hybrid Learning: Synchronous and Asynchronous Learning in Pandemic Covid-19 in Agricultural Economics Class

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Corona Virus Disease (Covid 19) affects all aspects of human life, including education. The learning model used in Indonesia prior to the Covid-19 pandemic was a face-to-face learning model. Educators and educators are in the same location, normally a classroom, to conduct direct teaching and learning activities in which educators and students interact directly. During the COVID-19 pandemic, online learning took place all over the world. Educators as an essential element of teaching must move from traditional face-to-face training to online or distance education on an authentic large scale (Bao, 2020).

The government has imposed social distancing rules on Indonesian society that influence the university's teaching and learning activities. Learning that was previously done face-to-face has been temporarily halted in order to comply with the government's health protocol. As a result, the University must conduct learning in a bold manner (Gunawan, Ni Made Yeni Suranti, 2020). This was one of the challenges an educator or lecturer had in this area during the Covid-19 pandemic. A lecturer must be able to devise techniques for bringing the interactive classroom to life. Students are experiencing hybrid learning for the first time since the Covid-19 pandemic necessitates studying at home in order to limit the virus's spread in Indonesia.

One of the challenges that improvements in the learning process face is the rising cost of learning because it necessitates the use of

technology in the online learning process. The supply of pulses for internet quota is one example that necessitates additional fees. This internet cap is critical in the process of delivering and accessing educational materials over the internet. From September to December 2020, the Indonesian government, through the Ministry of Education and Culture, will provide internet quota subsidies to lecturers and students to help them address this additional cost constraint. With resources that make online sessions productive and efficient, lecturers may use virtual classrooms to teach from home. Using academic resources and scientific practices, educational institutions should follow the best approaches for delivering low-cost, high-quality services. Educational software, networks, and tools are listed by UNESCO as distance learning solutions that seek to assist parents, faculty, students, and administrators in facilitating student learning as well as providing social care and engagement during the school closing period. The majority of the solutions are free, and many of them support multiple languages. They have a large audience, a large user base, and proof of influence.

Online learning is a form of learning that takes place with the use of technology such as a smartphone, computer, or laptop that is linked to the internet network (Hoi et al., 2021). There are several service providers or applications that can be used to aid in the implementation of learning activities. As it can be accessed at any time and enhances student success, this bold learning can support students or students if it can be accessed. Furthermore, studying bravely offers assistance and availability for teachers (lecturers) and students by establishing research schedules that do not dare to be obstructed by the position of lecturers and students (Bower et al., 2015).

Online teaching environments may be divided into three different environments – synchronous, asynchronous and hybrid. In the real-time interactions between e-commerce activities, such as instructor lectures and questioning and answering sessions, synchronous learning environments provide collaborative in nature However, concurrent student-teacher presence is required for synchronous sessions. The asynchronous environment, on the other hand, is not time-bound and

students can work at their own pace on electronic work. The hybrid online environment brings together synchronous and asynchronous online sessions. It can be called hybrid, since combined with simultaneity as a synchronous and asynchronous teaching instructional design. Patterns totally different. A study by (Swan, 2006) maps the satisfaction of students and the perception of asynchronous learning. He identified design clarity, interaction with teachers and active discussion between course participants as key factors for satisfaction and learning perceptions of students. The impact of synchronous student training was examined by (Lowenthal et al., 2012) and good ways were identified to reduce distance education. How students perceive their educational conduct in the two media is important ((Somenarain, 2010). Based on student perceptions and analysis of learning (Greller & Drachsler, 2012)

Further technological developments are also important, particularly in light of the Covid-19 pandemic, which requires the world of education to learn online or through the internet (in a network). Hybrid learning integrated by off-line (face-to-face) and online learning activities is one way to do this. Hybrid learning is a learning that brings together face-to-face and online learning where learning is carried out with in-class supervision (in face-to-face learning situations) and distance learning that is possible both at home and outside the home and wherever and via the internet. Online learning is not limited to space and time, so when the student is not in school/campus there are no learning activities and learning can continue online support as a main component of online learning to connect learners to learners .

Hybrid learning will help students catch up with what they've missed out on in class. Platforms such as apps, blogs, social networks, and learning management systems can be used for online learning (Gunawan, Ni Made Yeni Suranti, 2020). These various forums may be used to aid information transfer, which is aided by various discussion techniques and other means. Learning results during the pandemic are also in doubt, educators are expected to pay attention to learning outcomes in order to maintain a high level of education even during the pandemic.

Since students and teachers feel at ease and see the potential of setting up and accessing n learning resources, online learning continues to spread globally. A collection of learning experiences in a subject distributed through a network providing access and informati sharing is referred to as online learning. This term was coined to describe a method of teaching and learning that incorporates the use of internet technology. Students may use the online learning environment to not only access information and resources, but also to nnect and collaborate with other course participants (Krish, 2021). Online learning may also be described as the use of the internet to access materials, communicate with content, teachers, and other students, and receive assistance in the learning process in order to acquire knowledge, make sense, and progress through the learning process. Online learning is characterized as learning that takes place over the internet and is aided by electronic devices such as tablets, smartphones, laptops, and computers (Gonzalez & Louis, 2018). Online learning methods require students to study quantitative and qualitative subjects independently at home. Sixty-four per cent of course types are quantitative or computer-based. One is in agriculture faculty where nearly every subject taught uses statistical calculations. The lecture is less than 2.5-3 hours for a course. The course duration is the same as the lectures. For the duration of the lecture, students must continue using devices such as smartphones or computers or laptops.

There are two methods of teacher online education, namely Live-streaming (Synchronous), and then distributed to students with the first video recording (Asynchronous). If a class has a large number of students, synchronous gives lecturers an advantage by allowing them to deliver material directly without extra effort. Furthermore, using video recordings has the advantage of allowing students to repeat the video, allowing lecturers to be more versatile when students do not understand the content. According to previous studies, video is one of the most powerful learning media because it provides students with benefits (Faridha, 2019). Synchronous learning is used by learning technologies, such as Internet conference, satellite, video and teleconferencing. It involves learners and trainer exchanging information and interacting in an online learning community at the same time. The Synchronous

Method how to use it. The synchronous method is learning by the lecturer by explaining the lecture documents via the platform above. The lecturer will share the screen during class time and online discussion will take place at that time on Gmeets, Ghangout, Discord, Zoom and YouTube. Therefore the professor should be in a position to ensure a stable Internet network.

During the Covid19 pandemic, various studies have addressed the use of a number of online learning platforms. The applications used include Zoom, Google Classroom, Schoology, and Edmodo, but they do not support an Internet connection problem, There are obstacles. Then the model of learning like problem solving is a further attraction that motivates the student to learn. Google Classroom (Nasution, 2020), WhatsApp, YouTube, Zoom and others are all available applications. Of the 43 teachers interviewed, 84.2 percent used the application WhatsApp. The learning method using the WhatsApp application is carried out by discussion in a group (Salehudin, 2020).

As a result of its flexible way of working, however, the asynchronous learning/teaching mode has now become the most common form of online teaching (Hrastinski, 2008). An asynchronous environment offers material readily available in the form of audio/video lectures and presentations, articles and presentations in power points. Management Learning Systems (LMS) or other similar channels are available for access to this material at any time. LMS is a series of tools that adapt the content of the courses and provide a framework for communication among students and teachers, such as classrooms. Sometimes other terms are used in place of LMS, such as CMS or Virtual Learning Environment (VLE). The term CMS is an older term comparatively, and today's less common practice means basic content management, while LMS refers to the system supporting the learning process. VLE also supports the learning process but is used more frequently to describe systems that support mixed learning contexts (Annuş et al., 2009).

Asynchronous e-learning is the most popular online learning method (Lewis, 2009), given that the learners are not time-bound. The possibility of delayed reactions allow you to utilize higher learning skills as long term problems can be thought about and different thinking

developed. A constructed answer takes the place of the expression's spontaneity. Asynchronous space leads therefore to fast and independent self-learning, which is student-centered. Asynchronous electronic learning can thus improve the knowledge of students by means of new concepts (Lin et al., 2012). Less memory and notes reliance and more discussion opportunities with peer groups help to build critical thought and profound learning. Distance mode decreases the lecturer's anxiety and doubt, which reduces shame. Not a few students are untrustworthy when meeting with their teachers directly so that asynchronous mode minimizes class in comfort and increases students' self-confidence. The speed and non-connectivity problem facing many students is one - it will be fixed at least because this learning is not an urgent matter at present.

Only a carefully planned collection of techniques will keep students involved and interested in an asynchronous learning setting, facilitating motivation, self-confidence, engagement, problem solving, analytical, and higher-order thinking skills. Furthermore, it is a self-paced system that requires students to be self-disciplined in order to remain involved and interactive in order to monitor electronic activities. Even though active discussions on forums and blogs can continue, talking about the subject can also distract them. Delay in receiving feedback can be aggravating (Lowenthal et al., 2012). Additionally, students should seek out opportunities to socialize.

Effective learning relates broadly to improving the relationship between collaborative learning processes, engagement, involvement and accountability, and learning goals and achievements like problem solving, critical thinking and higher-order thinking. E-learning can include every method of teaching, such as email and discussion boards, enabling late feedback and delayed reactions.

The asynchronous learning model is one of the methods a teacher can use, and students are much free to ask questions which require long answers. Students have plenty of time to reflect the teacher's expression and the material and can make them more innovative and creative in responding to the teacher's assignments. Discussion fore can help students who are shy because of their identity

anonymity in the development of their discourse. Asynchronously, however, the reduction of direct feedback and direct interaction has disadvantages. The communication of synchronous learning with whiteboards, video chats, or voice-chats provides immediate feedback to help students improve personal and living skills. It can therefore duplicate real-time classrooms from person to person (Keegan et al., 2005). The synchronous learning environment is characterized by an understanding of classroom models, direct feedback from teachers and fellow students and the rapid creation of content in the classroom. Synchronous network-based speech can improve understanding of complex topics. However, due to time constraints and technology accessibility at the planned time, this can be problematic for students.

Although synchronous e-learning is becoming increasingly popular worldwide due to improved Internet speed and technological progress. Observing students' participation shows they are more active in asynchronous mode, while their views favor the ideal combination of the two modes of training. Research (Mcloughlin & Lee, 2010) Shows that asynchronous mode is not time and place bound and allows for reflection on how to respond to school or on campus. The asynchronous mode is therefore more appropriate for you. In this study, some students have stated that the greatest weakness is synchronous mode in which learning is temporary and provides students with virtual freedom of thought to learn. In a virtualized system, the majority of students are unable to synchronize temporary tasks because most work at the moment

Based on hybrid learning explanations that combine face-to-face and online learning that combine more synchronous and asynchronous modes of virtual learning desired at University of Mochammad Sroedji, June. A student's understanding of the synchronous learning environment enables teachers to understand the relationship between the content, pedagogy, technology and existing learning design contexts in greater detail (Koehler, 2007).

In future steps to improve integrated teaching and teaching design in general and in particular. In both synchronous and asynchronous forums collaborative learning can take place with the

only concurrent difference. Asynchronous mode can be useful because students can carefully think and analyze their responses. Synchronous sessions can exert a pressure to react immediately and to monitor the depth of the learning when the correct constructions are needed to react immediately. For deep learning, therefore, synchronous activities should be asynchronous. The combination between the two could be an ideal way for teaching in the classroom, since it would cover all teaching techniques/techniques. Only careful planning when using the mode required by the planner/reader. Be more specific for this purpose to meet this need, a virtual curriculum for teaching design should be created.

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CHAPTER 9.

Step by Step Become an Expert on Schoology in The Middle of The Covid-19 Pandemic

Adirasa Hadi Prasetyo

The world at the beginning of 2020 until now is facing a contagious epidemic (Wang et al., 2021). This outbreak is called Corona Virus Disease (Covid-19) or it can also be called SARS-CoV-2(Yuliana, 2020; Yunus & Rezki, 2020)and has hit 215 countries. This epidemic stems from a case of pneumonia which first appeared in the city of Wuhan, China(Handayani et al., 2020; Lee, 2020; Tandra, 2021; Zaharah et al., 2020).

Picture 1. Development of corona cases in the world (source: WHO website)

From Figure 1 above, the development of confirmed cases of corona around the world has reached 148,329,348 cases. In addition, there are 3,128,962 people who have been confirmed to have died from being exposed to this corona virus. The spread of the corona virus has also occurred in 223 countries around the world. The number of cases could continue to grow every day if each country did not take preventive measures and restrict community activities in several sectors.

The Indonesian government considered the corona virus something not to worry about, so as not to cause panic in the

community. While other countries have implemented restrictions on citizen activities and restrictions on the arrival of foreign nationals from China, the Indonesian government has not implemented some of these policies. Until finally the corona virus actually entered Indonesia and spread so quickly.

The effect of the spread of patients with symptoms of the corona virus has made the government implement several strategic policies in all fields. The education sector is also adapting to the increasing number of people who have contracted this corona virus. The world of education applies online learning(Adedoyin, 2020; Agarwal, 2020; Bacher-Hicks, 2021; Carrillo, 2020; Castro, 2021; Kaup, 2020; Mukhtar, 2020; Rasmitadila, 2020; Suryaman, 2020; Wei, 2020) for all levels of education from early childhood education to tertiary education.

Adaptation to the world of education with the widespread cases of the corona virus by implementing online learning or e-learning (Bhargava, 2020; Cerezo, 2020; Chirikov, 2020; Favale, 2020; Nariman, 2021; Rakic, 2020; Yawson, 2021). Teachers and lecturers use two types of online learning, namely: synchronous and asynchronous learning. In carrying out synchronous-based learning, teachers and lecturers can use the zoom, webex, google meet or microsoft Teams application.

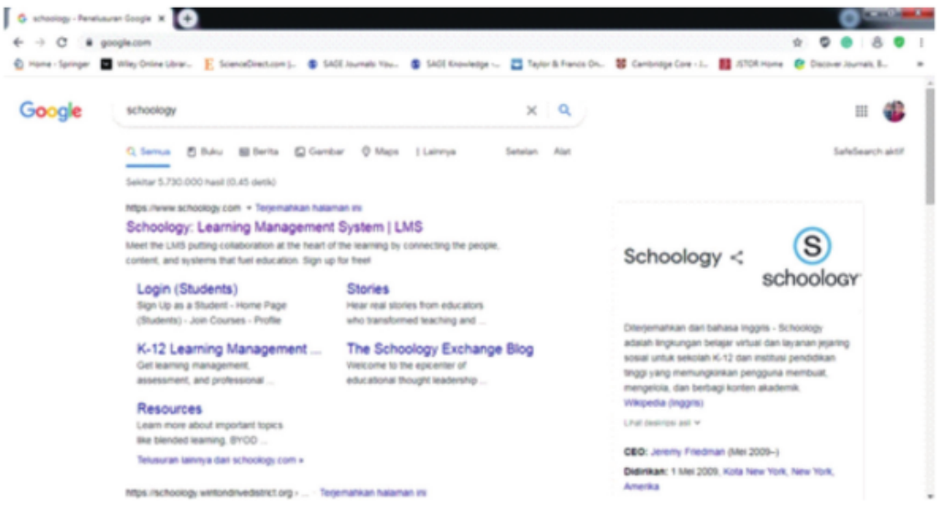
In addition, lecturers and teachers also use asynchronous learning as an alternative to online learning (Jeong, 2020; Khater, 2020; Kim, 2020). This is done because asynchronous learning has several advantages over synchronous learning. Some of these advantages include: practical, saving quota, equipped with assessment features and other learning features.

Asynchonous learning is also often associated with LMS or Learning Management System(Bervell & Arkorful, 2020; Duin & Tham, 2020). LMS is an e-learning platform created to facilitate online learning. One of the LMS that is practical, interactive and often used is Schoology(Simatupanga, 2019; Zainuddin, 2018). Schoology makes it easy for teachers to interact and collab orate with students, parents, coaches and other teachers(Delima, 2020; Ferdianto, 2019; Hilyana, 2018; Sibuea, 2021). In Schoology several learning features are provided, including: content / material columns, quizzes, discussion attendance,

viewing video photos and material links from other sources. This Schoology application can be downloaded in the Playstore and can also be run through a browser, such as: Chrome, Firefox, Opera Mini and others.

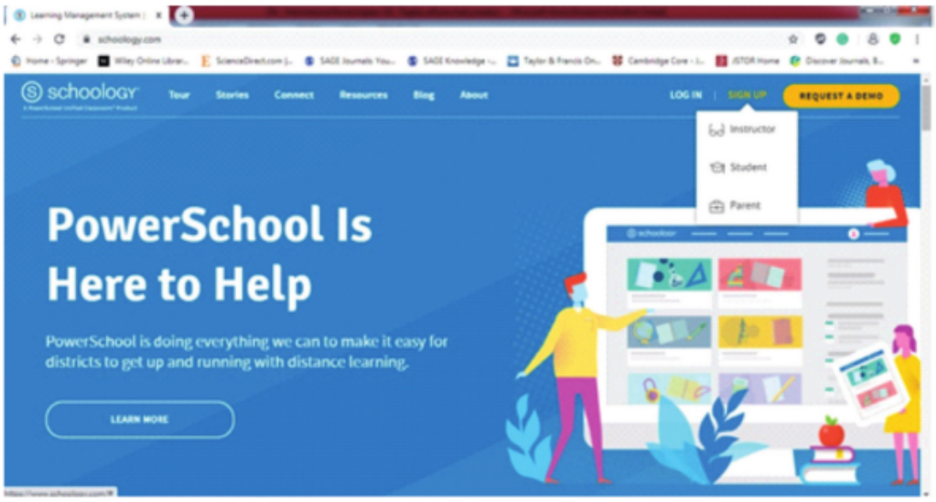
The following will discuss step by step the use of the Schoology application for all people via the google chrome browser.

1. Go to Google and type Schoology - click Schoology - then enter



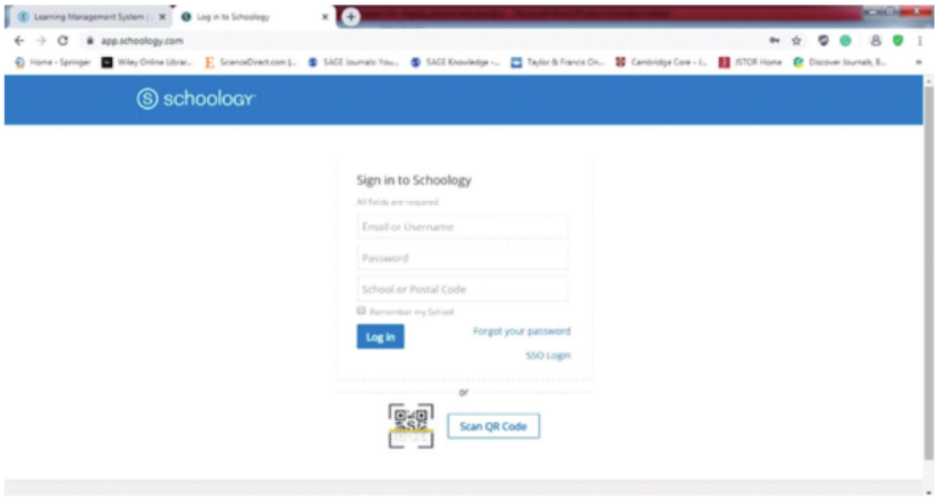
2. List

   Click sign up and click Instructor (if registering as a lecturer or teacher), student (if registering as a student) or parent (if registering as a parent). Then fill in the data starting from the name, username, password, email and others.



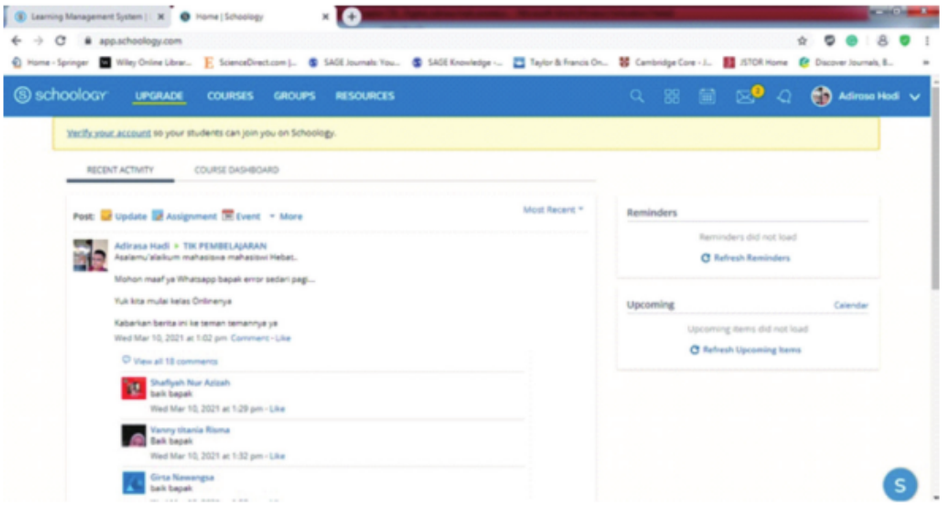
3. Sign in / login

   Enter the registered email and password - click Log in



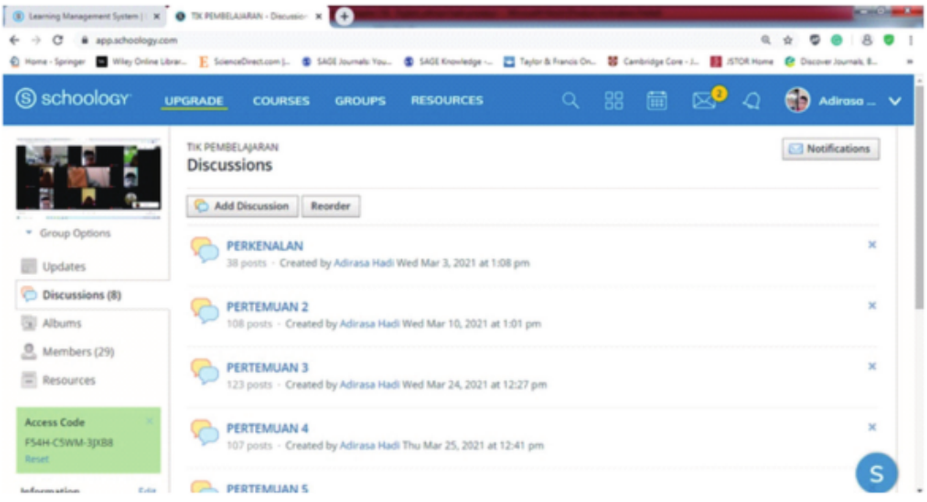
4. Home

   Home display or schoology dashboard. There are columns for courses, groups, resorches, assignments, events, calendar notifications and more



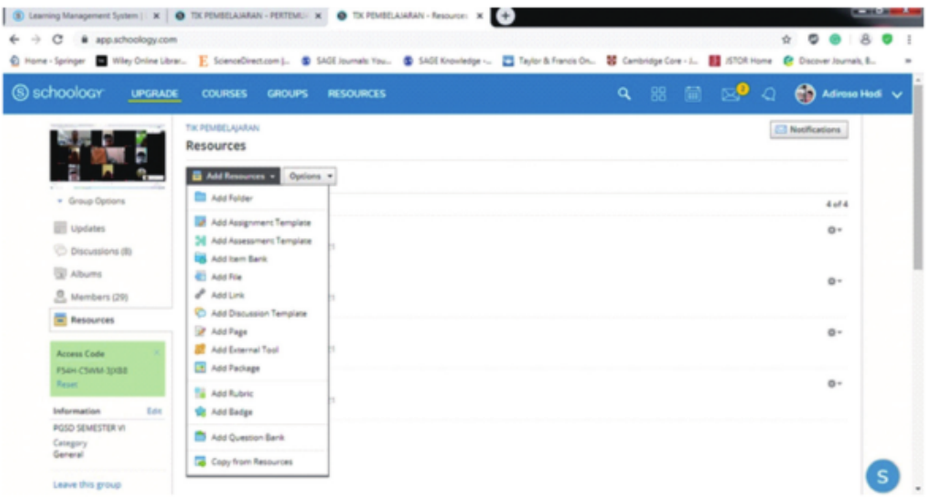
5. Group

In groups, we can fill in several discussions and other online learning activities



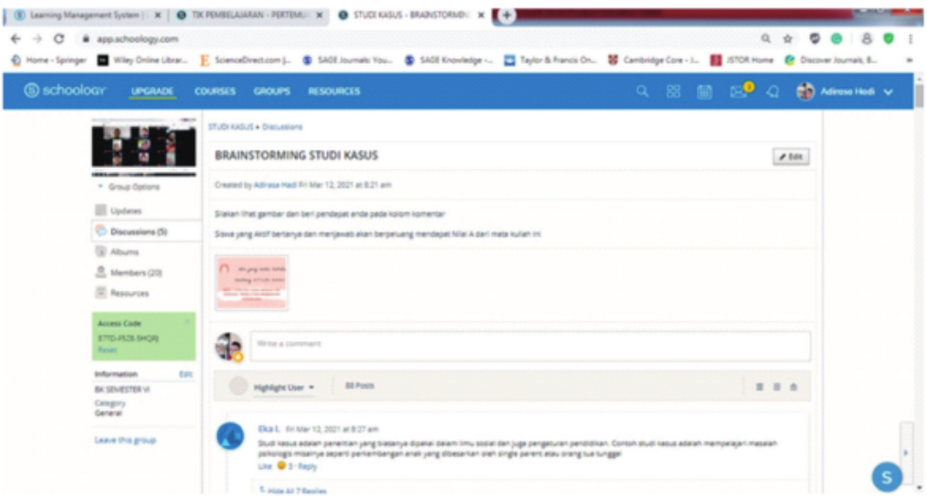
6. Resourches

In this resorches column, several reference sources can be added to add to the knowledge and knowledge of students



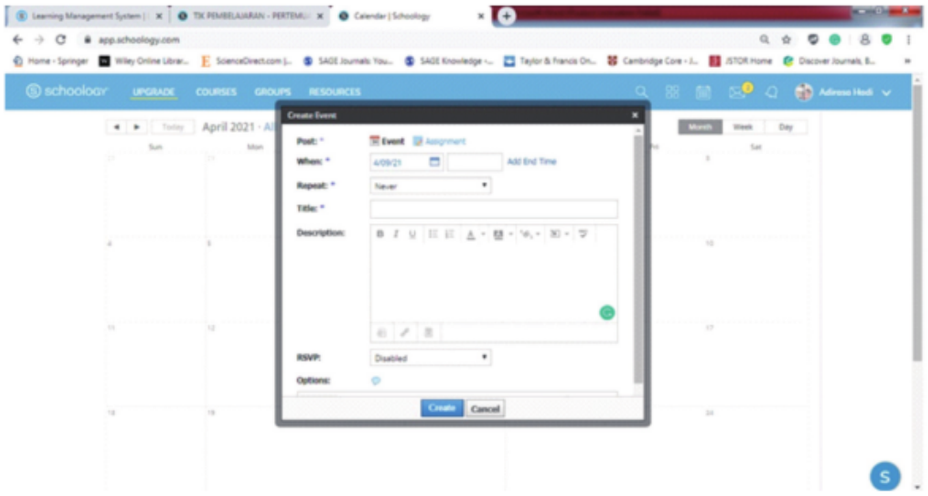
7. Discussion

Lecturers or gru can start online learning activities by providing initial material in the form of pictures, videos or ppt in the discussion column



8. Event

Teachers and Lecturers can also arrange an event that contains assignments or other things in the event column or calendar



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CHAPTER 10.

The Application of Addie Model in Developing a Digital-Based Audiovisual Media Guru Triguntar

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Introduction

Mathematics is a subject that is taught from an early age in education throughout the world. This subject is delivered in early childhood education before children enter the primary education. Teaching Mathematics in early age equips the students to think logically, analytically, systematically, critically, and creatively, as well as improve their ability to work together in solving problems. This mental attitude underlies the development of modern technology today and in the future (Relevansinya & Ktsp, 2010).

Plane shapes is part of geometry that is learned from grade one to grade six in elementary school. The competencies on Geometry are learned gradually and continuously where the level of the complexity is adjusted to the development of children's thinking abilities. The competencies, from the least to the most complex, are: (a) Knowing plane and solid shapes using objects around the house, school, or playground; (b) Identifying the elements that make up triangles, squares and regular hexagons; (c) Recognizing flat and solid shapes, as well as sorting and grouping the shapes based on their geometric properties; (d) Discovering the properties of plane symmetry (through cutting and folding or other means), rotational symmetry and mirroring using

concrete objects; (e) Finding the elements and properties of simple plane shapes based on observations; (f) Understanding the perimeter of a triangle and rectangle using concrete objects (thread, rope, matchstick, stick and sharing objects that can be used as a unit area); (g) Describing the relationship between two shapes and between a space and a shape; (h) Understanding the area of a triangle, rectangle, and square; (i) Finding the formula for the circumference and area of a circle through an experiment; (j) Knowing the elements of the circle; (k) Recognizing space diagonals and side diagonals in simple shapes (Pendidikan & Kebudayaan, 2013). The geometry competencies above are the standard of knowledge or abilities that must be mastered by the first to sixth graders. Learning about geometry is relevant and important to be taught to children, because the world is comprised of various different forms and can be applied in the real world.

The ability in understanding the basics of Mathematics is carried out through various exercises and constantly solving complex problems, developing students' conceptual understanding and ability to remember and apply knowledge quickly and accurately (Woodham, 2016). Memory becomes one of the important components needed for students to able to apply their knowledge. One of them is child's memory of Math formulas.

The implementation of Geometry topics in the 2013 Curriculum, particularly for low-grade elementary students, is integrated with material in other fields of science, which is wrapped in one bigger theme. The discussion of Geometry topics seems to be inserted into a certain theme, and reappears in subsequent themes. Consequently, it is likely for students to forget about the geometry topics that have been previously studied. However, the Basic Competencies related to Geometry are continuously established in the lower grades to the high grades of elementary school. Therefore, it is necessary for teacher to make efforts that can help students in recalling geometric topics they have learned.

The results of previous studies concluded that the singing method was significantly effective in improving children's memory (Ginting, 2020). The application of the HARUM PALA (Memorizing

Formulas through Songs) method has proven to be very effective in improving mathematics learning outcomes for junior high school students (Pratama et al., 2019). Both studies proved that by singing, children can recall the information contained in songs. In previous research, the songs which were developed to memorize Mathematical formulas using melodies of popular songs had proven that songs could help students easily memorize them. However, this action has unwittingly violated the copyright of someone's property right. Hence, it takes an effort to create original songs that have a novelty value and also contain mathematical formula. A study entitled "The Effect of Audio Visual Media on Mathematics Learning Outcomes" found that the average mathematics learning outcomes of a group of students who were given audio-visual media were significantly higher than the average learning outcomes of the group of students who were given conventional media (Prasetia, 2016). Based on the results of this research, it can be inferred that integrating math formula song with audiovisual media is a good thing that can be used to help students understand and interpret the content of the song, and apply it.

During the Covid-19 pandemic, technology advancement played an important role in the implementation of the learning process. The use of digital is an answer in solving problems of distance, place, space and time. Digital learning is, now, considered as a system that can facilitate learners to learn broader and more varied. Through the facilities provided by this system, students can learn anytime and anywhere without being limited by distance, space and time. The learning material is more varied; not only studied through verbal explanations, but also through various media such as text, visual, audio, and motion (Munir, 2017).

This chapter will discuss the process of developing a digital-based audiovisual media, Guru Triguntar Song (Geometric Plane Shapes Formula Song), which will be used by elementary students in helping them find the perimeter and area of geometric shapes - rectangles, squares, triangles, circles, trapezoid, and parallelogram. The development of the digital-based audiovisual media Guru Triguntar was carried out by applying ADDIE model - Analysis, Design, Development, Implementation, and Evaluation. Moreover, what is the

concept of digital-based audiovisual media Guru Triguntar? How is the application of Guru Triguntar? How is the application of ADDIE model in developing Guru Triguntar Audiovisual Media? This chapter aims to discuss the application of ADDIE Model in developing a digital-based audiovisual media, Guru Triguntar.

Literature Review

A. A Digital-Based Audiovisual Media Guru Triguntar

People working in education sector are likely to be familiar with the word media. This term refers to a teaching aid that should be prepared by teache to help students achieve the expected learning objectives. Association for Education and Communication Technology (AECT) defines media as all forms and channels used to process information. Meanwhile, National Education Association (NEA) defines media as all objects that can be manipulated, seen, heard, read, or discussed along with the instruments used for the class activities (Muhson, 2016). These two definitions indicate that media are all things used to deliver information to other people through the use of assistive means, such as objects.

Teaching media can be classified into three categories, namely: (1) audio media, such as radios, tape recorders and telephones; (2) visual media - a tool that produces images or comprises of pictures - for example: photos, books, magazines, posters, and maps; (3) audiovisual media - a tool which consists of sound and image elements (both still and moving images) - for example: films and videos (Muhson, 2016). However, this chapter only focuses on developing audiovisual media. Audiovisual, as the first stage of technological development, is able to improve students' thinking skills by actively utilizing hearing and visual senses (Munir, 2017). In addition, the use of audiovisual media aims to help students overcome difficulties in understanding geometric concepts, particularly the concept of plane and solid shapes (Mursalin, 2019).

Guru Triguntar is an acronym for "Lagu Rumus Geometri Bangun Datar" or Plane Geometry Formula Song. Song cannot be separated from music, they constitute a unity. When combined, they will create a beautiful work of art. The use of songs is often applied in learning process. Rhythmic sound combined with certain rhythms in the song brings emotional effects for the listener (Wicaksono & Utomo, 2017). Positive emotions may arouse from the activity of singing songs; based on the results of previous researches (Pratama et al., 2019) have proven that songs can help students achieve learning goals.

Plane geometric shapes is one of Mathematics topics which is introduced to students from low grade to high grade in elementary school. The objectives of teaching geometry at each level of basic education are structuring reasoning skills and forming attitudes, geometric applications and skills, and also developing students' five basic abilities, namely: visual, verbal, drawing, logic and application. The introduction of geometry in elementary schools provides opportunities for students to further analyze the world where they live as well as a foundation in the form of basic concepts and terms needed for further education (Mursalin, 2019). The material coverage of geometry (square, rectangle, triangle, parallelogram, trapezoid, and circle) that is studied from the first to the fifth grade of elementary school in general includes: (1) plane shape objects in surroundings; (2) elements forming plane shapes; (3) symmetrical properties of plane shapes and formula of perimeter and area of plane shapes (Pendidikan & Kebudayaan, 2013).

The audiovisual media Guru Triguntar consists of: (1) Square formula song; (2) Rectangle Formula Song; (3) Triangle Formula Song; (4) Parallelogram Formula Song; (5) Circle Formula Song; and (6) Trapezoid Formula Song. The lyrics of Guru Triguntar includes the characteristics of the six plane shapes, the objects around students that resemble the six shapes, and the formula to find the perimeter and area of the six plane shapes. The six lyrics of Guru Triguntar are created in simple words; as it is advocated by Bu Kasur, a song writer of many Indonesian children's songs,

that the simplicity of the word is an absolute form of children's songs, both melody and lyrics. The Guru Triguntar song is adjusted to the limits of the vocal range and pitch area of young children(Wulandari, 2008). By audiovisualizing Guru Triguntar, students will find it is easier for them to grasp clearer meaning of the lyrics. The images appear in the audiovisual media provides stimulus for students to observe and reason geometric concepts.

B. ADDIE Model

ADDIE is an acronym for Analysis, Design, Development, Implementation, and Evaluation. Despite the varied developmental model, ADDIE has been used as the basis for other models. One of the characteristics of ADDIE is that each step of its implementation determines the subsequent development steps. When ones want to design a development model by implementing ADDIE model, they have follow the steps of analyzing-designing-developing-implementing-evaluating (Kruse, 1960).

The analysis stage is the stage of determining teaching materials or media that need to be developed to help students. The media should be developed based on the curriculum analysis and basic competencies assessment. This procedure has to be done, so that the development is in accordance with the demands of the curriculum. Meanwhile, the basic competency assessment is certainly related to the developmental characteristics of students. Guided by the 2013 Curriculum, the basic competencies that have to be achieved through the development of digital-based audiovisual media Guru Triguntar are shown in Table 1.

Tabel 1. Basic Competencies of Plane Shapes in Elementary

Grades	Basic Competency Codes	Basic Competencies of the Cognitive Domain
I	3.2	Recognizing plane shapes and solid shapes using objects at house, school, or play ground
II	3.8	Identifying elements that form triangles, squares, and regular hexagons.
II	3.9	Recognizing plane and solid shapes, as well as sorting and grouping them based on their geometric properties.
III	3.5	Finding the elements and properties of simple plane shapes based on observations.
	3.9	Understanding the perimeter of a triangle and rectangle using concrete objects (thread, rope, matchstick, stick and sharing objects that can be used as a unit of area).
IV	3.9	Understanding the areas of triangles, rectangles, and squares
V	3.8	Finding the formula of the perimeter and area of circles through an experiment.
VI	3.7	Recognizing the elements of circles.

(Pendidikan & Kebudayaan, 2013)

In design stage, the media is begun to be developed in accordance with the analysis results obtained in the first stage. The design is done by first determining the elements needed, through mapping the needs and media framework based on several references. The elements needed in the development of the audiovisual media Guru Triguntar are lyrics of six formula songs for each plane figure, melody /rhythm of each song, singer, music, visualization of the song. To ensure the appropriateness of the media content, the appropriateness of the language, the fairness of the presentation, and the suitability of the media with the basic competencies and characteristics of students, a validated response questionnaire is also prepared.

After completing the design stage, the media design is realized into a product in development stage. The media development is carried out in accordance with the design that has been planned in previous stage. In development stage, the designed media should be validated by expert lecturers and teachers. In the validation process, the validator uses instruments that have been prepared. The validators are asked to provide an assessment of the media developed based on the feasibility of the media and provide suggestions and comments concerning the content of the media that, later, will be used as a basis to revise and improve the media.

The fourth stage of ADDIE Model is implementation. In the stage the media product is played to each student individually. While the audiovisual media Guru Triguntar is watched by individual the children, the media developers observe students enthusiasm. The observer will also conduct interviews to measure children's acquisition of knowledge and understanding of each concept of plane geometric shapes. After that, the students fill out a response questionnaire containing statement items related to the child's impression as a user of audiovisual media, Guru Triguntar.

The final stage of ADDIE Model is evaluation stage. It is carried out as the final revision of the audiovisual media Guru Triguntar which has been developed based on the results of the response questionnaire, notes on the findings of observations, assessments and inputs from a learning media expert and 5 elementary school mathematics teachers. It is intended that the media developed is suitable and can be used by children. The steps of media development using the ADDIE model can be described as shown below (Widyastuti, 2019).

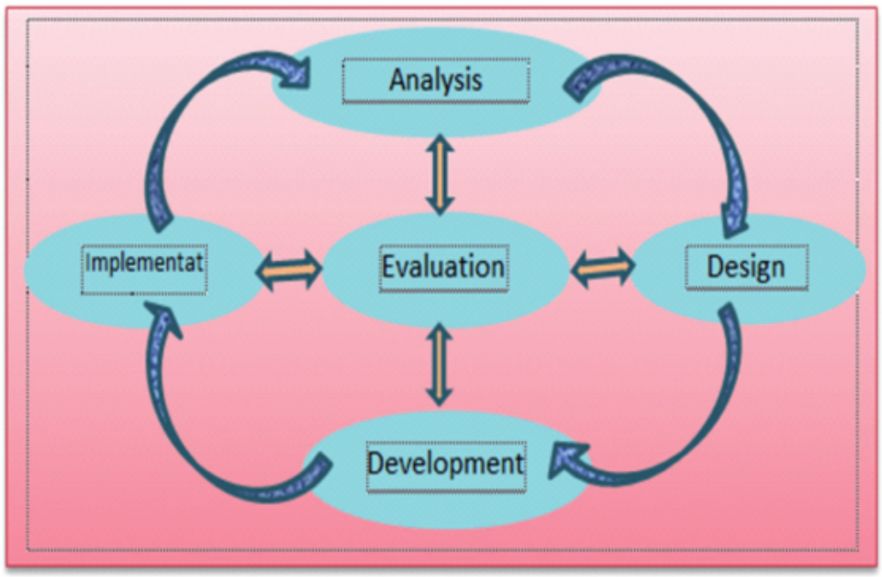

Figure 1. ADDIE Model

Discussion

The phenomenon of the application of digital-based learning which was very massive during the Covid-19 pandemic is the initial thought that digital use is relatively effective in providing good education and learning during the Covid-19 pandemic. Another challenge in elementary schools besides the restriction of on-ground classes, is how to motivate children to learn independently. The results of the study (Fikri, 2017), proved that there was a significant positive relationship between learning motivation and learning independence. Creating a pleasant atmosphere is one way to increase students' motivation to learn. Learning through singing and playing can be a booster for children's motivation to learn. By taking into account the needs and importance to improve students' motivation to learn independently, the audiovisual media Guru Triguntar is developed as an effort to overcome the challenges. Guru Triguntar is an audiovisual media that will be applied digitally. This media is developed by considering the curriculum and basic competencies that are in accordance with the development of the thinking skills of elementary students, particularly those in lower

grades. Elementary school children aged 6-12 years are able to react to intellectual stimuli, or do something that requires intellectual abilities (Santosa, 2020). Intellectual abilities that will be developed through the use of audiovisual media Guru Triguntar are the ability to reason the concept of plane geometric shapes and calculate the perimeter and area of a plane figure.

As it is mentioned in previous section, when designing song lyrics for young children, it is necessary for the developer to take into account the simplicity of the language. The lyrics in the audiovisual media Guru Triguntar includes the characteristics of plane geometric shapes, the actual objects in the surroundings, and the formula of the perimeter and area of each plane figure. In the process of designing and creating the lyrics, the developer should determine the media elements, collect various references, and develop media assessment. Here is the lyrics created from several Primary Mathematic reference books.

1) Lagu Rumus Persegi

Papan catur origami jam dinding
Ubin benda bentuk persegi
Sisinya sama panjang
Ayo cari tau keliling luas papan caturmu

Empat kali sisi
Rumus keliling persegi
Sisi kali sisi
Rumus luas persegi
— 2X

2) Lagu Rumus Persegi panjang

Lemari penggaris pintu dan jendela
Berbentuk persegi panjang
Dua pasang sisi berhadapan sama panjang
Ciri-ciri persegi panjang

Panjang sisi kali panjang lebar
Rumus luas persegi panjang
Luas persegi panjang

Dua kali panjang tambah dua kali lebar
Rumus keliling persegi panjang
Keliling persegi panjang

3) Lagu Rumus Segitiga

Tiga sisi sama panjangnya
Tiga sudut sama besarnya
Segitiga di sekitarku
Bendera pramuka, potongan pizza
Rambu lalu lintas, layar perahu
benda berbentuk segitiga
Setengah alas kali tinggi
Rumus mencari luas segitiga
Tambahkan panjang ketiga sisinya
Rumus keliling segitiga

4) Lagu Rumus Lingkaran

Hai kawan ayo main tebakan
Bangun datar tak bersudut apa namanya
Bangun datar tak bersudut lingkaran
Simetris putar tak terhibgga lingkaran

Hai teman lihat di sekitarmu
Benda apa yang bentuknya melingkar
Koin, tutup botol, kancing baju lingkaran
Cicin, donat, roda sepeda melingkar

Yo ayo kita hitung keliling lingkaran
Phi kali diamer atau phi kali dua kali jari-jari
Yo ayo kita cari luas lingkaran
Jika jari-jari lingkaran diketahui
Rumusnya phi kali r kuadrat

5) Lagu Rumus Jajaran Genjang

Dua pasang sisi yang sejajar sama panjang
Sudut lancip sudut tumpul berhadapan berseberangan
Tarik garis dari sudut tumput ke sisi seberang
dua segitiga siku-siku diagonal tak sama panjang

Hitung keliling jajaran genjang
Dua kali sisi miring tambah sisi lebar
Kalikan alas dengan tinggi
Rumus luas jajaran genjang.

6) Rumus Lagu Trapesium

Keranjang belanja ibu
Kaca mobil ayahku
Berbentuk trapesium
seperti atap rumahmu
Sudut tumpul ke sisi c
adalah tinggi trapesium t t t
kaki trapesium c c c c
dua siku-siku diagonal sama panjang

Keliling trapesium a+b+(2 X c)
Luas trapesium a+b/2 X t

After creating the lyrics, the song melody was arranged. The following figure shows the musical notation of the songs.

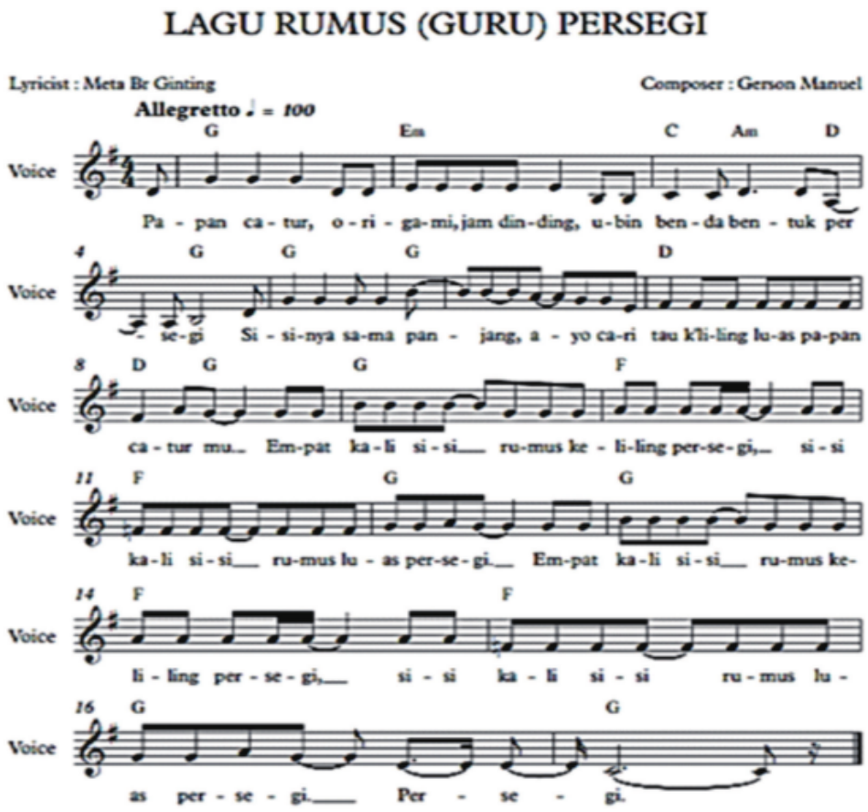

Figure 2. Sheet music of square formula song

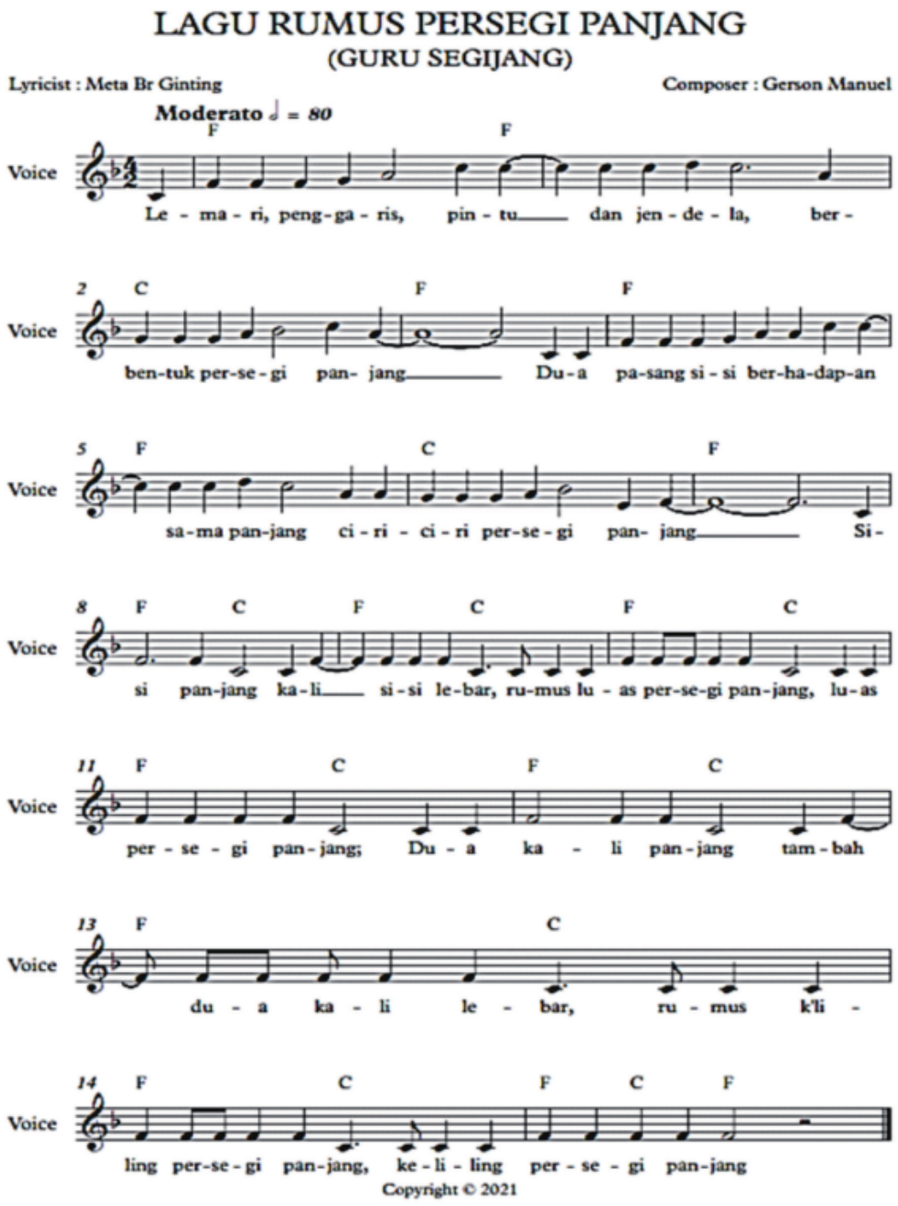

Figure 3. Sheet music of rectangle formula song

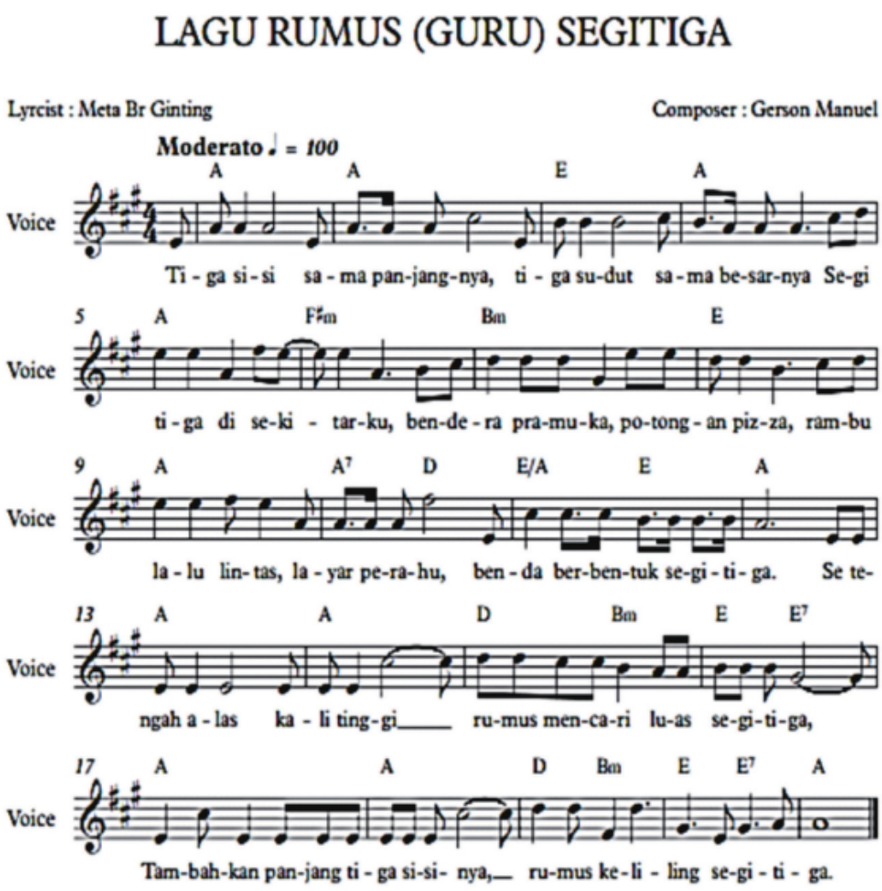

Figure 4. Sheet music of triangle formula song

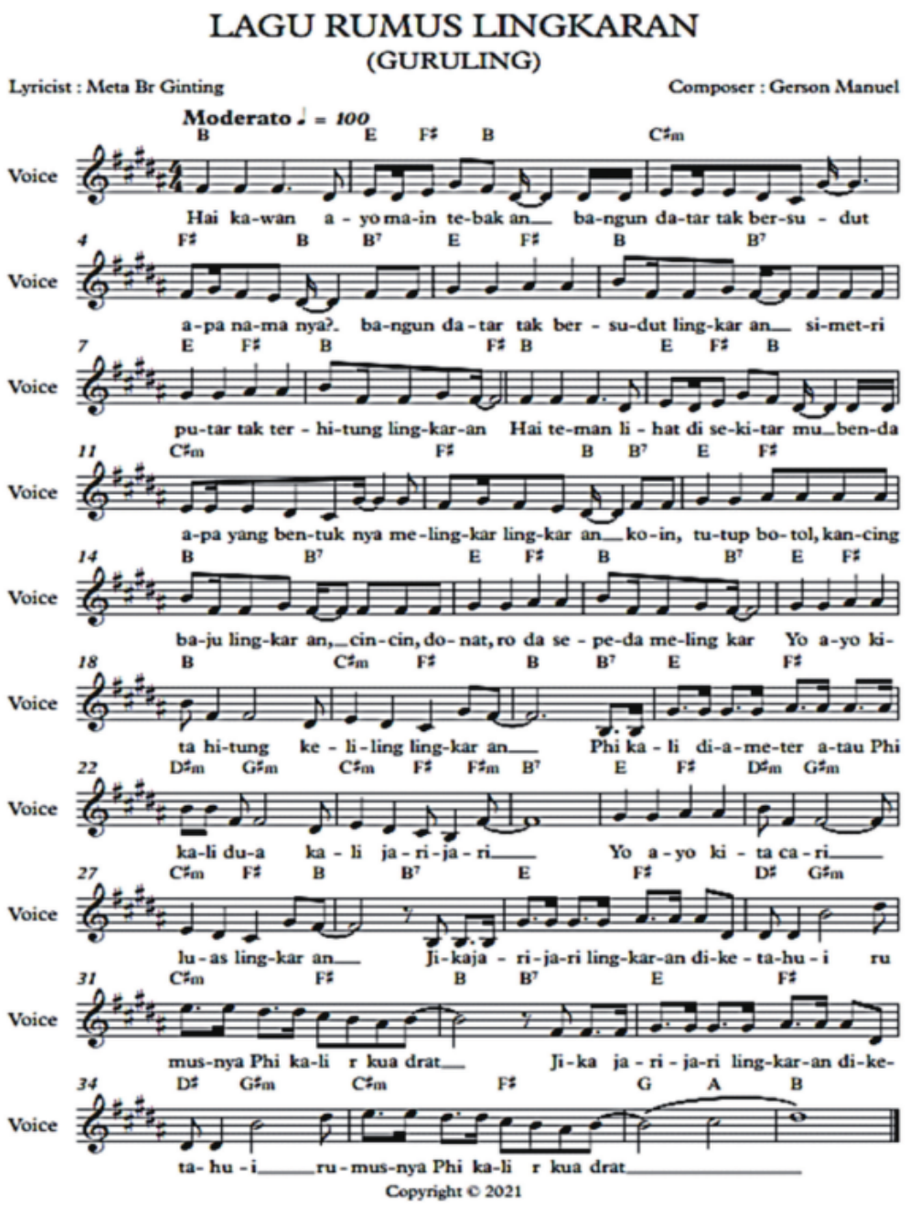

Figure 5. Sheet music of circle formula song

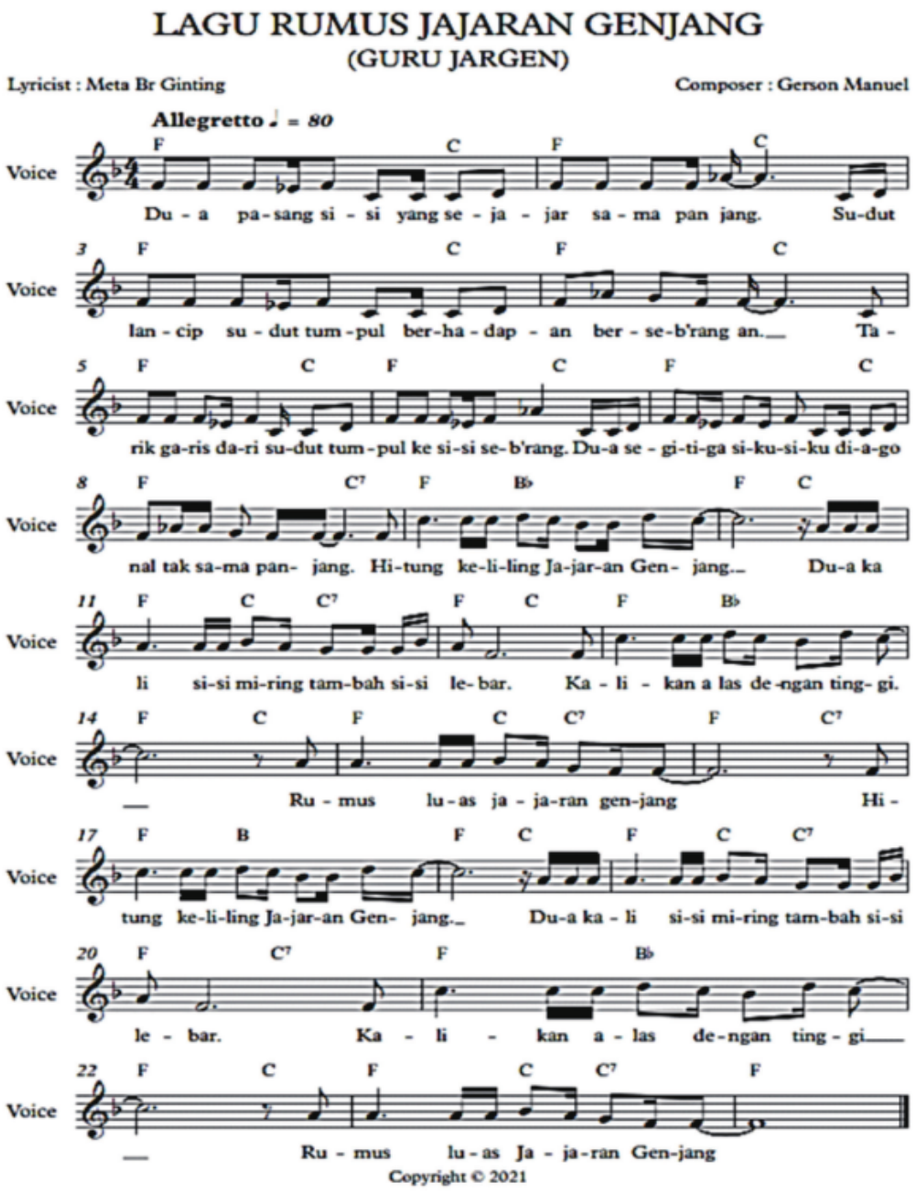

Figure 6. Sheet music of parallelogram formula song

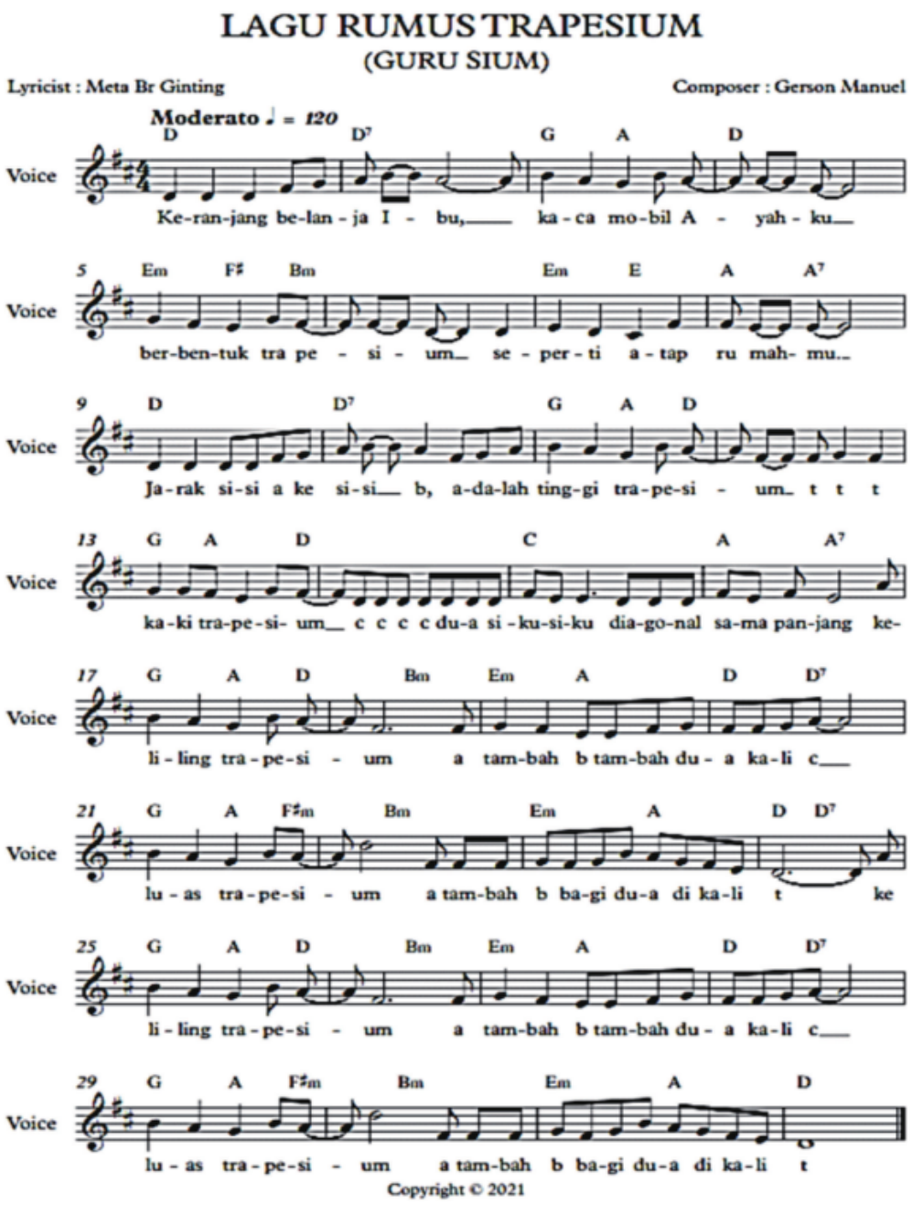

Figure 7. Sheet music of trapezoid formula song

Before turning the sheet music into audio file, the content validation of each lyric was carried out by five mathematic teachers. Based on the result analysis, it was obtained that the song lyrics were correspondent to the geometric shape topic, including the plane shape characteristics, the actual plane-shaped objects in the surroundings, and

the formulas of the perimeter and area of plane shapes. However, there was one corrective suggestion concerning the trapezoid characteristics, as shown in the following figure.

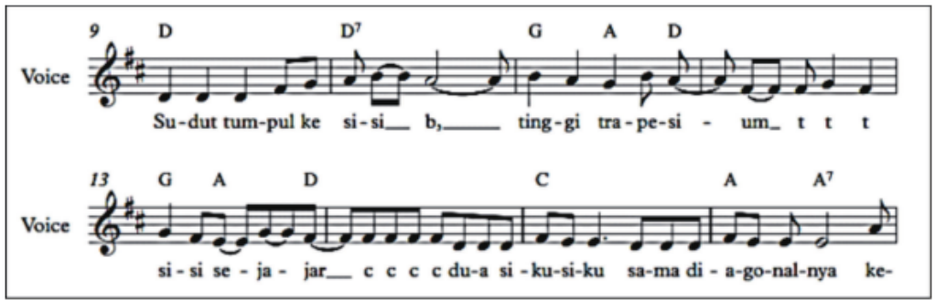

Figure 8. lyrics and notation trapezoid formula song before revision

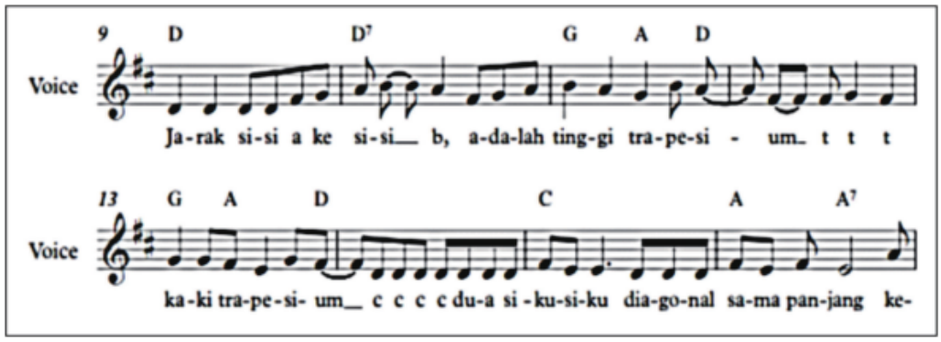

Figure 8. lyrics and notation trapezoid formula song after revision

The next step after obtaining the validity of the song lyrics was recording the song. An elementary student was selected to sing the song with a piano instrument. Then, the songs of the plane geometric formula were visualized according to the rhythm and lyrics of each song.

At the Development stage, product realization was carried out in accordance with what had been planned. In this stage, the developer also obtained validation through quantitative and qualitative assessments from media experts and primary Mathematics teachers. In addition, the audiovisual media Guru Triguntar was also tested to two children in grade three to grade six each. The screenshots of the product realization of the audiovisual media Guru Triguntar are shown the figure below.

Figure 9. Square Formula Song Display

Figure 10. Rectangular Formula Song Display

Figure 11. Triangle Formula Song Display

Figure 12. Circle Formula Song Display

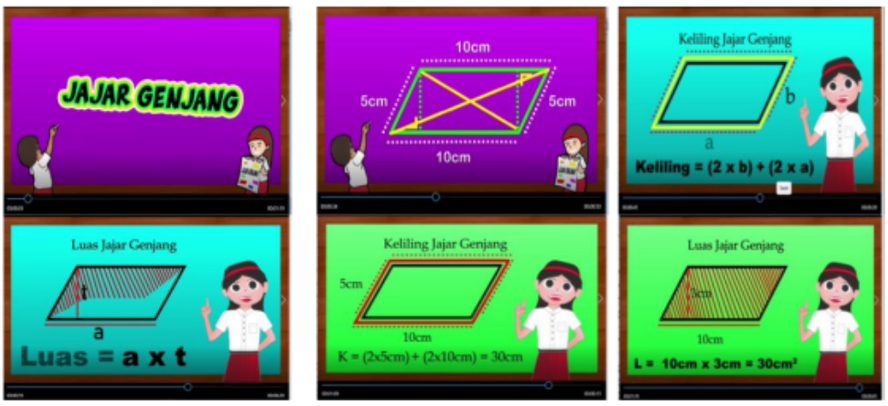

Figure 13. Parallelogram Formulas Song Display

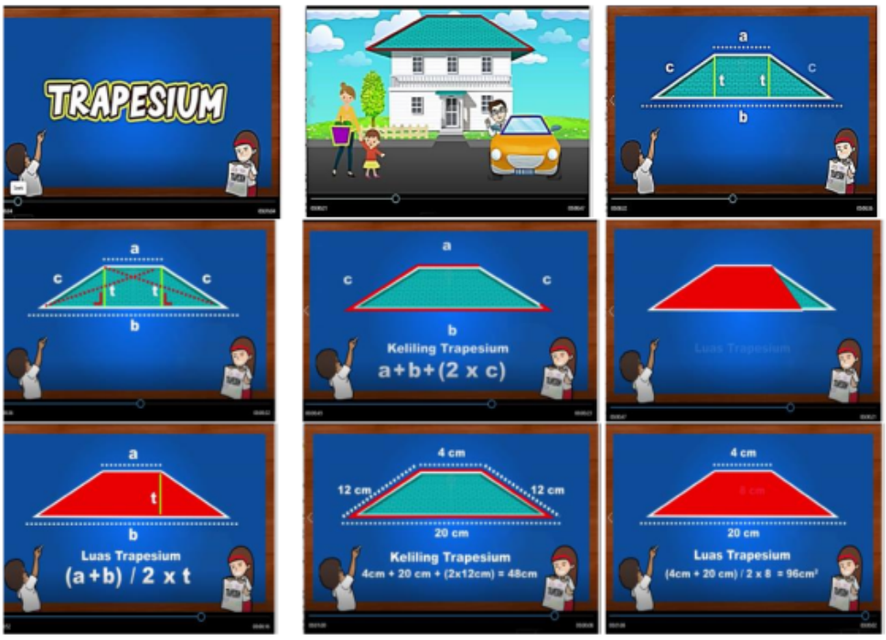

Figure 14. Trapezoid Formula Song Display

To find out the feasibility level of the audiovisual media Guru Triguntar, a set of questionnaire with a rating scale including 1 (less); 2 (enough); 3 (good); 4 (very good) was administered. The collected scores were analyzed by dividing the total score by the maximum score, then, the value is multiplied by 100. The determination of the validation of the audiovisual media Guru Triguntar uses the following criteria:

Table 2. The Percentage Scales of the Media Feasibility

Scores in Percentage	Interpretation of Media Feasibility
< 55 %	less feasible
56 % - 74 %	quite feasible
75 % - 84 %	Feasible
85 % - 100 %	very feasible

Table 3. Feasibility Rate of Audiovisual Media Guru Triguntar

No	Indicators	VALIDATOR					
		1	2	3	4	5	6
1	Relevant to be implemented in low grade elementary students	4	3	4	4	3	4
2	Applicable	3	4	4	4	4	4
3	Visualization is in accordance with the song	4	4	4	4	4	4
4	Attractive and original	4	4	3	4	4	4
5	Sound clarity	4	4	4	4	4	4
6	Image clarity	4	4	4	4	4	4
7	The meaningfulness of the content of the audiovisual media Guru Triguntar	4	4	3	4	4	4
8	Corresponding to teaching content in elementary school	4	4	4	4	4	4
9	Duration	4	4	4	4	3	4
Total		35	35	34	36	34	36
Average		97	97	94	100	94	100
Validity Rate		Very Feasibile					

In addition to the quantitative assessment, the validator also provided a qualitative assessment that was more in the form of input for improving the audiovisual media Guru Triguntar. The inputs are: (1) the application of the formula in the second chorus of the song, the steps of solving the problem should be detailed; (2) The song text is inserted into the video; (3) the value of the acute and obtuse angles should be shown in the video; (4) the audio in the media does not

correspond to the text, the audio mentions countless, yet it is written not infinite; (5) the image shown should be actual (the actual size of bicycle tires are different from that of rings and donuts); (6) use parentheses for cascading count operations. Each input will be used for the development of audiovisual media Guru Triguntar.

The implementation stage is the stage where the audiovisual media Guru Triguntar is applied to students. The target users of this media are low-grade elementary students, despite the fact that this media may also be useful for high-grade elementary students. Based on the results of media trials on eight children with different age levels, it turned out that the use of the audiovisual media had different benefits. Before the students used Guru Triguntar, a pretest had been conducted to first figure out students' initial understanding and also to ensure the usefulness they get after using the audiovisual media Guru Triguntar. For the third graders, for instance, the results obtained that, after watching the audiovisual media Guru Triguntar for the first time, the students could immediately mention the plane-shaped objects around them that had been shown in the video. The results also found that the students could even mention other plane-shaped objects that had not been shown in the media. It indicates that the audiovisual media helps students to build thinking concepts. In the second round of the video, the students began to understand the features of a plane shape and the concept of perimeter and area. In addition, the students have also started to remember the formulas of the area and perimeter formulas of plane figures, even though they were still hesitant to state and apply them. At the third time playing the video of Guru Triguntar, the students could speak the formula of plane shapes and apply the formula to solve simple geometric problems with a little help. Similar results obtained from the fourth grade students. In the third video playback, the students could remember and apply the formula for a plane shape more independently. The interesting thing is, when the audiovisual media Guru Triguntar was shown for the first time to the fifth and sixth grades, they shown various reactions toward the media. For instance, there was a student who was able to mention the formula of the perimeter and area of a plane shape, but the facial expression showed that the student only knew what is meant by perimeter and

where the area of a plane shape is. Another student were seemingly hesitant when recalling the formula of the perimeter and area of a plane figure. However, after watching the audiovisual media Guru Triguntar, the student, apparently, showed a confidence when mentioning the formula of the perimeter and the area of a plane shape.

As an evaluation of the application of the audiovisual media Guru Triguntar, the next step that will be taken is to integrate or load the training menu in GURU TRIGUNTAR Audiovisual Media, the next step that will be taken is to integrate or create a dummy menu in the media for the users to practice. However, prior to the implementation, media and content improvements will be made in accordance with the suggestions and inputs from the validator. If the audiovisual media has been, the audiovisual media Guru Triguntar will be published online

Conclusion

The application of the ADDIE model in the development of the audiovisual media Guru Triguntar has been carried out through systematic and interrelated stages. The evaluation stage is carried out repeatedly after passing through each stage of the development. The number of the elements in a media determines how many evaluations should be carried out, since these elements must be validated by competent parties. Even though the results of the assessment from the experts and primary Mathematic teacher shows that this media is very feasible to use, it still needs improvement and refinement by referring to suggestions and input from the validator. Even though the results of trials conducted on elementary students show that the audiovisual media Guru Triguntar is very feasible, a development is still required to be done by adding an exercise menu to each audiovisual media Guru Triguntar before publication.

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CHAPTER 11.

Implementation of Virtual Reality Media in Indonesian Language Learning at Elementary School Students

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Introduction

Globalization is a contemporary development that affects various possibilities for world change, one of which is globalization in education and teaching. The influence of the globalization of education can remove various barriers that bring new perspectives on the concept of «a world without borders» and significantly influence the development of schools› teaching and learning process.

Developments influence the concept of teaching and learning in technology and knowledge. Teachers can use technology as a means of creating creative and innovative teaching and learning processes. Learning that initially could only be done face-to-face in class can now be done online. Changes in the learning process impact effectiveness and efficiency both in terms of time and energy, becoming more practical.

The development of technology has a massive role in the learning process. Therefore, the role of teachers and students is a vital component in the implementation of learning. This is related to an essential issue regarding 21st-century education, and this issue is a solution in facing global challenges and competition. 21st-century

education is marked by the use of information and communication technology (ICT) in terms of life. (Rotherham & Willingham, 2009), a student's success depends on 21st-century skills, which include; critical thinking, problem-solving, communication, and collaboration.

Virtual learning is a combination of information technology with computers as other communication tools such as cell phones and electronic instruments, making it the mainstay product of a developer of a technology company known for virtual reality technology. Learning using virtual reality (VR) media can be accessed easily through various platforms. According to (O'Connor & Domingo, 2017), website can be placed within the environment and videos from platform such as you-tube can be streamed instructors can easily customize an environment to have concepts, information, web, and video resources that they might want to have continuously available in their actual or virtual learning environment.

Virtual reality is a technology that is simulated via a computer or smartphone that can make learners interact in a natural environment (computer-simulated environment). The use of VR media in Indonesian language learning in elementary school is by simulating a virtual environment and projecting it on VR media that makes it seem like students are included in that environment.

Learning Indonesian in elementary schools includes four aspects: listening, speaking, listening, and writing. These four aspects must be mastered by students as not to pursue further education. Discuss plays an essential role in the teaching and learning process. Therefore, this student's eye cannot be ignored because of language. Someone can understand and know the messages and meanings expressed and implied from learning sources as a reference.

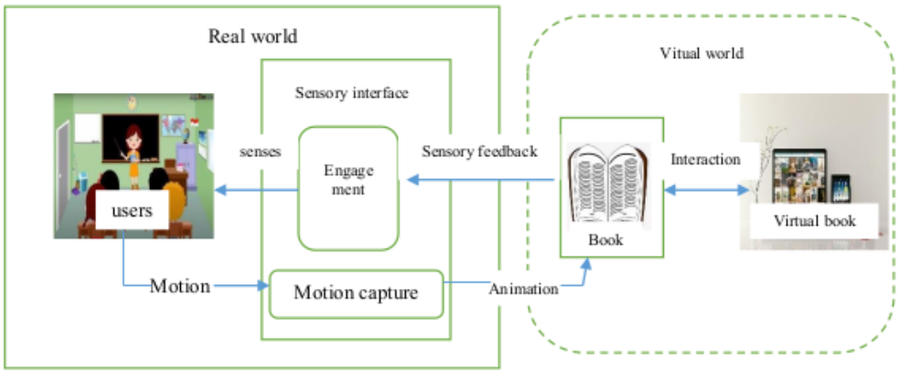

Figure 1. Relationship between the User and Virtual Environment in Indonesian Learning

(Adopted by: (Mérienne, Reality, & Encyclopedia, 2018)

Discussion

1. Virtual Reality (VR)

Virtual reality system is a sophisticated multimedia environment in which users are exposed to and can participate in surrogate tacto-audio-visual experiences. These experiences are created by means of a computer system to which are attached special types of peripheral device, enabling users to interact with the real and artificial objects that exits within the interaction environment (Barker & Barker, n.d.). According to (*Kim et al,* n.d.), VR as a highly interactive, computer-based multimedia environment in which the user becomes the participant in a computer-generated world. It can be visually in three dimension of width, height, and depth and that may additionally provide an interactive experience visually in full real time motion with sound and possibly with tactile and other forms feedback (Onyesolu & Eze, 2011). VR is a part of larger family of technology-mediated experiences involving a varying degree of blends of reality with virtual components.

Based on the expert's review, the characteristics of virtual reality are as follows:

(1) head referenced viewing provides a natural interface for the navigation in three-dimensional space and allows for look around, walk-around, and fly-through capabilities in virtual environment;

(2) stereoscopic viewing enhances the perception of depth and the sense of space;

(3) virtual world is presented in full scale and relates properly to the human size;

(4) realistic interaction with virtual object via data glove and similar devices allow for manipulation, operation, and control of virtual worlds;

(5) the convincing illusion of being fully immersed in an artificial world can be enhanced by auditory, haptic, and other non-visual technologies;

(6) networked applications allow for shared virtual environments (Mandal, 2013).

Figure 2. Examples of VR in Indonesian Language learning

(Source: Personal Docs)

Several characteristic of VR provide an opportunity to boost student engagement. As a hands-on, interactive, immersive experience. It provides a novel way of learning for students, delivering powerful new experiences they may not have encountered (Eschenbrenner, Nah, & Siau, 2008); (Lau & Lee, 2015). In the other side, VR boots engagement by providing students with a strong sense of presence and immersion compared to traditional learning environment (Dalgarno & Lee, 2010). According to (Aylett & Louchart, 2003) classroom

experiences have varying levels of presence; reading literature in a classroom, passively watching videos; watching performance theatre, and the most interactive, actually embodying actors and objects in VR.

2. The Potential of Virtual Learning in Indonesian Language Learning

The virtual learning model developed in this study is developing computer-based learning and virtual schools, namely learning through computer media in the form of a learning program that presents Indonesian language subject matter following the applicable curriculum in elementary schools. This learning program can include aspects of the presentation of subject matter, practice and exercises, tutorials, simulations, and games, which participants can learn from students anytime and anywhere without using the internet network.

Through a virtual learning model, students can repeat their learning activities according to their respective progress. After a student completes a lesson, he or she can do a simple test that is an inside self-administered program. If he answers correctly, he can move on to the next lesson. Those with good results can go faster, and those who are slower can be given more time. With Thus, all students can arrive at the finish line. Namely, all participants students master the competencies that must be achieved.

Virtual learning utilizes computers as learning multimedia by presenting a varied learning menu, including (1) narrative, (2) drills or practice, (3) tutorials, (4) simulations, and (5) games (including animation and video). With a variety of models and material presentation using words (verbal form) as well as pictures (pictorial form), students can take full advantage of the human capacity to process information (Munawaroh, 2005).

The potential of VR in learning in this technological era can provide ease of learning and efficiency in the implementation of learning in transforming knowledge to students and into a

new form of learning culture for teachers, learners and managers of educational institutions. Learning interactions are presented online, both synchronous and asynchronous. Students learn on their initiative; success in learning is influenced by discipline, creativity, and persistence in understanding the material.

Another potential of VR is that it can convey material more attractively. Explanation of material can be done through pictures, diagrams, reading text, charts, sounds and even movements. Students can choose the material according to the level of their individual needs. Through this activity, the interaction between students and learning resources can be well established.

Some things need to be considered in VR during Indonesian language learning for elementary school students, Porter (1997) in Munawaroh (2005):

1). Complete the necessary learning resources and are easily accessible to students
2). A conducive learning environment for students
3). Interaction between students and teachers is open in sharing information and exchanging ideas
4). Can provide open space for experiments
5). Evaluation of student performance
6). Become a vehicle for the freedom of academic learning for students

3. Virtual Reality Design in Indonesian Language

The design of Indonesian language learning with virtual reality media aims to develop the language skills of elementary school students related to 4 aspects, namely listening, speaking, reading, and writing. So far, language learning has emphasized mastery of the material, not on sharpening language skills. Therefore, with VR media, students are expected to understand better how they can develop the potential that exists in each student.

Learning design with VR media by developing a toolkit and multiplying exercises to achieve learning objectives. Especially about problems that arise unwanted, such as the case of the corona-19 pandemic. Therefore, educational institutions can design more effective VR learning with easy access and attractive design.

The steps to develop an instructional design for Indonesian language learning using VR media include four things.

1. Duration of Time

   Teachers can design VR learning materials with a duration of about 30 minutes. During this activity, take the time to insert micro-learning that is easily implemented in a smartphone. Allow pausing as needed so that students do not feel bored and can understand the material presented.

2. Interactive

   Teachers can design learning that provides comfortable learning in the form of exciting content through games. The game covers all four aspects of language skills, and it does not have to be a review or a quiz. The game can be seen on smartphones, laptops and computers.

Figure. 3. The Example of Gamification in Indonesian Learning (sources: personal docs)

3. Simple

   Material with VR media can be applied in face-to-face learning. This can be done with various variations such as images, graphics, and visuals that support the material content. Through this activity, it is hoped that it can improve students' cognitive abilities. Therefore, the elements of learning with VR media should be easy to access and browse.

4. Factual

   Balance fun and gamification with real-world applications. Virtual learning must be interactive, but the application must be straightforward to be effective with adults. If you have a user who shoots aliens in a virtual learning negotiation skill, it is best to explain how the activity applies to student life. In addition, make sure your learning goals are clear and linked to business goals so that the tangible benefits that students will get from completing this virtual learning are clear. Use real-world scenarios and examples whenever possible.

Based on the VR learning steps above, it can be seen that designing Indonesian language learning must pay attention to material that is following the level of knowledge and student support facilities. Teachers must be creative and innovative in designing Indonesian language learning designs with VR.

Mahfuddin (2008), learning suggests that the purpose of learning is to make students gain the expected knowledge and abilities. Student learning is expected to achieve focused and clear learning objectives as planned by the teacher. An educator or teacher prepares a learning plan before starting the learning process so that the goals are more focused and clear so that the learning objectives to be achieved can be appropriately realized and are helpful for teachers and students.

Media is a tool or intermediary and a liaison to spread, send or convey an opinion, message, ideas, and ideas to the recipient. As explained according to Gerlach in Sanjaya

(2009), media includes people, equipment, materials, or activities that can make students have a more profound learning experience. *Media* is a tool that can produce a relationship and become a liaison between objects or people. *Media* is a tool that allows the relationship of goods or people to occur. The media also functions as a neutral channel that can be used to convey a message or information to the recipient.

Figure 2.Examples of VR Learning Designs

(Adopted By: (Vojnovski, 2021)

4. The Impact of Virtual Reality in Indonesian Language Learning

Learning Indonesian is studied within the theory alone, but students are expected to use their abilities functionally, wholly and authentically in communicating. Therefore, the learning that is carried out must be adjusted to the situation faced by students when communicating using language skills. This is following PP No 19 Tahun 2006, which states that 'Learning Indonesian Language and Literature in Elementary School aims to improve students' ability to communicate in Indonesian correctly and adequately, both verbally and in writing and fostering an appreciation of literary works.

Increasing the ability to communicate in learning Indonesian includes several aspects: schemata (knowledge and experience), language, productive strategies, psychophysical mechanisms, and context (Resmini, 2009: 32).

Permendiknas No. 22 Tahun 2016, language has a central role in students' intellectual, social, and emotional development and is a supporter of success in learning all fields of study. Language learning is expected to help students get to know themselves, their culture, and the culture of others, express ideas and feelings, participate in communities that use the language, and find and use analytical skills and solve problems.

Virtual Reality is one medium that can improve student learning and engagement. VR education can transform the way educational content is delivered; it works on the premis of creating a virtual world-real or imagined-and allows users not only see it but also interact with it. According to (Cline, 2005) VR will be integrated into daily life and activity and it will be used various human ways; techniques will be developed to influence human behavior, interpersonal communication, and cognition.

The impact of VR on Indonesian language learning in elementary schools is as follows. Engagement is a form or part of practical education to get maximum results (Kuh, 2008). According to Coates (Coates, 2009), engagement is student participation in learning activities according to environmental conditions to obtain satisfactory results. In general, engagement is the interaction between students and students in-class activities to improve their abilities. The main focus of developing engagement in this study is to build different knowledge constructs based on the conditions and concepts of students' initial knowledge. (Fredricks, Blumenfeld, & Paris, 2004) states that engagement is a meta-construct that is useful for building student behaviour, emotions, and cognitive.

Gunarsa (2000: 38) behaviour is anything or action that follows the values of the procedures in the group or other words; behaviour is the actions that students take following the norm

values in society in a particular social group. This is according to the opinion of Covey (1989), three determinism theories explain human behaviour, namely; 1) genetic determinism, behaviour that is inherited from parents or grandparents; 2) psychological determinism is a behaviour that is obtained because of the parenting style or education that the parents teach their children; 3) environmental determinism is behaviour obtained due to the influence of the environment in which the individual lives and how the environment treats the individual.

Language behaviour in the learning process with VR media is as follows.

Table 1. Students' language behavior with VR

Aspect	**Indicator**
Listening	Students watch the video calmly, and facial expressions show joy, such as smiling, nodding and not fighting
Speaking	Students dare to express questions / ideas to the teacher or other groups in polite language
Reading	Students read aloud
Writing	Students note important points based on the learning theme seen in VR media

Cognitive ability is an ability possessed by individuals to connect, assess, and consider an event or experience. Cognitive abilities are related to the level of intellectuality, which marks a person in implementing Susanto's learning ideas (2012: 14). According to Kuper & Kuper (2000), cognition includes a model of understanding in perception, imagination, understanding of meaning, judgment, and reasoning. Cognitive is an intellectual contest consisting of stages; knowledge, understandi 80 analysis, synthesis, and evaluation. In other words, cognitive is a mental activity related to perception, thought, memory, and information processing that allows a person to acquire knowledge, solve problems, plan for the future or all psychological processes related to how students learn, observe, and assess.

Table. 2. Students' Language Cognitive with VR

Aspect	**Indicator**
Listening	I always relate what I learn through videos with the experiences or insights I gain.
Reading	When reading the message from the video, I try to understand the meaning/content contained in the video
Speaking	During the learning process, I spent time digging up information through videos with VR.
Writing	I rewrite it by creating a frame of mind or concept map.

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Emotional ability is a person's ability to accept, assess, manage, and control himself and others' emotions. Emotional intelligence refers more to providing valid reasons for a relationship (Steiner, 2003); Goleman, 2009). A person's intelligence consists of five main elements, namely; (1) able to realize and manage one's own emotions; (2) sensitive to the emotions of others; (3) able to respond to other people's emotions; (4) able to negotiate with others emotionally; (5) can use emotions as a tool to motivate themselves (Gardner, 1995). In addition, the emotional ability is the ability to interact with other children and adults to increase self-confidence in social situations and make children calmer amid adults (Depdiknas, 2010: 31). So it can be said the emotional ability is the ability of children to manage their emotions with others regarding caring among humans and manage their own emotions in interacting with peers or adults.

Table 3. Students' Language Emotional with VR

Aspect	**Indicator**
Listening	I feel happy following lessons using VR because the subject matter can be seen anytime and anywhere
Reading	VR media motivates me to re-read the subject matter delivered by the teacher.
Speaking	I feel happy with VR because I can express ideas, ideas, and opinions confidently in front of the class.
Writing	VR motivates me to learn to write and develop ideas or ideas in poetry, stories, rhymes, etc.

Conclusion

1. Learning using VR provides a new atmosphere for students to improve conceptual understanding and self-efficacy, specifically in themselves. Application of technology-based learning that expects to learn Hybrids in education influence the participant's students' activeness in the learning process inside and outside the classroom.
2. Virtual Reality learning media can be used as an alternative learning media that can be applied to other materials as long as it is by the characteristics of the learning media.
3. Schools and teachers need careful preparation and planning in implementing Virtual Reality learning media, schools must provide facilities and infrastructure in supporting the use of these learning media; teachers too must adjust learning media with indicators and goals learning to be achieved so that learning activities can run optimally.

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