



## Information and Communication Technology in the Learning Process

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### Abstract

During the COVID-19 pandemic, the Indonesian Government issued a policy to implement Distance Learning (PJJ) or Online Learning. This applies to all levels of education, elementary, junior high, high school and university. During online learning, students are not only required to have learning independence but also self-regulation and social support to meet the expected learning outcomes. This study aims to describe the utilization of information and communication technology in learning history class X SMA Negeri 1 Banda Aceh. This research uses qualitative research methods with a case study approach. Data collection in this study used observation, interview, questionnaire, and document methods to obtain data on the utilization of information and communication technology in history learning. The results showed that: first, the utilization of information and communication technology in the history learning process of class has been implemented well. Second, there are advantages in the use of information and communication technology during the history learning process in the COVID-19 era, namely: (1) more flexible schedule; (2) easier assessment; (3) students do not need to go to school; (4) parents can accompany students during the learning process, and (5) students can access the internet to answer questions given by the teacher.

### Keywords:

Learning independence, Technology and Information, COVID-19 Learning Process

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## INTRODUCTION

In 2023 is different from previous years, this year every aspect of life has changed due to the post-COVID-19 pandemic (Gaitanidis, 2020). Basically, the COVID-19 pandemic first appeared at the end of 2019 to be precise in Wuhan, China (Grikun et al., 2021). (Grikun et al., 2021) stated that COVID-19 is a virus whose transmission is very fast and it is difficult to know the characteristics of people who have contracted this virus because the incubation period is approximately 14 days. Various efforts have been made by the government to reduce the speed of spread of the COVID-19 virus. The government implements PSBB for areas that already have data on residents exposed to high or red zones. All activities that require leaving the house must pay attention to health protocols such as wearing masks, maintaining distance, and washing hands to reduce the risk of exposure to the virus. Almost all activities around the world are impacted and require alternative solutions and countermeasures, including activities in the field of education (Kovac et al., 2020).



Policies related to the rapid spread of the virus, prompted provincial and local governments to pass a policy to temporarily eliminate face-to-face learning processes that were replaced with online or online learning at both the elementary and college levels. Based on Circular Letter No. 4 of 2020 concerning the Implementation of Education Policy in the Emergency Period of the Spread of COVID-19 which has been signed by Makarim as Minister of Education and Culture of the Republic of Indonesia (Averis, 2020). Based on the contents of the circular issued on March 24, 2020, all learning activities in schools that resulted in crowds were diverted and carried out to carry out learning activities at home in an effort to cut off The chain of spread of the COVID-19 virus (Azis & Sakdiyah, 2021). The COVID-19 pandemic through online learning has an impact on all parties, be it teachers, students, and even parents who now have to be more actively involved in the learning process. Not only active, all parties, especially students, are required to be independent in every learning process. Mukkadas et al., (2021) state that independence or autonomy is the ability to control and regulate one's own thoughts, feelings and actions freely and try yourself to overcome feelings of shame and indecision. Independence in online learning requires students to process the material provided by the teacher and develop the information through various media, be it print media or internet media (Hakim & Azis, 2021).

The online learning process must be supported by the availability of online learning tools such as computers, laptops, and *smartphones*. Online learning is carried out according to the abilities of each school. Online learning can use digital technology such as google classroom, learning house, zoom, video converence, telephone or live chat and others (Grewal, 2020). In addition to the availability of learning tools and learning support applications, there are also some obstacles in the application of the online learning process such as students who are not used to distance learning because so far the learning system is carried out through face-to-face, with the existence of the remote learning method making the students need time to adapt and they face new changes that will indirectly affect their learning absorption (Chubarova et al., 2020). Almost all subjects are conducted online, history learning is no exception. In Samuelsson et al., (2021). Stated that history learning is an activity of learning science using reason and having a structured plan by involving thoughts and activities in developing problem-solving skills and conveying information or ideas. History that requires more reasoning in the acceptance of the material presented is certainly a problem in itself in the online learning process. According to Azis & Amalina, (2021) Learners can easily grasp a concept if the concept is brought in front of the student so that the learner can observe and build his cognition. In addition, in history learning, relatively high mental activities are required. Therefore, students must always actively participate in the learning process.

Each student has different intellectual development from each other, in general such development can be distinguished based on the age of each student. According to Piaget Novikov (2020) based on his level of intellectual development elementary school students with an average age of 6 to 11 years, are at a concrete operational stage. So that in the implementation of learning requires the presentation of concrete material, followed by semi-concrete material and then abstract material using symbols. Online learning focuses on the use of media such

as images or learning videos that are visual and audiovisual, so that students can only observe through objects from *visual* and *audiovisual* media without direct observation of concrete media used in learning. In online learning, limited space is also the cause of students not being able to carry out collaborative activities. So that there are several obstacles related to the application of the History learning process during the online learning process (Mathias et al., 2018).

In addition to these sources, based on the results of observations and interviews in elementary schools, the online learning process has been implemented at *Sekolah Menengah Atas* (SMA) Negeri 1 Banda Aceh in accordance with local and provincial government regulations. This can be seen from the absence of students who go to school to carry out learning activities at school during the COVID-19 pandemic (Averis, 2020). Online learning provides a different experience for students, teachers, and parents in the implementation of the learning process. Advances in information and communication technology have become new media used during the learning process, such as whatsapp groups, WPS Office, and zoom. History Learning, which is famous for being abstract, certainly requires all parties to be able to take advantage of existing technological advances as a new method of carrying out the learning process. Based on the presentation of these problems, researchers aim to study and further research the use of information and communication technology that focuses on the use of software as a medium for delivering learning materials during the learning process during the COVID-19 pandemic.

## METHODS

The approach used in this study is a qualitative approach. According to (Sugiyono, 2007) qualitative research method, defined as an approach or search to explore and understand a central symptom. In qualitative research, central symptoms can be known through field observation activities, the data obtained in this study is obtained from ongoing conditions in the field. Central symptoms can also be noticed through interviews with common and broad questions. As expressed by (Sugiyono, 2018) that ordinary questions start with the general one, but then taper off and detail. A question of a general nature provides participants with the widest possible opportunity to express their thoughts and opinions without restriction by the researcher. The reason for the use of qualitative methods by researchers to determine the use of information and communication technology in learning history in class X SMA Negeri 1 Banda Aceh by describing and analyze the form of use and utilization of such information and communication technology. The data in this study is descriptive data in the form of written words. The results of the research conducted in this study were not produced from a treatment but based on a picture of the conditions that run as they are according to field conditions.

Research on the use of information and communication technology in history learning was carried out in class X SMA Negeri 1 Banda Aceh. SMA Negeri 1 Banda Aceh, Aceh Province. The selection of the research site is based on the curiosity of researchers to find out the use of information and

communication technology during the history learning process in class X SMA Negeri 1 Banda Ace. The strategic location of the school in the city makes it easier for researchers to conduct research, the choice of location is also based on a *relatively* close distance from the researcher's residence. SMA Negeri 1 Banda Aceh also responded well to the research activities to be carried out by researchers. The data analysis technique uses questionnaires and observations which are delivered to respondents at the research school.

## RESULTS & DISCUSSION

### *Results*

#### **Use of Information and Communication Technology**

The current condition of the learning process in schools cannot be carried out as usual through face-to-face, but uses *online* learning. *Online* learning is carried out using internet tools or tools and network-based technology to facilitate the learning process. Based on the results of observations and interviews with school principals, class teachers, and class X students of SMA Negeri 1 Banda Aceh, it is known that the implementation of *online* learning using information and communication technology in history learning has been carried out during the COVID-19 pandemic. The history learning process is carried out twice a week on Tuesdays and Wednesdays and starts at 08.00 WIB. Based on the contents of the circular issued on March 24, 2020, all learning activities in schools that resulted in crowds were diverted and carried out to carry out *online* learning activities in all subjects, including history subjects.

The results of an interview with the principal on April 27, 2021 stated that SMA Negeri 1 Banda Aceh had conducted *online* learning starting from the beginning of the enactment of government regulations in handling cases. Spread of COVID-19. The *online* learning process is carried out by each class teacher with different media. Each teacher has a different way and process of implementing learning, some use *whatsapp*, *google classroom*, learning videos, *youtube*, and *zoom*. The use of different information and communication technologies is also based on an agreement between the class teacher and parents and students based on the abilities of the majority of class members So that the learning process can take place as it should.

The results of an interview with a Class X teacher on April 27, 2022 also stated the same results regarding the change in the face-to-face learning process to online learning during the COVID-19 pandemic. The learning process is carried out online using information and communication technology. The use of information and communication technology in the history learning process in Class X is carried out by agreement between teachers, parents, and students, namely using *Whatsapp*. The use of other applications as a medium for delivering learning materials cannot all be applied as they should be, from the results of interviews with Class X teachers and Class X students other applications that want to be used such as *zoom* cannot be used due to the lack of understanding of parents in Using the application so that the learning process only uses *WhatsApp* groups.

The results of interviews regarding the learning process carried out using information and communication technology during the COVID-19 pandemic were strengthened by observation results in accordance with the data that had been described. The results of observations made ten times starting from April 28 to June 1 show the process of learning history through *whatsapp* groups. The learning process begins with a greeting by the Class X teacher which is sent via *whatsapp* group. The activity began by sending photos in the form of material explanations about the history of Aceh in the LKS book. On May 4, in the *whatsapp* group, it was seen that the Class X teacher not only sent pictures about Aceh's historical material, but also explained using a voice note on how to calculate the volume of the cube.

In addition to delivering the material, the learning process using *Whatsapp* groups also sends questions to test students' ability to understand the historical material presented. Based on the results of observations, the question and answer process was also carried out through a *whatsapp* group regarding the clarity of assignments given by the class teacher to class X students of SMA Negeri 1 Banda Aceh. The process of explaining history learning materials is also carried out by sending *voice notes* in the *Whatsapp* group to make it easier for students to understand the material provided. The results of observations made from April 28 to June 1 found that there was no use of supporting applications other than *Whatsapp* used during the learning process.

Online learning using information and communication technology as a communication medium during the learning process is also supported by data in the RPP (*Rencana Pembelajaran Pengajaran*) which has been arranged in such a way as to help teachers in applying history learning using *online* media during the COVID-19 pandemic. In addition to the online learning process, from the data obtained through interviews and initial observations, the offline learning process has also been carried out as a complement to the explanation of material that is difficult to understand. The offline learning process is commonly referred to as visiting teachers. *Guru visits* are only done a few times before Eid al-Fitr and after that it is never done again because of a reprimand from the local government. Based on the data that has been obtained, the learning process at SMA Negeri 1 Banda Aceh has generally been carried out online according to the recommendations given by the government to reduce the spread of COVID-19.

The data taken can be seen that the learning process, especially history learning, has been carried out online using information and communication technology that can be done in their respective homes. History learning is delivered by Class X teachers using *the whatsapp* application to send material explanations, assignments, and question and answer media (Walker & Leary, 2009).

### **Advantages of Using Information and Communication Technology in the History Learning Process**

Based on the results of interviews with class X students and teachers of SMA Negeri 1 Banda Aceh, the advantages of online history learning are: (1) Learning activities are not limited to distance, time and place, online learning that utilizes information and communication technology flexibly allows students to follow the learning process ; (2) It can be known the student's learning outcomes directly, in

this case the student sends the answer and then the teacher directly corrects the answer so that the learning results can be known directly; (3) Do not have to come to school to receive learning materials; (4) In the learning process, parents can be accompanied; (5) Can access the internet network to find answers to questions given by the teacher. The interview data regarding "not having to come to school to receive learning materials" was also corrected by an interview with the principal of SMA Negeri 1 Banda Aceh on April 27 which stated that: "*due to the inability of face-to-face learning in schools, all teachers must submit materials online.*" Proses online learning using information and communication technology during the online learning process certainly makes students not have to come to school to write history learning materials. The principal of SMA Negeri 1 Banda Aceh also stated that all forms of announcements were all made online (Kovac et al., 2020).

### **Constraints on the Use of Information and Communication Technology in the History Learning Process**

Based on the results of interviews with class V students, class V teachers, and the principal of SMA Negeri 1 Banda Aceh, there were several obstacles during history learning using information and communication technology. The process of collecting interview data with Class X students was carried out via *whatsapp*, while interviews with Class X teachers and principals of SMA Negeri 1 Banda Aceh were conducted directly at SMA Negeri 1 Banda Aceh on Wednesday, April 27. The interview data is as follows.

Based on the data obtained from the interview, it can be seen that the process of learning history using information and communication technology while online has many obstacles. The sudden change in learning methods caused by the spread of the corona virus has made various parties unprepared, interview data on the obstacles of learning history using information technology and The communication shows the unpreparedness of all parties in facing changes in learning methods from offline to online. The ability of all parties in preparing and operating information and communication technology needs to be addressed so that deficiencies in the history learning process can run optimally and enjoyably online. The constraints on the use of information and communication technology in the history learning process obtained through the interview were also supported by observational data conducted during ten meetings. Observational data showing obstacles in the history learning process using information and communication technology are as follows (Wang & Zhao, 2021).

### **Discussion**

Analysis of the use of information and communication technology in history learners at SMA Negeri 1 Banda Aceh, Banda Aceh District, Banda Aceh city regency for the 2020/2021 school year will be described in a discussion based on data obtained by researchers.

### **Use of Information and Communication Technology**

Analysis of the implementation of the history learning process can be seen from the fulfillment of indicators that are aspects of the benchmark for the

implementation of online learning during the COVID-19 pandemic. The aspects observed regarding information and communication technology used during history learning in Class X SMA Negeri 1 Banda Aceh have been achieved in accordance with the data obtained. Based on observations and interviews, the history learning process in Class X has been carried out online using information and communication technology during the COVID-19 pandemic. The use of information and communication technology is in line with the opinion of Chubarova et al., (2020) who state that technology plays a role as a medium for interaction and transfer of information related to learning in the implementation of online learning During the COVID-19 pandemic.

The history learning process is carried out using *whatsapp* groups as a medium for delivering material, question and answer, and collecting assignments. The data is also supported from interviews with Class X students accompanied by parents who stated that the history learning process was carried out through *whatsapp* groups and had used other applications such as *Google Classroom*, as a medium for delivering learning to students. The use of various supporting applications during online learning certainly adds new knowledge and experience for teachers and students to technological developments. This is in line with the opinion of Isaleha et al., (2021) who stated that the creation of various learning platforms during the COVID-19 pandemic provides advantages for teachers and students in undergoing the distance learning process, and provides knowledge and experience new to learners regarding technological developments.

The history learning process during the pandemic does not fully utilize information and communication technology, in another sense that the history learning process has also been carried out offline using face-to-face media as a process of explaining learning materials. Data from interviews with Class X students accompanied by parents, class X teachers, and principals also stated that the history learning process during the COVID-19 pandemic was once carried out face-to-face in the visiting teacher program. Guru visited several times before Eid al-Fitr before the local government stopped because it was considered to cause crowds. Class X teachers and students prefer offline learning because they can meet face-to-face and the material presented is easier to understand. This is in line with Erwan's opinion. Beckmann & Mahanty, (2016) who stated that learning during the COVID-19 pandemic, teachers actually prefer offline learning where they can interact with students, and also students prefer offline learning, with face-to-face.

### **Advantages of Using Information and Communication Technology in the History Learning Process**

Online learning by utilizing information and communication technology as a medium for delivering learning materials is certainly different from offline learning. The use of information and communication technology in history learning in Class X SMA Negeri 1 Banda Aceh has been carried out well. Data from observations and interviews conducted with informants showed that the use of information and communication technology used during history learning was in the form of *whatsapp* and *google classroom* applications, the use of WhatsApp is a new medium in sending and receiving information during the learning process. This is in line with Sari's opinion. Khtere & Yousef, (2021) ICT is a tool related to the

process of manipulating, managing and transferring information between the sender and the receiver. Based on data obtained from interviews with students accompanied by parents, the use of Whatsapp during online learning is considered more flexible because teachers do not give too tight time targets, so that students can find information about material that delivered through other media such as printed books or internet media.

The data is also in line with the opinion of Gao (2020) who state that *WhatsApp* is one of the most appropriate alternative learning media choices, when compared to other online learning media, it is Because WhatsApp is a very simple application, *WhatsApp* has many features such as sending messages, sending pictures, videos, sounds, creating groups and others and is easy to operate. The advantages in the use of information and communication technology are also in line with Manganas & Loda, (2020) which states that information and communication technology makes it easier for students to find learning resources and teaching materials because they can be accessed anytime, anywhere, and by anyone.

The use of new media in the learning process becomes something " foreign" but becomes its own attraction for students to carry out the process of learning history. The use of information and communication technology during history learning has become a new challenge for teachers to create a pleasant learning atmosphere. This is as stated by Alhumairah. (Averis, 2020) which states a way that can make learning more enjoyable and can increase students' interest in learning and enjoy learning subject matter, especially history, namely by using media Interesting learning, for example, in the form of learning videos and can also take advantage of facilities on the internet. The use of *whatsapp* as one of the uses of facilities on the internet is one of the interesting new media in the learning process. The use of *whastapp* is also one of the uses of ICT that utilizes the internet and is very suitable for use during the online learning process.

These results are also in line with the opinion of Waty, (2022) who states that the use of information technology in learning, can be done through the use of the internet used in the learning process (*e- learning*) or the use of computers as an interactive medium. The data from the study using questionnaires conducted by researchers also showed similar data about the advantages of the online learning process using information and communication technology. Based on data obtained from indicators, there are 83.33% of students who are able to collect assignments on time, and 72.22% of students who do not get bored quickly during history learning. The data shows that free time during online learning has an impact on collecting and not getting bored quickly by students because they are not set on time.

This is in line with (Jaradat & Ajlouni, 2021)who state that online learning has advantages including unlimited time, a lot of free time, and costs Transportation decreases so that students can do other activities while doing online learning. The results of the data are also in accordance with the data from observations and interviews related to the flexibility of the online learning process using information and communication technology. The flexible learning process allows students to have more time to be able to understand the material and questions given by the teacher during the learning process. The questionnaire data also showed that 83.33% of students were accompanied by parents during the learning process so that they could be monitored directly without fear of misuse of information and



communication technology used during the process learning takes place. The research data is in line with Caswell, (2019) which states that parents are not only required to meet costs in terms of children's education, but there is something more important, namely accompanying, especially during this pandemic. The advantages in the history learning process are also shown from the results of practice questions that show the value of good knowledge of Class X students. Based on the questions given, the following assessment results were obtained.

### **Constraints on the Use of Information and Communication Technology in the History Learning Process**

During the research process, several shortcomings were seen that became obstacles to the learning process using ICT media. During the COVID-19 pandemic, the use of information and communication technology is one way to continue to be able to carry out the learning process, in addition to the advantages that have been previously described regarding the use of information and communication technology, the obstacles faced during the learning process are also encountered during the research process. One of the obstacles regarding the use of information and communication technology in history learning during the COVID-19 pandemic at SMA Negeri 1 Banda Aceh is the lack of students who have personal cellphones. During the pandemic, using an online learning system that utilizes information and communication technology needs to be supported by the availability of facilities that facilitate the availability of hardware, one of which is the availability of hardware in the form of cellphones to carry out the learning process. from the questionnaire that distributed to 18 students, 55.56% of students do not have a personal cellphone, 55.56% are less happy to discuss via *cellphone*, and as many as 61.11% of students do not understand the historical material submitted via *whatsapp*.

The results of the study were also supported by the results of interviews conducted by researchers to students and guardians of class X students, class X teachers, and principals of SMA Negeri 1 Banda Aceh. The results of the interview showed that not all students have personal cellphones, the cellphones used for learning are the cellphones of parents, siblings, and friends. The data is also supported by the results of observations made by researchers. The results of observations made from April 28 to June 1 on the indicator "Students actively participate in history learning" show from the beginning of observation to the end, in listening to the material of all students who are less active. However, only a few students always appear in the group for question and answer, it is known from the WhatsApp group that students see the material or questions given not simultaneously from the delivery hours in the group. Hp ownership certainly affects student responses and responses during learning, due to the absence of cellphones that are ready to be used for learning, students must wait until hp is available to see the material or questions submitted by the teacher in the *whatsapp* group.

Data obtained using a questionnaire given to 18 students showed that 55.56% were not happy to discuss via *cellphone*. 10 out of a total of 18 students stated that the learning process uses information and communication technology during the Covid pandemic 19 less in demand. This is also in line with the data from interviews with class X students and guardians, class X teachers, and the principal of SMA Negeri 1 Banda Aceh. The interview results stated that students did not like

to do history learning online using information and communication technology. One of the Class X students named Hilal said that the history learning carried out through the *whatsapp* group was not optimal and caused material lagging due to the students' slow understanding of T. Class X teachers of SMA Negeri 1 Banda Aceh also stated that personally and in the opinions of teachers at SMA Negeri 1 Banda Aceh, the learning process carried out prefers offline learning to online learning which fully uses information and communication technology in the process of delivering material. Some of this data is also supported by observation activities carried out by researchers, from the data obtained, it is known that during the history learning process carried out using only one supporting application (*software*) in the form of a whatsapp group. The learning process tends to be monotonous and less interesting, making students less interested in the material presented.

## CONCLUSION

Based on the results of research and discussion as previously explained, the following conclusions can be drawn: (1) The use of information and communication technology in history learning at SMA Negeri 1 Banda Aceh It has been implemented and used during the learning process well.

Observation, interview, and questionnaire data show that SMA Negeri 1 Banda Aceh has fully implemented historical learning using information and communication technology through online learning during the COVID-19 pandemic. The software used during the history learning process is *whatsapp*; (2) The factor of excellence in the implementation of history learning using information and communication technology at SMA Negeri 1 Banda Aceh can be seen from the results of questionnaires and interviews with class V students, class V teachers, and principals of SMA Negeri 1 Banda Aceh Among others, namely learning that is more flexible in terms of time, advantages in correcting student assignments because they have been recorded directly through *WhatsApp* groups, do not have to come to school, in the learning process can be accompanied by parents, can access the internet network to find answers to questions given by the teacher, can play *cellphones*, and students do not feel bored quickly; (3) Constraint factors in the implementation of history learning using information and communication technology at SMA Negeri 1 Banda Aceh can be seen from the results of questionnaires and interviews with class X students, class X teachers, and principals of SMA Negeri 1 Banda Aceh, including not all students have personal cellphones, subject matter history is elusive, and it doesn't like to discuss through HP.

The solution in overcoming obstacles in the implementation of history learning using information and communication technology is that students must be more active in anticipating the absence of cellphones by ensuring the availability of parents' cellphones for use in the morning and must actively find friends or neighbors who have cellphones to record the material and write the questions given, related to understanding the material Teacher history is required to be more innovative using other media besides WhatsApp such as Zoom, and Google Meet to deliver learning materials to be easily understood by students, in

addition to being easily understood by students using video call applications such as Zoom, and Google *Meet* will also make it easier To deliver the material presented, the teacher is more free to explain concrete and clearer history learning materials. This is also a new thing for students to like to have discussions online.

The latest in this research is discussing the development of online learning using technology that has developed. Meanwhile, the limitations of this research are that the respondents used as research objects are still very limited and the issues studied are not very broad, so further research is needed.

## CONFLICT OF INTEREST

Basically, there is no conflict of interest in publishing this article, so the authors work together with the team to formulate an interesting article.

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