



Identifying the Utilization of ICT-Based Interactive Media in School during Pandemic Covid-19

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ABSTRAK

Pandemi Covid-19 memberikan dampak yang sangat signifikan terhadap perubahan paradigma dan kegiatan pembelajaran. Saat ini TIK memiliki peluang besar untuk dimanfaatkan dan berkontribusi secara optimal untuk memfasilitasi siswa dalam kegiatan pembelajaran di masa pandemi Covid-19. Tujuan utama penelitian ini adalah untuk mengidentifikasi secara spesifik pandangan guru terkait penerapan dan penggunaan media pembelajaran berbasis TIK yang berlangsung selama pembelajaran dari rumah di masa pandemi covid-19. Desain penelitian ini termasuk penelitian kualitatif. Subyek dalam penelitian ini adalah guru mata pelajaran di SMA. Teknik pengumpulan data menggunakan angket, observasi dan wawancara, dengan instrumen berupa butir-butir angket, lembar observasi dan pedoman wawancara. Data hasil kuesioner dianalisis dengan triangulasi, melalui reduksi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa selama ini guru menggunakan media sebagai alat bantu pembelajaran berupa modul cetak, dan lembar tugas, selain metode ceramah dan media penyajian juga mendominasi dalam keberlangsungan kegiatan pembelajaran, guru masih bertahan untuk tidak menggunakan TIK dalam proses pembelajaran. , khususnya untuk mendukung proses belajar mandiri di masa pandemi covid-19. Inovasi melalui pengintegrasian TIK dalam proses pembelajaran menjadi hal penting yang harus dilakukan guru, apalagi saat ini siswa melaksanakan pembelajaran dari rumah, sehingga siswa tetap semangat dan termotivasi untuk melakukan rangkaian kegiatan belajar mandiri.

ABSTRACT

The Covid-19 pandemic has had a very significant impact on paradigm shifts and learning activities. Currently, ICT has a great opportunity to be utilized and contribute optimally to facilitate students during learning activities during the Covid-19 pandemic. The main purpose of this research is to analyze specifically the teacher's views regarding the implementation and use of ICT-based learning media that takes place during learning from home during the covid-19 pandemic. This research design includes qualitative research. The subjects in this study were subject teachers in high schools. Data collection techniques used questionnaires, observations and interviews, with the instruments being questionnaire items, observation sheets and interview guidelines. Data from the questionnaire were analyzed by triangulation, through data reduction, data presentation, and drawing conclusions. The results showed that so far teachers use media as learning aids in the form of printed modules, and assignment sheets, besides the lecture method and presentation media also dominate in the continuity of learning activities, teachers still persist not to use ICT in the learning process, especially to support the independent learning process during the covid-19 pandemic. Innovation through the integration of ICT in the learning process is an important thing for teachers have to do, especially now that students are carrying out learning from home, so that students will remain enthusiastic and motivated to carry out a series of independent learning activities.

1. INTRODUCTION

Almost a year and a half, the outbreak of the corona virus (COVID-19) still can't be eliminated. This outbreak was declared a pandemic, as a result of the covid-19 pandemic, many sectors of human life began to adjust to the circumstances, without exception the education sector. Through the closure of educational institutions, it is considered as one of the right steps to contain the spread of COVID19, distance education which is now rife with online learning (which in Indonesia during the COVID-19 pandemic was known as 'learning from home'), as an immediate solution to continue pedagogical activities. It can be seen that almost most schools and universities switch to online learning in a very short time as an effort to maintain the continuity of their pedagogical activities, online learning certainly cannot be separated from the important role of ICT technology and the internet to facilitate learning activities (Ali

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& Maksum, 2020; Ambarita, 2021; Wu et al., 2020). The presence of technology can be one of the supporting various kinds of activities. Even during the COVID-19 pandemic, various activities can still be carried out by individuals through the help of technology and the internet as supporting facilities (Laksana, 2020; Putrawangsa & Hasanah, 2018). The lack of efforts and unwillingness to anticipate technological developments will cause negative impacts that affect psychological aspects. It will make people having a stress issue, it was because not a few people were worried about their ability to compete in this technological era which was developing very rapidly as we can see today. Meanwhile, the ongoing COVID-19 pandemic continues to require educators and educational institutions to be able to innovate. The use of various kinds of technology-based in the education will get a significant impact in changes the communication model between teachers and students, to deal with this, teachers need the ability to choose and create innovative and dynamic learning support tools (Bagde et al., 2021; Nicolaou et al., 2019). Building good communication channels between teachers and students is very important, only by creating an activity and good communication will create an atmosphere of intimacy between teachers and students in the learning process, this has an impact on students' psychology through a strong emotional bond between the two (Chetty et al., 2019; Qureshi et al., 2012).

Teachers can create good communication channels through the process of using learning media to present subjects to students during learning activities. As we all know, conceptual learning media are all forms of aids that will later be used as a means of delivering information in learning activities (Puspitarini & Hanif, 2019; Wang et al., 2022). Theoretically, a tool for facilitating learning activities such as instructional media has many functions, start from stimulating interest, presenting and providing information even being able to provide guidance to students, it is very important for educators to be able to use learning media in their learning activities (Chiva et al., 2007; Junaidi, 2019). In addition, learning media also serves to clarify material that tends to be abstract, and presents a variety of information that almost resembles reality without any limitations of space and time (Azmi & Widiaty, 2021; Tafonao, 2018). Whereas one of the main functions of teaching media is to help clarify material, create dynamic, active and collaborative conditions and environments. Therefore, the selection of certain teaching methods will affect the use of the type of learning media that will be used. So that the selection of the type of learning media needs to be adjusted to various aspects in order to optimize the implementation of learning activities (Mahdum et al., 2019; Munawaroh, 2020). Through the observations results it indicates that there is still a lack of use of variations in learning media, learning methods, as well as giving excessive burdens in the form of assignments to students, those are some of the problems that occurred in learning activities, especially when learning from home during the covid-19 pandemic.

Teachers should facilitate students in their learning activities, this aims to make student easier to understand the material and be able to achieve learning goals. Through the use of technology-based learning media, it can be an alternative solution to overcome the problems that are currently happen. Teachers have a responsibility in the process of advancing the way of learning, this is of course in order to achieve the learning objectives that have been set. The improvement of the learning process can be done by teachers through the development of innovative and ICT-based learning media. Utilization of information and communication technology for the learning process is a must for teachers to implement, considering the many benefits derived from the use of ICT for learning activities (Muhali, 2019; Oke & Fernandes, 2020; Widyastono, 2017). Many education institutional already integrating information and communication technology in learning activities, therefore it should be conditionally applied and adapted for of each educational institution (Machmud et al., 2021; Mahdum et al., 2019). Several countries in various parts of the world that have implemented the implementation of education integrated with ICT. The availability of supporting facilities and infrastructure, as well as the ability of human resources (HR) both in terms of material management, operation and skills in managing ICT-based learning are components that are quite important in order to create a successful ICT-based learning process (Andyani et al., 2020; Naveed & Ahmad, 2019), one type of ICT integration in the implementation of learning is to present technology with the name interactive multimedia (Roemintoyo et al., 2022; Wulandari, 2020). Interactive multimedia has the advantage of combining text, graphics, audio, and moving images (video and animation), this allows students as users to manage learning activities according to their respective desires and needs (Ormanci & Çepni, 2020; Suparno, 2018).

A number of studies related the success of interactive multimedia is contribution to improving the quality and learning process has been tested. The use of interactive multimedia has succeeded in bringing benefits to students through the use of computer technology in the form of interactive multimedia, this is indicated by the increase in the acquisition of test results. In addition, a number of students are also interested in actively participating in the learning process, so that the atmosphere and learning environment become active and dynamic (Yulianci et al., 2021; Widyaningsih et al., 2020). Other studies also show that the feasibility assessment of an interactive multimedia product or program must be a

benchmark for its implementation, an interactive multimedia must first get an assessment by a media expert, material expert with the achievement of an assessment that is included in the appropriate category, thus the interactive multimedia will can be used for the learning process (Simanjuntak, 2019). The use of interactive multimedia has been shown to have a positive impact on students' psychomotor skills, given that interactive multimedia can be used repeatedly by students so that students are able to carry out various learning activities to increase their competence (Nugraha & Wahyono, 2019; Rachmadtullah et al., 2018).

Therefore, this study will show teachers' views on the use of interactive technology, the teacher's view will be used as a first step for educational institutions can apply ICT-based interactive media for learning activities specifically intended for the implementation of learning in high school. Seeing the urgency of the results of the theoretical and practical description of the use of learning media to be a vital part in the learning process, especially during the current covid-19 pandemic, as well as the results of observations and observations on learning activities that show that the use of learning media is less than optimal, this study intends to identify teachers' views on the use of learning media in the form of interactive multimedia to teach various kinds of subject matter. This research will focus on analyzing and doing identification as needs analysis study, namely the teacher's perspective on the use of learning media that has been integrated with information and communication technology to support learning both online and learning from home during the covid-19 pandemic.

2. METHODS

This research is generally included in the type of quantitative research, with a descriptive approach. The quantitative research method is a type of research whose specifications are systematic, planned and clearly structured from the start to the creation of the research design (Abdullah, 2015; Patel & Patel, 2019). The use of this method, of course, is in line with the research objective, namely to explore the learning process through planned and structured systematics in order to obtain maximum results that are close to reality.

The data source for this study used six (6) high school chemistry teachers in Yogyakarta. The research sample was selected using a purposive sampling method spread across several schools (Salim, 2019), namely Yogyakarta 5 & 8 State Senior High School, Dlingo High School, Pengasih High School, Kretek High School, Stela Duce High School. This sample selection has a specific purpose to explore the views of teachers, so it is expected that the data source is as valid as research data. To collect data, this study will use observation and distribution of questionnaires to research subjects, namely chemistry teachers. The instruments used are interview guidelines, observation sheets and questionnaire items with a format that adopts a Likert scale consisting of a scale of 1-3 which is interpreted in the form of answer choices Agree (Agree), Neutral (Neutral) and Disagree (Disagree). The questions used in the questionnaire were adapted from opinions regarding the use of learning media, and related the integration of ICT Interactive media in learning activities (Budiarto et al., 2020; Sofyan et al., 2020; Tafonao, 2018). The grid related to the process of carrying out observations and interview activities, as a form of data collection tool developed based on the results of identification and adaptation of relevant research (Ali & Maksum, 2020; R. K. Dewi et al., 2019; Tafonao, 2018). Grid in observation, interview, and questionnaire is show in Table 1, Table 2, and Table 3.

Table 1. Observation Sheet Grid

No.	Indicator
1.	Activity Identity (Time, Class, Number of Participants and Location)
2.	Giving Motivation and Apperception
3.	Mastery of Subject Materials by Teachers
4.	Use of Types of Learning Media
5.	Ability to Manage Learning
6.	Number of Activity Participants
7.	Giving Feedback to Students

Table 2. Interview Guide Grid

No.	Indicator
1.	Identity of the Resource Person (Name, School Origin, Time and Subject)
2.	Curriculum Material and Implementation

No.	Indicator
3.	Learning Methods and Media
4.	Learning Process Constraints
5.	Provision of Learning Support Facilities by Schools
6.	Learning Output

Table 3. Analysis Questionnaire Grid

No.	Indicator
1.	Types of Use of Learning Media
2.	Contextual Learning Resources
3.	Supporting Facilities Owned by School

Furthermore, all instruments consisting of questionnaires, interview guidelines and observation sheets were then validated by expert lecturers through expert judgment by lecturers with relevant expertise (Arikunto, 2010). After the data collection process is carried out, the resulting data is then analyzed, the use of data analysis techniques in this study using interactive analysis consisting of data reduction, data presentation, and drawing conclusions as illustrated in Figure 1.

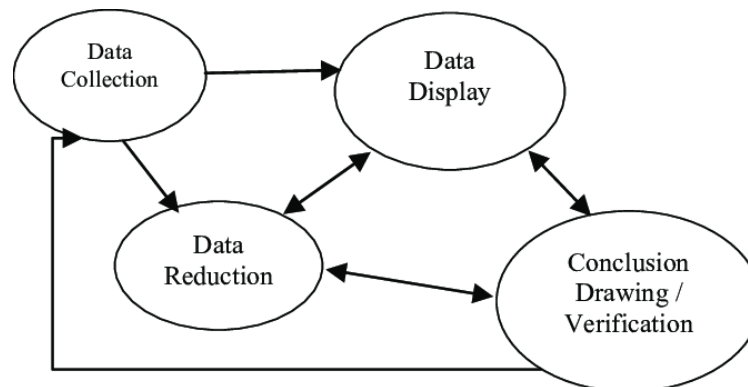


Figure 1. Interactive Analysis

3. RESULT AND DISCUSSION

Results

The results of the distribution of questionnaires to teachers are summarized in Table 4, this questionnaire contains the results of teachers' views on the use of learning media specifically, or the use of learning resources in general that have been used during learning activities during the covid-19 pandemic.

Table 4. Teacher's opinion on the use of learning media

No.	Items	Number of Answers (%)		
		Agree	Neutral	Disagree
1.	The teacher has used computer technology-based learning media	100%	0%	0%
2.	I use powerpoint, prezi, and youtube as learning media	20%	0%	80%
3.	The learning media developed are included in the good and decent category	50%	50%	0%
4.	I have made an instructional media	70%	30%	0%
5.	I really understand the contextual material that can be used in learning activities	25%	75%	0%
6.	I agree with the use of contextual teaching and learning approach in delivering learning materials	60%	0%	40%
7.	Schools have supporting equipment for computer-based learning media	75%	25%	0%
8.	Use of ICT-based learning media to be applied in learning activities	100%	0%	0%

Base on [Table 4](#), the results of the distribution of the questionnaire to the teacher showed that ICT-based learning, in this case the computer, had actually been implemented during the learning process before COVID-19, it refers to the teacher's answer almost entirely stating 'agree'. However, the use of computers in the learning process is also limited to displaying presentations in the form of slide presentation of powerpoint. However, during the covid-19 pandemic, teachers use print modules and sometimes presentation slides in the form of powerpoints that are sent through social media groups. This of course can be optimized considering that basically schools already have sufficient facilities to support technology-based learning activities, this is revealed through the results of a questionnaire which shows that 75% of teachers state that schools have complete facilities to support ICT-based learning. Moreover, almost 100% of teachers basically think that the application of ICT-based learning will be very interesting if it is developed and optimized to facilitate learning from home which has been going on during the covid-19 pandemic, considering that even now students are accustomed to the use of various kinds of the latest technologies.

Indeed, during the implementation of learning the teacher has used learning media, but it is not accompanied by the quality of the media which tends to be monotonous and not interactive, this is certainly one of the factors for the less than optimal learning process carried out at this time, especially the Covid-19 pandemic situation which requires students learn independently. Meanwhile, the competence of teachers in developing learning media is included in the sufficient category, considering that there are teachers who have developed their own learning media for the learning process, however, there are still other teachers who only take the learning media from the internet and materials from the previous year. Furthermore, related to the integration of learning resources with contextual ones, it was identified through the results of the questionnaire that, only a few teachers stated that they knew and were willing to use learning resources that were included in the contextual category which could be found easily by both teachers and students, who were around the school. Innovation in the form of integration of contextual learning is actually a conditioning effort to provide direct experience to students.

Through the observations results for several meetings on virtual face-to-face learning activities using the Google Meet application. Several facts were found related to the learning process that took place especially for the subjects of craft and entrepreneurship, and the Indonesian language, namely: 1) during the opening phase of learning which was carried out face-to-face, educators tended to directly open learning by conveying the subject matter to students, this turned out to be done in an effort to optimize the use of internet quota owned by students. Furthermore, 2) during the core phase, Overall mastery of the material possessed by teachers regarding chemistry subjects is very adequate, in addition it was found that during the implementation of learning some teachers have integrated the surrounding environment as a form of contextual-based learning integration, this was stated by the teacher as one way for students to gain a better experience. real, and makes it easier for them to understand the material, considering that during the Covid-19 pandemic students were more often in the environment around their homes when doing learning activities. On the other hand, the use of subject modules, student assignment sheets still dominates as one of the tools in learning activities. 3) during the closing phase of learning activities, the teacher immediately gives direction to students to complete certain assignments, the tasks submitted by the teacher are already available on the student assignment book or sheet, with the hope that during learning from home, students continue to carry out learning activities through completion assignment and deepening of material through the print module.

Based on the results of observations that have been made, it can be seen that virtual face-to-face learning is quite short considering the use of quotas and the limitations of the internet network in each student's residence are one of the factors for the less than optimal implementation of learning. In addition, student activities tend to be given an excessive assignment load which makes students only focus on completing tasks without paying attention to other aspects. The use of learning media is also an important point to note, considering that during independent learning activities students should feel accompanied and interactive communication occurs through the use of learning media as learning aids, but in fact printed modules and assignment sheets still dominate as tools used for learning activities, both face-to-face or learn from home. It is certainly necessary to immediately innovate to improve the quality of learning processes and outcomes, considering that innovative and modern learning media are one of the needs that must ultimately be met in order to create alternative choices of interactive learning media. The results of the questionnaires distributed to six subject teachers have been identified, the next step is to conduct interviews with subject teachers in the hope that the data obtained from the questionnaire results will be synchronized before reaching a conclusion and discussion. The interview activity begins with conducting short questions and exploring the teacher's opinion about variations in the use of learning media that are currently used to facilitate learning, especially during students carrying out learning from

home. The results of the interview show that during learning from home, students are usually given a printed module that has been provided, related to media or presentation material, the teacher usually uploads it to Google Classroom in the hope that it can be used as material for enrichment of material for students. The results of this interview indicate that there is a lack of innovative learning media in schools to be used as a tool for students to deepen the material. On the other hand, schools have an obligation during learning from home, it is hoped that schools can provide maximum facilities to students and teachers in order to create a meaningful learning environment. One of the facilities that can support learning in the digital era is the availability of computer laboratories, internet networks that are supported by the independent learning of each student. The laboratory as one of the learning resources has enormous potential to be utilized in order to support the learning process which so far tends to be rarely used. However, during the current Covid-19 pandemic, students are given free quota facilities and schedules for consultations related to assignments and deepening of material by attending to their respective teachers with the implementation of strict health protocols.

Discussion

As a result of the Covid-19 pandemic, the learning system has undergone very significant changes at all levels. The most visible is the learning system that was originally face-to-face in class but has changed to virtual face-to-face using a teleconference application as an intermediary. During this learning change, both teachers and students naturally find themselves in a new learning environment. The overall results of the study indicate that in the learning process, the use of learning media in schools tends to be monotonous, this is of course based on what has been mentioned through the results of a questionnaire survey and interviews with each of teachers as sample of this research. Noted that teachers often to use printed modules and slide show presentation as an instructional media. The printed modules have many updates, but are not always updated, this is one of the factors that affect the enthusiasm and creativity of student behavior, therefore hard work is needed to foster student enthusiasm and creativity in learning activities even though they want to use print modules (Alfiras & Bojiah, 2020; Fitriisia & Jalinus, 2019; Saputri et al., 2018).

However, there are many factors that are considered by teachers to be reluctant to implement ICT-based learning. One of the reasons teachers have for not using ICT in their teaching, even though the facilities available by educational institutions are very adequate, is because the knowledge and skills possessed by the teacher to develop a learning media are still limited (Har et al., 2019; Ojo & Adu, 2018). In addition, the factor of facilities provided in schools also plays a role in the implementation of ICT-based learning, such as a teacher with a positive attitude towards the use of ICT and good skills in developing ICT-based learning resources, but he cannot use supporting tools to develop ICT-based learning resources because schools have limited ICT facilities (Har et al., 2019; Karunaratne et al., 2018). Therefore, teacher facilities and competencies are the key to the successful integration of ICT in learning activities (Chisango et al., 2020; Sabiri, 2019).

The development of technology and learning conditions, which are currently still limited to online learning, provide a stimulus for teachers to become able on integrating ict in learning activities (Andyani et al., 2020; Stanojević et al., 2018). Through the application of modern teaching aids such as computers, educational software, and others will allow students to get information quickly and make it easier for students to acquire new (Arsić & Milovanović, 2016; Stanojević et al., 2018). Given the enormous potential benefits obtained when teachers are able to utilize technology, such as improving student competency and academic achievement (Aidarbekova et al., 2021; Eladl & Musawi, 2020; Irawan & Febriyanti, 2017), making student become more motivating to attend in learning activities, contribute on shaping the character of students (Septiani, 2020; Sitorus et al., 2019), and indirectly will be able to improve students' digital literacy (Brown, 2014; Cábyová et al., 2020).

On the other hand, the results of the study also show that the integration of contextual-based learning and guided by the surrounding environment is very important and has the potential to be applied in the learning process. Considering that during the COVID-19 pandemic, students tend not to be able to travel too far. Therefore, contextual-based learning can be used as a form of integration of learning materials, considering the various benefits obtained through the potential of the surrounding environment in the learning process cannot be underestimated (Anggraeni, A.Y., Wardani, S., & Hidayat, A, N, 2020; Budiarto et al., 2021). Various studies have shown that contextual-based learning can be applied to various learnings, both scientific and social (P. Y. A. Dewi & Primayana, 2019; Hamida & Desnita, 2021), this will then have an effect on improving learning outcomes, learning motivation students, and understanding of character values (Amirin, 2013; Irawan & Febriyanti, 2017; Suwito Eko et al., 2020). Based on the results of discussions based on research results, this research activity succeeded in identifying the implementation of learning and problems that are often faced by teachers and students

during learning activities during the COVID-19 pandemic, specifically in its implementation at the high school level. It is well known that the COVID-19 pandemic provides a large space for ICT to become an integral part of today's learning activities, the use of ICT by teachers involves the use of hardware and software applications to solve the problems currently encountered during 'learning from home' activities. Therefore, the ability of teachers to use ICT which is reflected through their ability to search and validate information, formulate a solution to a problem, and apply their knowledge in the learning process is very important to be improved.

The implication of this study was successful to identify the teacher knowledge about the use of digital-based technology that has interactive elements into the learning process, which was difficult for teachers to operate interactive multimedia using technology devices in learning activities, meanwhile it was also identified that empirically, the integration of technology into learning activities needs to be optimized to provide interactive learning dynamics between students, teachers and learning resources, considering the presence of ICT including interactive multimedia in the learning process will be able to have a positive impact on the credibility of the education grade. The limited ability possessed by teachers is one of the problems that the use of information technology in the school environment has not been optimally used. Thus, it is hoped that teachers can maximize their role as learning facilitators, besides that educational institutions also have the responsibility to maintain and think about strategies for the sustainability of the education system in all situations so that it continues to run optimally. This research is limited to looking at teachers' views on the opportunities for using ICT in the learning process during the COVID-19 pandemic. In this case, maximizing the role of ICT facilities to support the learning process from home carried out by students, as well as face-to-face learning that needs to be optimized through the use of other technologies.

4. CONCLUSION

Information and communication technology has a great role and benefit if it is successful to be applied in independent learning by students. Therefore, teachers are required to be able to master technology in order to create a dynamic teaching and learning atmosphere during the COVID-19 pandemic. The results of this study serve as a basis for teachers to open deep thinking and act positively to integrate technology into the learning process, one of which is through the use of interactive multimedia. For further research, this This research can be used as a basis for teachers, as well as other research in an effort to improve the quality of the process and results of the implementation of an education, as well as implementing training to increase teacher competence in utilizing ICT.

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