Efforts to Improve ICT-Based Learning Management Competence for Teachers of MTsN 6 Aceh Besar

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Submitted	Reviewed	Revision	Published
Maret 2023	Mei 2023	Mei 2023	Juni 2023

ABSTRACT

Information and Communication Technology (ICT) consists of hardware and software. Hardware is all technological equipment that can be touched, while software is a system that can be run on the hardware. Software can be in the form of operating systems (OS), applications, or content. Utilization of ICT as media, resources, and learning applications is needed to achieve the expected goals. This study aimed to determine the competence, the obstacles faced, and the efforts to improve the competence of teachers at MTsN 6 Aceh Besar to utilize ICT. The research was conducted in the even semester of the 2022/2023 academic year, namely from January to June 2023, by using a qualitative approach. The results of the study showed that the competence of teachers at MTsN 6 Aceh Besar in implementing ICT-based learning can be categorized as follows: (1) proficient and frequently user, (2) capable but not proficient and sometimes user, (3) not capable user. While the obstacles to using ICT in learning are: (1) the availcompetence of ICT learning facilities or infrastructure is still incomplete and inadequate, (2) the competence of teachers to use ICT tools and equipment is not maximized, (3) the allocation of learning time is not commensurate with the depth of the certain material that must be studied, and (4) other technical obstacles such as power outages. Furthermore, efforts made to improve teacher abilities are: (1) Teacher development through technical guidance activities and workshops (2) Sustainable professional development for teachers through subject teacher deliberations and counseling guidance teacher deliberations, (3) Teachers independent activities by participating in seminars, workshops, technical guidance and training conducted by organizers of teacher development activities outside of *madrasah* either offline or online.

Keywords: Teacher's Competence, Learning Management, ICT

INTRODUCTION

Professional teachers who continue to learn and carry out self-development will be able to facilitate students to learn according to 21st century developments. The characteristics of 21st century learning are students must have 6C skills, which consist of: (1) Critical Thinking - the competence to think critically in problem solving; (2) Character - having a good personality; (3) Creative thinking - the competence to think creatively in daily activity; (4) Communication – having a good communication skills; (5) Collaboration -

the competence to cooperate well; and (6) Computational Thinking - the competence to solve problems by applying computational knowledge.

Informatics Technology, including the use of computers, is a science related to hardware, software, brainware, information, and systems. In the management of education and learning, ICT is an important element as the dynamics of the 21st century requires teachers to be able to utilize the media and technological tools. The most well-known ICTs by the general public are computers (PCs), laptops, printers, LCD projectors, the internet, intranets, and others. On the other hand, in fact, television, radio, and mobile phones are also included in ICT devices. "ICT consists of hardware and software. Hardware is all technological equipment that can be touched, while software is a system that can be run on that hardware. Software can be in the form of operating systems (OS), applications, or content" (Sardiman, 2009).

ICT is a solution for implementing learning during the Covid 19 pandemic when teachers and students are constrained from doing face-to-face activities directly in the classroom. Technology and media have been designed and adapted to the needs of students to help them reach their highest potential, regardless of any innate abilities they have been born with (Fahyuni, 2017).

However, not all teachers are well aware of this. The limited facilities available and the less optimal competence of teachers to utilize ICT are the main reasons. This condition causes the achievement of the 6 C targets in 21st century learning cannot be optimized. ICT is a competency that every teacher should not ignore. In the future, creative and innovative learning is no longer a requirement, but a necessity.

At present, students are very familiar with ICT, especially smartphones and android. In general, students are able to perform basic operations and access knowledge through technology. Computational thinking has been utilized by students in the form of games, video makers, social media, live broadcasts, etc. If the teacher is unable to keep up with the rapid development of this computing science, then this will have an impact on the performance of the teacher.

According to the headmaster of MTsN 6 Aceh Besar (Public Islamic Junior High School 6 Aceh Besar), most of the teachers at this school have not fully utilized ICT in performing teaching and learning activities. This fact is a challenge for the development of teacher quality because currently the Madrasah Education Section of the Regional Office of the Ministry of Religion of Aceh Province has launched a Madrasah (School) Innovation movement through the Madrasah Digital Program. School teachers will be required to have the competence to manage learning using technological tools, both those used online and offline.

An initial description of the competence of MTsN 6 Aceh Besar teachers to manage ICT-based learning shows that out of 39 teachers, only 7-8 of them (20%) often use ICT media. MTsN 6 Aceh Besar has an ICT laboratory, however, it does not yet have a single teacher with an ICT educational background. Classrooms also cannot access the Wi-Fi network, because its coverage is limited to the teacher's office, principal's office and ICT laboratory. The non-optimal use of ICT in learning can also be seen from the lesson

implementation plan document. In general, the use of ICT as a learning medium by teachers has not been fully illustrated. Therefore, this research will describe about:

1. The competence of MTsN 6 Aceh Besar teachers to utilize Information Communication Technology.
2. The obstacles faced by MTsN 6 Aceh Besar teachers in utilizing Information Communication Technology.
3. The activities performed to improve the competence of MTsN 6 Aceh Besar teachers to utilize Information Communication Technology.

This research was conducted based on a qualitative approach by describing research findings in the form of words and language in a special natural context and by utilizing various natural methods (Moleong, 2007). Qualitative research methods were used in this study because the problems were not clear, holistic, dynamic, and meaningful. So, it was impossible to obtain data in this situation using quantitative research methods with instruments such as tests and questionnaires. The purpose of qualitative research is to explain a phenomenon. The more in-depth, thorough, and explored the data obtained, the better the quality of the resulting research. In qualitative research, the number of respondents or research objects is less than in quantitative research, because it emphasizes the depth of the data, not the quantity of data.

The data sources in this study were the principal of MTsN 6 Aceh Besar, 39 teachers, the Head of the ICT Laboratory, the madrasah supervisor, and students. Data was collected using interview, observation, and document study techniques. Data was analyzed by grouping, reducing, presenting, verifying data and writing research reports. To test the validity of the data, triangulation was conducted. The following table presents data sources and data collection techniques to be used in this research activity.

Table 1. Research Data Collection Techniques

NO	DATA SOURCES	TOTAL RESPONDENT	INSTRUMENTS USED
1	Principal	1	- List of interview - Document study, including: • Academic supervision report • Inventory of ICT-based learning facilities and media
2	Madrasah Supervisor	1	List of interview
3	Head of ICT Laboratory	1	- List of interview - Document study,including: • Notes on the use of ICT-based learning facilities and media in the laboratory
4	Teachers	39	- List of Interview - Observation of learning activities - Document study, including: • Lesson plan • Academic supervision report

		• Teacher journal • Self-development report • Activity report of subject teacher deliberation
5	Class VII and VIII students	Closed interview (questionnaire)

THEORETICAL BASIS

ICT as Learning Innovation

Information and Communication Technology (ICT) includes all technological devices related to various information obtained by users. ICT is a technological facility as well as infrastructure related to the collection, accumulation, process, storage, dissemination and presentation of information including hardware, software and useware. ICT is needed in obtaining, sending, processing, interpreting, storing, organizing and using data in a meaningful way (Warsita, 2014).

The term ICT consists of three different words namely technology, information, and communication. Technology means the application of a tool, machine, material, and process that helps humans to solve their problems. Information is the result of processing, manipulating and organizing a group of data that gives knowledge value to its users. Communication is a process of conveying information (messages, ideas, insights) from one party to another so that there is a relationship of mutual influence between the two. Thus ICT is a general term that covers all technological devices that can be used as a tool to process, store and present information, such as radio, television, cell phones, computers, hardware and software, satellite systems and so on. The definition of IT also emphasizes the role of unified communications which integrate telecommunications equipment to access, store, send and manipulate information (Batubara, 2017)

ICT has two aspects, namely information technology and communication technology. Information technology, includes everything related to processing, manipulating, and using tools to process data and information management. Communication technology consists of everything related to the use of assistive devices to transfer data from one device to another (Prawiro, 2022).

To use the ICT system, the main equipment needed are the internet, wireless networks, cellular phones, Personal Computers (PC), and other communication media. Computer and internet-based ICT can ease users to share information through websites, blogs, and e-mail. ICT in the form of live broadcasts can share information via radio, television and webcasting. ICT in the form of broadcasting provides information via podcasts, audio and video players, and other storage devices. ICT uses telephone lines to provide information by telephone, cell phone, satellite or video conferencing (Kompas, 2022).

ICT as a positive innovation is very beneficial in supporting the success of learning, because it provides many conveniences in carrying out learning activities. As an innovative learning media, the main equipment needed by teachers in learning is a computer.

Complete computer components consist of three kinds, namely hardware, software, and user.

1. Hardware, namely physical computer equipment that can be seen, touched, or moved. Hardware is the medium for operating computer software functions according to their capabilities, such as receiving, processing, and producing something.
2. Software, namely data or files stored on computer storage media.
3. User, namely someone who is directly or indirectly involved in using a computer, such as programmers, operators and analysts (Al Faruq, 2015).

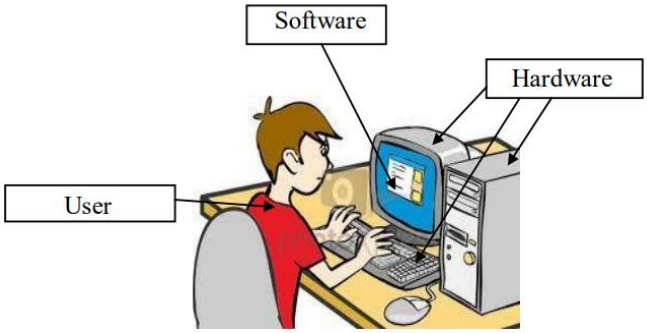

Figure 1. Computer System Components

The function of each computer device that belongs to the hardware are:

1. Input device, which is a device or tool used to enter data or commands into a computer. The input device only functions to enter data or instructions into the device process. The computer devices included in the input device components are keyboards, mice, joysticks, microphones, scanners and so on.
2. Process device, which is a tool used to perform commands aimed at producing a desired result. Process devices can do their job if there is input from the input device either in the form of data or certain commands. This process device tool is called the CPU (Central Processing Unit). The CPU components include: Processor, Motherboard, Hard Disk, Memory (RAM), VGA card, audio card, Firewire card, TV tuner card, and some others.
3. Output device, which is a tool used to display reports or information on the results of process device processing in accordance with orders given by someone through the input device. The components of computer equipment included in the output device components are monitors, printers, speakers and others (Rifai, 2013).

The functions of each computer software can also be broken down and grouped into three main parts, namely:

1. Operating system, namely the main application of a computer system that is equipped with an interface and various special features to facilitate computer users in accessing and managing computer hardware functions. For example: Windows XP, Windows 7, Windows 8, Windows 10, Linux, Macintosh, and so on.

2. Supporting applications, namely computer programs that have special capabilities in processing a command received by the computer, such as playing music, editing images, processing data, and running additional hardware on the computer. For example: winamp, microsoft office, mozilla firefox browser, printer drivers, VGA drivers, and so on.
3. Electronic data or files, namely data in the form of images, videos, music, notes, documents or other files stored in digital format.

The differences in duties and abilities of computer users when operating a computer can be grouped into three types, namely:

1. Operators, namely people who operate computers and applications. The duties of an operator include setting up and running a computer, collecting data, entering data into a computer, processing data using a computer and presenting data into information with the help of computer devices. For example: typing using the keyboard, saving data to a flash drive, printing using a printer, and so on.
2. Programmers, namely people who write program code to create an application. For example, creating library book management applications, school asset archiving applications, learning media applications, and so on.
3. Analyst, namely a person who analyzes the system by studying problems, system requirements and users, and identifying solutions to problems in the form of new system designs as needed. The analyst is the person responsible for research, planning, coordinating, and recommending the selection of software and systems that best suit organizational needs (Al Faruq, 2015).

ICT as Learning Literacy

The use of ICT in teaching and learning activities has been able to change traditional learning strategies which are dominated by lectures to be more creative, interactive, collaborative, and fun for students. Learning is an activity that has goals in line with the learning objectives of students. To achieve optimal development in the realm of knowledge, skills and attitudes, students are not just taking notes and listening to lectures from the teacher. Therefore, learning activities can be conducted in several types, including observing, communicating, listening, writing, drawing, upgrading motor movement and mental activities. Visual learning activities consist of reading, observing, conducting experiments and demonstrations, and observing other people's activities. Communication activities conclude learning the competence to formulate ideas, ask questions, give suggestions, provide opinions, conduct discussions, interviews and others.

Learning in the 21st century demands that learning activities must utilize technological literacy, media literacy and survival skills. Learning in the 21st century is the right effort to improve the quality of graduates to be able to compete in the globalization era. This is what underlies the necessity for every educator to have the competence to utilize ICT in learning. Currently, ICT is not only a medium for displaying power point slides, playing videos and displaying images. The use of various learning resources

including textbooks, reference books, popular and updated scientific articles, can also use ICT.

ICT makes knowledge wider and more developed. It is unavoidable, if manual books have been transferred to digital books. Digital libraries are easier and faster to access than manual libraries. Learning cannot be separated from literacy activities which require sufficient and adequate learning resources. ICT is a shortcut in the process of obtaining information in the form of knowledge, character and skills. This information can be in the form of visual, audio or audiovisual information. Digital literacy helps teachers and students open windows to the world through technology, obtain information, encourage critical thinking, be sensitive to the environment and even to public conditions. Paul Gilster stated that digital literacy is the competence to understand and use information in various forms and from a very wide variety of sources which are accessed via computer devices (Elpira, 2018).

Teacher Capacity Building Strategy in ICT Competence Improvement

Facilitating learning to increase the competence and creativity of students is carried out according to the characteristics of 21st century skills. Therefore, 5C must be fulfilled, namely critical thinking, creative, communication, collaboration and computation. The teacher conducts learning by involving students in exploring interconnections between the knowledge they acquire and contextual matters, especially the use of technology. Learning with 21st century competencies demands the competence of teachers to prepare students who have global competitiveness. Teachers must be able to integrate learning activities with strengthening character education which includes integrity, religious, nationalist, independent, integrity, cooperative, tolerant, responsible, creative and care for the environment.

Teachers are also expected to be able to apply literacy activities in learning which include basic literacy (broadness of insight in reading and culture), media literacy (broadness of insight in the use of media), library literacy, technology literacy and visual literacy. This activity aims to stimulate and facilitate the growth of students' competence to think critically, be able to cooperate with various parties, and foster creative and innovative thinking skills by the emergence of new original ideas. Learning is also directed to the growth of students' competence to communicate their thoughts and ideas.

Currently, ICT is one of the components that is needed in learning activities to realize 5C abilities for students. ICT is very helpful as a medium used in the learning process, especially to facilitate absorption and exploration of what is being studied. ICT is also needed to complete the administration of learning and operational educational institutions. The use of ICT has been proven in various studies to have an impact on improving the quality of learning. This is due to the broad, universal, global, and fast reach of ICT to obtain and disseminate information to users. ICT is used very effectively and efficiently as an active, creative, innovative and fun learning media. One way to use ICT as a learning resource is by using internet access. The Internet is an unlimited source of information.

RESULT AND DISCUSSION

The general description of the ICT facilities currently owned by MTsN 6 Aceh Besar and which can be utilized by teachers in learning management are:

1. WIFI network with 20 Mbps bandwidth, indihome network provider.
2. Madrasah website, https://mtsnegerimontasik.wordpress.com
3. Interactive whiteboard model ITO-8500.
4. LCD (Liquid Crystal Display) projector brand Epson EB-X450, totaling 3 units
5. Computer laboratory consisting of:
   a. Server computer with specifications: Lenovo thinkvision monitor, thinkserver TS-150 CPU, Intel xeon processor, Windows 7 operating system, totaling 1 unit.
   b. Computer with specifications: monitor Lenovo thinkvision CPU thinkcentre, core i3 processor, Windows 7 operating system, totaling 23 units.
   c. LCD (Liquid Crystal Display) projector brand Epson EB-X450, totaling 1 unit.

Teacher Competence in Using ICT

Based on the results of observations, interviews and document studies, it can be concluded that not all MTsN 6 Aceh Besar teachers are able to use ICT in managing learning properly. Based on the supervision data carried out by the principal of the madrasah, there are 31 teachers (80%) who have used ICT as a learning medium. This means that there are 9 teachers (20%) who have not utilized ICT as a learning medium optimally. 80% of MTsN 6 Aceh Besar teachers are able to search for pictures, prepare student worksheets, use google worksheets, google meet, zoom applications, digital madrasah report cards, prepare media presentations in the form of power point slide and videos. All teachers must prepare learning administration starting from the learning implementation plan and learning achievement assessment documents. Preparing lesson plans and other learning documents has actually used ICT. The teacher's compentece to use microsoft is good, especially in using Microsoft word. The teacher's compentece that needs to be improved is the use of Microsoft Excel and the skill of modifying slide shows on power point slides. This is reinforced by the data contained in the following table.

Table 2. Teachers' Competence to Use ICT

NO	DATA SOURCE	TOTAL	UTILIZATION OF ICT IN THE IMPLEMENTATION OF DUTIES IN MADRASAH		
			ICT Media	ICT Learning Source	ICT Application
1	Islamic Education Teacher	8	Not Fully Proficient	Fully Fairly Proficient	Fairly Proficient
2	Arabic Teacher	2	Not Fully Proficient	Fairly Proficient	Fully Fairly Proficient
3	Bahasa Indonesia Teacher	4	Not Fully Proficient	Fairly Proficient	Fairly Proficient
4	English Teacher	3	Not Fully Proficient	Fairly Proficient	Fairly Proficient
5	Mathematics Teacher	4	Not Fully	Fairly	Fully Fairly

			Proficient	Proficient	Proficient
6	Natural Science Teacher	4	Fully Fairly Proficient	Proficient	Fully Fairly Proficient
7	Social Science Teacher	3	Not Fully Proficient	Proficient	Fairly Proficient
8	Civic Education Teacher	2	Not Fully Proficient	Fairly Proficient	Fairly Proficient
9	Sports Teacher	2	Never Use	Fairly Proficient	Fairly Proficient
10	Culture and Art Teacher	1	Not Fully Proficient	Fairly Proficient	Fairly Proficient
11	Crafts/Informatics Teacher	2	Proficient	Proficient	Proficient
12	Additional Learning Teacher	2	Not Fully Proficient	Fairly Proficient	Fairly Proficient
13	Conselling Guidance Teacher	2	Proficient	Proficient	Proficient
TOTAL		39 Teachers			

Source: Academic Supervision Report of Madrasah Principal Year 2021

Notes :
Proficient : Able to access, use and develop ICT properly
Fairly Proficient : Able to access or use or develop ICT properly
Not Proficient : Unable to access or use or develop ICT properly

The results of interviews with teachers stated that the competence to master ICT is one of the teacher's professional competencies. Currently, all learning is digital-based, so teachers should be able to master ICT well. The competence to master ICT for teachers greatly influences learning conditions. Currently, students who are the millennial generation are synonymous with the technology generation. Learning that involves technology is easier to understand and more enjoyable.

Students informed that currently not all MTsN 6 Aceh Besar teachers utilize ICT as learning media. This is because the teacher still maintains the learning method with lecture and question and answer activities. Students mentioned that there were several teachers who gave the opinion that if they used ICT, students did not want to study seriously, did not listen to the teacher's explanation, because they were negligent with the media presented. Some teachers do not use ICT because they think there is not enough time to install and use the required ICT tools. However, in the opinion of students, the use of ICT media is more interesting, challenging and very appropriate for eliminating boredom.

Utilization of ICT as a learning media can be implemented through presenting material with Power Point Slides, learning videos, games such as puzzles, and other interactive quizzes. Teachers at MTsN 6 Aceh Besar are currently also directed to utilize ICT as a source of learning. Making learning videos requires teachers to be able to use applications such as kinemaster, capcut, filmora, canva, etc. However, not all teachers are able to use all of these applications. The application that must be well mastered by the teacher is madrasah digital report card. Some teachers have also used zoom, google meet,

google form to support successful learning. In addition, the use of ICT as a learning resource is done through the use of e-books, YouTube links, etc.

Based on the results of the interpretation of the questionnaire distributed to 17 class VII students, 22 class VIII students and 24 class IX students regarding the use of ICT by teachers in learning, it can be described as follows:

1. Most of the students stated that they agreed that ICT-based learning facilities were complete, most of the teachers were able to use ICT to present visual and audiovisual media and use ICT as a learning resource.
2. Most teachers are able to use ICT as a learning resource well
3. Most teachers rarely use Learning Management System (LMS) in learning
4. Most teachers are able to use whatsapp and telegram applications to support learning activities
5. Some teachers are able to teach in a fun way and make it easier for students to understand learning material
6. Almost all informatics teachers teach very pleasantly
7. Teachers who teach in class VII who frequently use ICT are Civic Education and Natural Science teachers, teachers who teach in class VIII who frequently use ICT are Fiqh, Arabic, and Civic Education teachers. Meanwhile, teachers who teach in class IX who frequently use ICT are Fiqh, Arabic, and Civic Education teachers.
8. Teachers who teach in class VII who rarely or never use ICT are Aqidah Akhlak, Fiqh, Islamic History, Arabic, Bahasa Indonesia, English, Mathematics, Social Sciences, Arts and Culture, Sport, Crafts, and Additional Subject teacher. Teachers who teach in class VIII who rarely or never use ICT are Aqidah Akhlak, Islamic History, Arabic, Bahasa Indonesia, English, Mathematics, Arts and Culture, Craft, Sport, and Additional Subject teachers. Teachers who teach in class IX who rarely or never use ICT are Aqidah Akhlak, Arabic, English, Mathematics, Social Science, Natural Science, Arts and Culture, Craft, Sport, and Additional Subject teachers.

Learning stages that do not take place face-to-face with the teacher such as learning via WhatsApp and telegram groups, the teacher sends student worksheets. Furthermore, the results of student work are collected in face-to-face learning. The stages of using ICT as learning media or resources which are done directly through face-to-face activities are generally performed by:

1. The teacher provides initial information about learning materials such as learning objectives and the scope of teaching materials.
2. The teacher displays media such as power point slide, pictures and videos using LCD projector media.
3. The teacher re-explains the material that has been displayed.
4. The teacher asks students to summarize or work on assignments and present them in front of the class.
5. Teachers and students conclude the material that has been studied.

One of the results of the study document from the Learning Implementation Plan which describes the use of ICT media in the core activities is as follows:

Learning Material : *Advertisement*

Learning Objective

Through a learning model using Problem Based Learning, students are expected to be able to: Understand product and service information through simple short advertising texts; Choose and purchase goods and services offered in the community with full curiosity, responsibility, discipline, honesty, confidence and never give up, have a responsive (critical thinking) and proactive (creative) attitude, and be able to communicate and cooperate well.

Basic Competencies

1. Mentioning the text structure, linguistic elements, and social functions of product and service advertising text, according to the context of its use.
2. Capturing the meaning in the text of advertisements for products and services which are very short and simple.

Learning Activity Steps:

1. Introduction Activity
   a. The teacher prepares students psychologically and physically to participate in the learning process.
   b. The teacher motivates students to learn contextually and applies teaching material in daily life.
   c. The teacher asks questions that relate previous knowledge to the material to be studied.
   d. The teacher explains the purpose of learning.
   e. The teacher conveys the character and assessment that will be conducted.

Core Activity (Learning Model Syntax)

Table 3. Syntax of Core Learning Activities

SYNTAX	ACTIVITY
Student orientation on the problem	Students are given motivation or stimulation to focus on the material to be studied by observing worksheets, photos, videos, giving examples of material/questions for students to develop, from interactive media etc. related to *Fried Bananas Kepok Sensation, Grandma Sambal Uleg and Identifying inside! erent types of information available in the ad*
Organizing students	The teacher facilitates students to understand the problems presented, namely identifying what they know, what they need to know, and what needs to be done to solve problems related to the material *Fried*

	Bananas Kepok Sensation, Grandma Sambal Uleg and Identifying inside! erent types of information available in the ad
Guiding individual/group investigations	Students collect relevant information to answer questions that have been identified through discussion and exchange of information activities about *Fried Bananas Kepok Sensation, Grandma Sambal Uleg and Identifying inside! erent types of information available in the ad*
Developing and presenting the work	Convey and present the results of group discussions about *Fried Bananas Kepok Sensation, Grandma Sambal Uleg and Identifying inside! erent types of information available in the ad*
Analyzing and evaluating the problem-solving process	Students analyze and conclude inputs, responses and corrections from the teacher regarding the learning that has been done about *Fried Bananas Kepok Sensation, Grandma Sambal Uleg and Identifying inside! erent types of information available in the ad*

Closing Activity

1. Students, with the guidance of the teacher, make conclusions.
2. The teacher reflects on the results of the learning process that has been implemented.
3. The teacher gives appreciation to all students who have worked well in groups.
4. The teacher gives an evaluation to measure the completeness of the teaching and learning activities.
5. The teacher informs the activities that will be done at the next meeting.

The learning steps above have illustrated the efforts and abilities of teachers in using ICT, namely the use of videos in the core activities of the student orientation stages. However, in a study of academic supervision report documents conducted by the Principal of Madrasah for the 2021/2022 academic year, it is stated that the teacher's abilities in core activities:

a. Teachers have not been implemented the earning method Active, Creative, Effective and Fun optimally
b. The availcompetence of media is not maximized, so that creative and innovative learning has not been implemented optimally.
c. Most teachers do not want to take advantage of ICT media in the learning process, including using the surrounding environment as a learning resource for students.

This means that the competence of MTsN 6 Aceh Besar teachers to utilize ICT in learning, both as media, learning resources, and the use of learning applications can be categorized under 3 conditions:

b. Proficient and frequently use ICT in learning.

c. Fairly proficient and sometimes use ICT in learning.
d. Not Proficient and never use ICT in learning.

Obstacles Faced by Teachers in Using ICT

Based on the results of interviews with the Principal of Madrasah, teachers, Head of the ICT Laboratory and students, there are several obstacles faced by teachers in using ICT in learning. These constraints include the avail competence of facilities, the competence of teachers, the allocation of learning time, and the technical constraints such as power outages.

The number of facilities available for ICT learning is not proportional to the number of study groups. MTsN 6 Aceh Besar only has 3 infocus which will be used together. In the notes on the use of infocus, almost every day it is noted that there are teachers who use it, but because the number is limited, the teacher has to take turns using it. At this time the available infocus has not been installed in every class.

As for the availcompetence of laptops needed in ICT-based learning, this is not an obstacle, because all MTsN 6 Aceh Besar teachers have laptops. However, some teachers are still not competent in using computers and ICT-based technology tools in learning. There are still teachers who have not mastered all microsoft office well. In general, microsoft word operations are sufficiently mastered by teachers, because teacher learning and administrative documents are generally completed with microsoft word. Teachers who are accustomed to using ICT in learning are also able to create and utilize power point slide media. Some teachers are also still having problems preparing interesting and good PPTs. Meanwhile, most teachers are still constrained in using microsoft excel. Microsoft excel is widely used in learning outcomes processing applications such as learning outcomes analysis, calculation of minimum completeness criteria and assessment applications.

The use of ICT tools such as projectors sometimes has problems that occur during their installation in class. As for preparing learning media, teaching materials, and filling out digital report cards, almost all teachers understand them well. In addition, according to some teachers, the obstacles to learning ICT are also due to the limited learning time allocation. The learning allocation of 2x40 minutes is considered less effective using ICT, because it takes time to install tools in the classroom during early learning activities. Meanwhile, according to student statements, there are teachers who think that the use of ICT in class sometimes causes students to be negligent with the media and ignore the material that must be learned. Another thing that is an obstacle to learning ICT is that not all classes are able to reach the available WIFI network. Scheduled power outages by the state electricity company are also an obstacle, because madrasah still does not yet have adequate generators.

Activities to Improve Teacher's Competence in Using ICT

Based on the analysis of the results of interviews and study of documents, both academic supervision report documents, self-development reports and teacher journals, it can be concluded that, so far, various efforts have been made to improve the compentece of teachers to utilize ICT in learning. Routine activities carried out every semester are teacher

coaching in filling out the digital madrasah report card, In addition, as an effort to follow up on academic supervision, the principal of madrasah has a program to improve the standards of teaching staff through training activities performed at madrasah in the form of technical guidance and workshops. The activities conducted in 2021 was workshops on improving the competence of teachers to prepare learning administration, including the use of ICT and the surrounding environment as media and learning resources.

In every workshop and technical guidance activity, teachers are required to use a laptop. This is very helpful in improving the teacher's competence to operate a laptop. In addition, as an effort for sustainable professional development for teachers, the Principal of Madrasah directs that subject teacher deliberations and counseling teacher deliberations activities are conducted routinely according to the self-development package required for each teacher. The self-development package is the preparation of learning tools, learning models, teaching aids and learning media as well as the teacher's scientific writing.

Other efforts carried out independently by teachers are attending seminars, workshops, technical guidance and training conducted by organizers of teacher development activities outside of madrasah. These activities are conducted offline or online. This activity is proven by the certificate attached to this thesis report.

Discussion

Teacher Competence in Using ICT

The results of research on the competence of teachers at MTsN 6 Aceh Besar to utilize ICT as a medium, learning resource, or to process learning applications can be categorized into 3 conditions:

1. Proficient and frequently use ICT in learning.
2. Fairly proficient and sometimes use ICT in learning.
3. Not Proficient and never use ICT in learning.

This means that the professional competence of MTsN 6 Aceh Besar teachers in the use of ICT still varies. Teacher professional competence is the competence, skills, talents, knowledge and expertise possessed by each teacher. Professional competence is very influential in the success of teachers in educating and guiding students to achieve learning goals.

Teacher professional competence in carrying out educational learning, consists of activities to prepare lesson plans, carry out the learning process, and evaluate learning processes and outcomes. The entire series of activities requires teachers to be able to master ICT, because the preparation of lesson plans, the use of media and learning resources and the processing of learning outcomes cannot be separated from the role of ICT.

In preparing the learning implementation plan, the teacher must be able to use Microsoft Word properly, the teacher must also be able to explore various updated things in preparing teaching materials. This means that teachers have to explore through books and modules, most of which are easily accessible through the use of the internet.

Obstacles Faced by Teachers in Using ICT

There are several obstacles faced by MTsN 6 Aceh Besar teachers in using ICT in the learning process. These constraints include the availcompetence of facilities, the competence of teachers, the allocation of learning time and technical constraints such as power outages. These constraints are conditions that have the opportunity to be improved. Teachers who already understand the use of digital media and content in supporting successful learning can switch online conditions to offline.

Digital media is basically digital content that can be disseminated via the internet or computer networks. ICT-based digital media does not only mean showing videos or slides in the learning process which requires the use of an LCD projector. According to Kuntari (2016), digital media includes text, audio, video and graphics from TV networks, newspapers, magazines that are presented on websites or blogs that have been digitally compressed. Such content encoding includes converting input audio or video into digital media files such as window media files. As for digital content, every type of content that exists in the form of digital data is stored analogously in a certain format. Forms of digital content such as digital broadcast information, digital streaming, digital products such as electronic books, music files, digital images, websites, manuals in electronic format, and any item that can be stored electronically into a file or several files. These digital products are often called e-goods, as shown in the following figure:

Picture 3. Electronic Devices and Digital Media
(Source www.leadpros.us and www.kdnuggets.com)

Activities to Improve Teacher's Competence in Using ICT

The activities to improve the competence of MTsN 6 Aceh Besar teachers to use ICT in the learning process is performed as a follow-up effort to the Madrasah Principal's academic supervision in technical guidance, workshops and collective activities of teachers in MGMP and MGBK. The teacher is an element that really determines the success of learning that is conducted directly (face to face) or indirectly such as using LMS and other technological tools. Professional teachers must be able and expert in managing learning, and one of the elements that cannot be separated in managing learning in this digital era is the use of ICT. The efforts that can be made to solve various teacher problems related to the use of ICT include providing guidance and training to teachers as was done at MTsN 6

Aceh Besar. However, the most important thing is that Madrasah have the competence to complete facilities and infrastructure that support the success of ICT-based learning. Among these facilities are ICT equipment and internet network access. As for some other efforts that can be done by Madrasah are:

1. Preparing core teachers as tutors for fellow other teachers who need guidance on the use of ICT.
2. Collaborating with other Madrasah to conduct studies on the use of ICT in learning.
3. Conducting routine teacher competency tests in terms of using ICT and develop follow-up plans. This is because the progress of ICT is currently not limited to the competence to use laptops, the internet and media projectors. Various new breakthroughs related to ICT advances continue to infiltrate the world of education. It is possible that in the future ICT skills for teachers will also include the competence to understand programming systems that will facilitate the achievement of learning objectives. The teacher's competence to master ICT is to be able to modify various media and applications that can be used to support successful learning.
4. Providing rewards for teachers who are able to master and use ICT well and provide ongoing assistance for teachers who are not yet able to master and use ICT.
5. Collaborating with other agencies that allow teachers to improve their ICT skills, such as the Ministry of Information Communication and Information.
6. Motivating teachers to conduct self-development in a sustainable manner by providing performance targets that must be achieved by teachers in using ICT.
7. Conducting peer observation and evaluation activities, namely self-evaluation activities and requesting for input from colleagues on how to use ICT in learning. Every teacher who has new knowledge about ICT is given the opportunity and motivation to disseminate or socialize it to all other fellow teachers.

CONCLUSION

Management of learning in the 21st century must be implemented in an innovative way. Innovation in learning means that there are efforts by teachers to utilize and integrate various learning tools and media that are in accordance with current technological developments. Innovation is an effort to renew by using new things or considered new in transferring knowledge, skills and values to students.

ICT for teachers is needed to gain access to more in-depth information regarding the areas of expertise and knowledge they teach. Improving the competence of teachers in the use of ICT at this time is fundamental, because everything related to the education today cannot be separated from ICT. In implementing learning activities according to the demands of the 21st century, teachers must be able to integrate technology in each subject so that the quality of learning can be improved.

ICT is very important at this time because today's students are the millennial generation who are very close to and understand technology. If the teacher does not have professional competence in utilizing technology, it will have an impact on the quality of learning outcomes. Monotonous conventional learning with theory written in textbooks presented in lectures will not be able to bring students to think critically, collaboratively,

and innovatively. Technology will help students see and find something that is in their learning theory and present broader information discoveries.

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