

## Digital Literacy Learning Management Innovation at State Vocational Schools in Manado City

**Herman Koessay**

Universitas Negeri Manado  
[hkoessay@yahoo.com](mailto:hkoessay@yahoo.com)

**Deitje A Katuuk**

Universitas Negeri Manado  
[deitjekatuuk@unima.ac.id](mailto:deitjekatuuk@unima.ac.id)

**Jeffry S. J. Lengkong**

Universitas Negeri Manado  
[jefrylengkong@unima.ac.id](mailto:jefrylengkong@unima.ac.id)

**Viktory N. J. Rotty**

Universitas Negeri Manado  
[Viktoryrotty@unima.ac.id](mailto:Viktoryrotty@unima.ac.id)

**Abstract:** *This article aims to describe innovations in digital literacy learning management for students at State Vocational Schools in Manado City. This research is a qualitative research in which the data collection process is carried out through interviews, observation and documentation. From the research conducted, it is known that SMK schools in Manado City innovate in 3 ways, namely: Changing the teacher's paradigm of conventional education towards modern education with education and training activities and educational seminars and through improving academic qualifications, secondly Providing digital literacy skills to teachers, education staff and students through digital literacy workshops and training activities related to the use of the latest learning and learning media and technology and the third is by providing facilities and infrastructure that can be utilized by students, teachers and education staff to support digital literacy activities in the school environment. This method is considered appropriate and quite successful in encouraging all components of the school to learn and improve their respective human resources regarding digital literacy.*

**Keywords:** *Management; Innovation; Literacy Digital*

## INTRODUCTION

In the 21<sup>st</sup> century, public activities and services in the fields of government, economy, health and education can be said to be almost equally inseparable from the use of ICT. This reality has succeeded in resonating the increase in internet penetration in various parts of the world. Evidently, the we are social survey reveals that the penetration of internet users in Indonesia is 212.9 million people in 2023 of Indonesia's total population of 276.4 million or the equivalent of 77 percent of the total population of this republic.



**Figure 1.** Internet Usage in Indonesia

The increasing use of the internet will result in the growth of the amount of information through digital networks very quickly and continues to increase. Bernard Marr, stated that based on statistical data, the volume of data exploded in 2015, more data has been created in the last two years than in the entire previous history of mankind. Data is growing faster than ever and by 2020, approximately 1.7 megabytes of new information will be created every second for every human on this planet. By that time, the digital data set will have grown by 4.4 zettabytes. Currently that's about 44 zettabytes, or 44 trillion gigabytes. By 2020, at least a third of all data will pass through the cloud (a network of servers connected via the internet). The development of ICT has had an impact on the world of education, especially in the learning process. According to Rosenberg, with the development of the use of ICT there are five shifts in the learning process, namely: (1) from training to performance, (2) from the classroom to anywhere and anytime, (3) from paper to "online" or channels, (4) physical facilities to network facilities, (5) from cycle time to real time. 4 Communication as an educational medium is carried out using communication media such as telephone, computer, internet, e-mail, and so on. Interaction between teachers and students is not only carried out through face-to-face relationships but also by using these media.

So, with the increasingly rapid development of ICT, it needs to be balanced with digital literacy skills. The rapid flow of information available on the internet in various forms, whether numeric, text, image, audio or video is

one of the characteristics that in this era every individual has the freedom to create and disseminate without having to check whether the information meets the criteria or not. No. As a result, from year to year the amount of information on the internet will continue to increase uncontrollably, causing information overload. In the end, the excess information will cause difficulties for each individual in finding information that is truly valuable. Seeing the conditions above, digital literacy skills are needed for teachers and students so that they can easily search, find, evaluate, create, utilize and disseminate this information again.

The individual's ability to use technology appropriately and effectively is called digital literacy. In simple terms, digital literacy can be defined as the ability to use information technology meaningfully. The emphasis on the concept of digital literacy which is the reference for this thesis study is not limited to operational agility when interacting with ICT, but more on the transformation process. This means how and the purpose of using ICT is the most important component that underlies the concept of digital literacy.

Nowadays, distance and time are not a significant problem to gain knowledge, various applications have been created to facilitate this. Likewise, educators and students must have digital literacy skills in utilizing ICT media to achieve educational goals, especially in the learning process in class. Relating to several competencies that must be possessed by educators and students. Literacy as a skill to read, write, communicate and think critically and will experience development in line with advances in technology and science.

Trilling and Fadel, said that in the 21st century education must always move in line with the progress of the times. This movement is based on a change in the educational paradigm from conventional to modern education. A summary of the paradigm shift can be seen in table 1.1 below.

**Table 1.** Differences in the Old Education Paradigm and 21st Century Education

Old Paradigm	21 <sup>st</sup> Paradigm
Teacher Center	Student Center
Direct Teaching	Interactive Teaching
Knowledge	Skills
Material	Process
Basic Skills	Applied Skills
Facts and principles	Questions and problems
Theory	Practice

Material Based	Project Based
Limited Time	Needs Based
Kompetitive	Colaborative
One-size-fits-all	Personalized
Focusing on Class	Focusing on Global Community
Text Based	Web Based
Sumative Test	Formative Evaluation
Learning to continue School	Learn for Life

Currently, information can be displayed in several formats and can be included in documented sources (books, journals, reports, theses, graphics, videos, multimedia, sound recordings) uploaded on the internet. Valuable knowledge for educators to impart to their students. The information obtained online can be used by educators to become valuable knowledge for students.

Teachers as the most important element in the learning process in schools must optimize the use of information and communication technology (ICT). What are needed in this utilization is digital literacy skills. Various research results show that most educators still stutter in the use of computers in accessing information for learning purposes. The development of ICT must be responded to wisely by educators not only as a recent discovery which is limited to following its development but more than that educators must strive to master it.

Educators really play an important role in utilizing the development of ICT as a source of learning for students. So that the ability to use ICT, information selection, packaging and educators must master it. The above should certainly be a concern of all levels of education, one of which is SMK. In Law no. 20 of 2003 concerning the National Education System concerning pathways, levels and types of education part three "Secondary Education" that Vocational High Schools (SMK) are a form of formal education unit that organizes vocational education at the secondary education level as a continuation of SMP or other equivalent forms. Schools at the level of education and vocational types can be named Vocational High Schools (SMK) Various skills programs carried out at Vocational Schools adapt to the needs of the existing world of work and adapt to societal and market demands. Vocational education as secondary education is an effort to prepare students especially to be ready to work in certain fields. Of course, SMK is still guided by the goals of national education so that students have religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation and state.

Based on the national education goals above, the English subject is very important to pay attention to in Vocational High Schools. Because students are expected to be intelligent and skilled. This is the joint task and responsibility of teachers, especially for English teachers to realize these ideals and hopes. Teachers or educators are expected to be more professional in carrying out their duties in teaching, educating, guiding, training and assessing their students so that they are able to compete in the era of globalization or the era of the industrial revolution 4.0 currently.

There are 3 State Vocational High Schools (SMK) in Manado City with their respective visions in an effort to build the younger generation in facing the era of globalization or the era of the industrial revolution 4.0. Teachers are needed who are professional and have digital literacy skills, adequate facilities and infrastructure, school policies, and appropriate learning systems to realize the vision of each school. Teachers specifically as educators and mentors of students in the learning process that takes place inside and outside the classroom. With regard to academic qualification standards and teacher competence, it can be seen in the Regulation of the Minister of National Education Number 16 of 2007 concerning academic qualification standards and teacher competence which reads: "This teacher competency standard is developed as a whole from four main competencies, namely pedagogic, personality, social, and professional competencies. The fourth competency integrated in teacher performance".

Teachers must have the same competencies as teachers in general, but they must also have their own characteristics. The general competencies in question, namely pedagogic competence, personal competence, social competence, and professional competence. But as teacher, must also have digital literacy skills. This is the background for the author to raise the title " Digital Literacy Learning Management Innovation At State Vocational Schools In Manado City." digital literacy skills on the professional competence of teachers at State Vocational Schools in Manado City. As well as to find out the efforts of the school to realize digital literacy at State Vocational Schools in Manado City.

## **RESEARCH METHOD**

The method used in this research is qualitative method. This research is a research step by collecting qualitative data from the results of interviews, observation and documentation and then described and interpreted. Qualitative data in this case is to answer the third formulation of the problem, namely how are the efforts of the school to realize digital literacy at State Vocational Schools in Manado City through guided free interviews with the Principal, Deputy Principal of the Curriculum Section, English teachers and students.

The research location was conducted at 3 State Vocational Schools in Manado City which had adequate internet facilities and other ICT instruments available. The criteria for the school in question are as follows:

- a. State Vocational High School in Parepare City
- b. SMK provides computer and internet laboratory facilities as well as adequate information and communication technology facilities
- c. Vocational High Schools already have English teachers with PNS status
- d. English teachers have used ICT facilities in their learning process.

In terms of data collection, the researchers used interview, observation and documentation techniques at State Vocational Schools in Manado City and then processed them in several forms of data analysis in accordance with the formulation of the problem to be answered. The formulation of the problem uses data analysis with technical triangulation (interviews, observation and documentation) and source triangulation (Principals, English Teachers and Students) with the aim of obtaining valid, reliable and credible data or information.

## RESULT AND DISCUSSION

Based on the results of interviews, observations and documentation conducted by the author at State Vocational Schools throughout Manado City. The efforts of the school in realizing digital literacy in State Vocational Schools throughout the City of Manado, namely:

### **Changing the teacher's paradigm regarding conventional education towards modern education with education and training activities and educational seminars as well as through improving academic qualifications**

Efforts to change the teacher's paradigm of conventional learning towards modern-day education through education and training activities and seminars on the latest educational themes as well as improving teacher education qualifications. This was acknowledged by Mr. JR, that:

*"Since the Covid-19 Pandemic there has been a change in the learning system from conventional to a modern learning system using digital-based learning media and technology, which was previously more teacher-centered, is now experiencing a student-centered shift. Learning resources for students are not only teachers and textbooks but more broadly they can search for materials on the internet themselves through journals or e-books. Thus, the learning process is more interactive between teachers and students and between students and other students. Now, every education and training that we*

*take part in, starting from training on strategies, methods, models and learning technology training, leads us to implement the latest learning system using IT.*

This was also confirmed by the Vice Principal of SMK Negeri I Manado SP., that:

*Teachers' perceptions and understanding of the implementation of learning systems must change otherwise we will be left behind. Teachers must continue to improve one's abilities by increasing their educational qualifications. As an example, I as a teacher have continued my education at the Masters level at a tertiary institution in Manado City. This is of course in an effort to improve competence as a teacher to continue to develop them. This certainly creates a new nuance in learning activities in the classroom. It should also be a concern that teachers should not be controlled by technology but technology is a medium to make it easier for teachers to carry out their duties. The learning process does not only take place in the classroom but can take place anytime and anywhere without being limited by time. We also actively participate in educational seminars on learning technology. This motivates us to further improve ourselves so that we are able to prepare students to face the challenges of future developments.*

Along with the very high development of computer technology and information technology, this development has changed the paradigm of society in seeking and obtaining information, which is no longer limited to newspaper, audio-visual and electronic information, but also digital information sources. Available in abundance through the use of the Internet network. Understanding the literacy paradigm is not only reading reading materials, not only manuals, but also digital reading. Literacy is not just reading and writing, but also thinking skills using print, visual, digital and auditory sources.

Conventional learning systems do not have to be eliminated but need to be integrated with digital-based learning because conventional learning using face-to-face, direct communication of the process of transferring value from the teacher to students and combined with digital media will certainly create conditions for active, innovative, creative, effective, and efficient learning. fun for students. This is in accordance with the results of the author's interview with the Head of SMK Negeri 1 Manado JR that:

The development of digital information technology in schools is in accordance with the direction of the Minister of Education and Culture to realize independent learning, one of which is to realize this by applying digital information technology appropriately in schools. Our school has responded well to this because this development cannot be separated from our lives. Apart from that, in accordance with the direction of the Minister of Education, Nadiem Makarim also said that currently the world of education is experiencing very fast changes, we are entering the era of the industrial revolution 5.0, of

course, and the development of existing human resources must be in accordance with future demands. Information and communication technology, which is a product of education itself, of course we can use and make maximum use of this product, not rejecting its use in the world of education.

The literacy paradigm as a form of strengthening digital knowledge needs to be instilled in school members that the application of IT in the learning process and school activities will be more effective and efficient in its application. Teachers must be aware that existing progress and developments need to be welcomed together otherwise we will be left behind in the future. This was also expressed by the vice Principal of SMK Negeri II Manado AT, that:

*If there are schools that do not utilize digital technology, these schools will certainly be left behind. We must welcome the changing times; otherwise students (user) will look for other, better schools. It is also necessary to pay attention that digital learning can be a solution for teachers to overcome conventional learning problems, for this reason teachers can provide independent learning materials or modules to students and assign assignments or practice questions by utilizing various digital applications.*

The need for instilling a digital literacy paradigm for students, educators and education staff at schools was also expressed by the Vce principal of SMK Negeri 2 Manado JK. That:

*"We emphasize from the start to all students that the use of gadgets is permissible but not excessive so that their use is in accordance with their needs. Along with digital developments, we also continue to instill values in students as a strong foundation in dealing with the flow of information; they must have broad insight and noble character so that they are still wise to use it. We prioritize the formation of very important character because it guides children in living their lives and lives. Children with good character will be able to use IT well. Smart students open the content needed and have a good influence on them. The influence of information flow has a large effect on students. So that both good and bad influences can affect them.*

Based on the statement above, the teacher can instill a digital literacy paradigm in students' heads by:

1. The teacher gives students an understanding to use the web or search engines critically. Because, not all information available on the web is of the same quality, it requires the ability to recognize sites that can be trusted.
2. The teacher teaches students information literacy skills, namely the ability of students to recognize the type of information needed, electronic information sources, strategies for searching digital information sources, and evaluating information.



3. Provide understanding to students about the Law on ITE
4. Motivating students to become creators, not just consumers or just users of digital media so that students are able to create interesting, innovative and useful digital works for themselves and for others.
5. Instill personality and morals in using digital media to students. The personality and morals need to be instilled, namely:
  - a. Using digital media for useful things and not for useless activities
  - b. Using social media for good, spreading knowledge, not slander and hatred
  - c. Teach the morals of speech or language that is polite and not provocative when using social media
  - d. Instill tabayyun character or morals in students
  - e. Instilling nationalism and strengthening Islamic faith in students in facing the digital era

The above efforts have been made by State Vocational School teachers in Manado City, this is reinforced by the explanation from the Head of Manado 3 Public Vocational School, that:

*On several occasions during the ceremonial activities the principal has made an appeal to us to use social media, use the internet wisely and use it for useful things. We were given permission to bring a smartphone/android at school, of course, so that it was carried out for learning activities at school. At school we have carried out semester exams based on Android. Of course it's still an obstacle for some friends who are less able don't have an Android yet. However, the school provides a computer laboratory as a solution for less fortunate friends.*

Teachers in learning activities provide guidance to us to use social media wisely. Some teachers also when giving assignments direct us to look for references on the internet and books in the school library to then become material for discussion in class. It's not difficult to get the materials we need on the internet. Most of what we are looking for we can find there.

### **Providing digital literacy skills to teachers, education staff and students through digital literacy workshops and training activities related to the use of media and learning technology and the latest learning**

After the above paradigm has been formed, efforts are made to equip students, teachers and education staff with the ability to master and use digital-based technology, information and communication through workshops, guidance and digital literacy training in order to prepare human resources who

are able to use technology effectively, efficiently and appropriate. So it is necessary to balance the mindset with qualified technical capabilities to create a digital-based school accompanied by a vision and mission that maintains high ethical, social, cultural and religious and scientific values. To face this era of disruption, the community must accelerate cooperation in realizing Indonesia's digital information agenda," said Samuel A. Pangerapan, Director General of Aptika Kemkominfo when giving a speech at the Digital Society Webinar "Digital Literacy for Educators and Students in the Digital Age" which aired live on the Sibercreation Youtube channel on Saturday, February 20, 2021.

### **Providing facilities and infrastructure that students, teachers, and education staff can use to support digital literacy activities in the school environment**

Adequate facilities and infrastructure can encourage quality improvement and access to education to achieve educational goals or the school's vision and mission. According to the deputy principal for facilities and infrastructure, educational infrastructure is all basic equipment that indirectly or directly supports the educational process in schools, but cannot be lifted or transferred, let alone transferred. Such as the theory room, library room, skills practice room, laboratory room, office room, school canteen, land and road to school, restroom, school health business room, teacher's room, principal's room, and other infrastructure. While educational facilities are all sets of equipment, materials and furniture that can be moved and can be used directly or indirectly in the educational process at school, such as: teaching aids, teaching aids and teaching media, filing cabinets, benches and so on. Facilities and infrastructure that can be used by students, teachers, and education staff to support digital literacy activities in the environment of SMK Negeri I , 2 and 3 Manado, namely:

1. Educational facilities and infrastructure that support digital literacy activities in the environment of SMK Negeri I, 2 and 3 Manado City, among others as follows:
  - a. LCD Projector in learning activities in class or activities related to education in schools.

LCD Projector as an educational tool that can be used as a learning media that can display material from any field in a more interesting and very innovative way. An LCD projector is a type of projector that is used to display video, images, or data from a computer on a screen or something with a flat surface such as a wall or board, etc.

- b. Internet access facilities in schools that can be used by all school members who are placed at several points in the school

Internet as one of the developments of IT (Information Technology). The internet is a communication network on a world scale that allows communication to be fast and broad. The internet contains a number of teaching materials, reference sources, photographs, illustrations, events, animations, relationships between concepts and theories, connections between core words about a science, and even efforts to develop it. In the form of such a role, the internet apart from being an educational facility also functions as a teaching medium. Where is the other important and fundamental reason that through the internet messages can be conveyed to students quickly?

- c. Computer

Computer facilities can be used as a means of education in schools such as the use of computers as a teaching variation and as a medium used by participants to work on assignments creatively through computers. However, to realize the quality of education with the use of computer technology by both teachers and students, there is a need for willingness and persistence in its use. Of course the computers available at school will be very helpful in completing administrative work at school.

2. Educational infrastructure that supports digital literacy activities in the environment of SMK Negeri I, 2 and 3 Manado City, among others as follows:

- a. Computer Laboratory

A computer laboratory is a mandatory infrastructure for all schools in Indonesia. This is based on Government Regulation (PP) Article 43, that. The use of computer laboratories can be used by all teachers to be used in teaching and learning activities to practice the knowledge gained by students during face-to-face learning under the coordinator of the subject teacher or partium activity.

- b. School Library

The school library as an educational infrastructure to meet the needs of the community in the school environment, especially students, teachers and education staff. With the existence of a school library, their need for information can be fulfilled. In this regard, the three Manado State Vocational Schools I have their respective school libraries. The

existing school library can of course be used as a place for educational activities, a place to find the information needed, a place for recreation for school members and a place for research activities.

Based on the development of the times, of course the school needs to improve the school library in a more professional manner so that it continues to provide services for its users. Currently the arrangement of buildings and library rooms of the three schools is good. Manado I Public Vocational School has provided two computers connected to the internet to enable the creation of technology-based school library services.

However, the digital collections owned by the school library are still limited. As a solution, of course, school librarians can help visitors to get digital information on the internet. It is hoped that in the future school libraries will increase the use of digital technology and provide digital reading sources as well as human resources who are professional and able to master digital development as an effort to realize the availability of digital libraries in SMK Negeri I, 2 and 3 Manado specifically and all schools in Indonesia in general.

c. Teaching Laboratory.

Manado I Public Vocational School has a teaching laboratory which is collaboration with Hotel Arya Duta Manado to handle Laundry according to hospitality standards which are managed by utilizing digital technology in its business management.

d. Business Center

SMK Negeri I Manado has a business center which is a partnership with PT Sumber Alfaria Trijaya, Tbk. This facility provides the consumptive needs of all school components managed by the school by utilizing information and communication technology. Transactions using digital applications are available quite completely, even to payment transactions for public facilities so that students and teaching and educational staff become proficient in the use of digital technology.

Facilities Owned by SMK Negeri 2 Manado

- e. Physics Laboratory
- f. Multimedia Workshop
- g. Multimedia computer lab
- h. Hall building

- i. Audio Video Engineering Workshop
- j. Building Drawing Workshop
- k. Electric Workshop
- l. Automotive Workshop
- m. Machine Workshop
- n. Mapping Survey Workshop
- o. Building Workshop
- p. Heavy Equipment Workshop
- q. Computer and Network Engineering Laboratory
- r. English Laboratory

## CONCLUSION

Based on the results of the research, it can be concluded that digital literacy learning innovations in Vocational Schools in Manado City have been carried out by summarizing 3 ways, namely the first is to change the teacher's paradigm of conventional education towards modern education with training activities and educational seminars and through improving academic qualifications, the second is to provide digital literacy skills to teachers, education staff and students through digital literacy workshops and training activities related to the use of the latest learning and learning media and technology and the third is to provide facilities and infrastructure that can be used by students, teachers and education staff to support digital literacy activities in the school environment. These three efforts are considered and believed to be the most appropriate and accurate way to increase the capacity and abilities of teachers and students in utilizing information and communication technology that has entered generation 5.0, a generation based on intelligence in utilizing information and telecommunication technology.

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