



Strategies To Improve Teachers' Digital Literacy

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Abstract. In the decade of the 21st century, digital literacy is an absolute demand that teachers must have, for this the principal needs to formulate strategies to improve digital literacy. Academic supervision is a strategy to nurture teachers in carrying out digital literacy-based learning activities. The purpose of this study is to analyze how the principal's strategy in improving teachers' digital literacy through the implementation of academic supervision. This research uses a qualitative approach with a descriptive method. Data collection techniques are carried out through interviews, observations, and documentation studies. The informants in this study consisted of the principal, vice principal for academic affairs and several teachers. The results showed that school principals have several strategies in increasing digital literacy for teachers, including; establishment of an independent curriculum, learning using the school's *Learning Management System* (LMS), improving school infrastructure, applying digital skills, digital culture, digital ethics and digital safety within the school environment. Another strategy is the stages of school academic supervision which are carried out systematically and planned starting from pre-implementation, implementation, and follow-up to have an impact on improving teachers' digital literacy skills.

Keywords: Principal, Digital Literacy, Strategy, Academic Supervision

1. INTRODUCTION

National education functions to develop the ability and shape the character and civilization of a dignified nation in order to educate the nation's life aims to develop the potential of students to become human beings who believe and fear God Almighty, have a noble character, healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. [1]

In today's digital era, the implementation and quality control of educational services is increasing. The introduction of technology into the educational environment is an innovation process that must be continuously improved. The entry of digitalization into the world of education has not had a truly transformative impact as a whole and has actually provided an expansion of the digital divide. Education providers are forced quickly and precisely to be technologically literate, especially educators as an important factor in the implementation of learning in an effort to face the progress and transition of changing times. Moreover, due to the COVID-19 pandemic in 2020, education had to continue to run with sudden changes in conditions. Educators try their best to improve their competence and ability in teaching so that students can continue to gain knowledge despite changes in circumstances without any really thorough preparation.

To accept change and switch to the digital era, a professional teacher is needed who can utilize technology in the world of learning. In this case, one of the efforts to improve the competence of a teacher is the role and function of the principal. The principal as a pilot who leads the pace of education in schools has the responsibility to assist educators and education personnel in increasing their potential so that they are able to adapt to the new era. The principal is a teacher who is given the task of leading and managing educational units which include kindergartens

(TK), special kindergartens (TKLB), elementary schools (SD), extraordinary elementary schools (SDLB), junior high schools (SMP), extraordinary junior high schools (SMPLB), high schools (SMA), vocational high schools (SMK), extraordinary high schools (SMALB), or Indonesian Schools Abroad. [2]

In the UNESCO ICT *Competency Framework for Teachers*, the teaching profession in the 21st century, which is marked by the digital era, is strongly influenced by the use of information and communication technology. The demand for teacher professionalism today is that teachers who are not only of good character and able to deliver material methodologically but also must be able to utilize various sources of information in the community in learning activities. [3]

Teacher 4.0 is a teacher who is able to master and utilize digital technology in learning. Need competence Industrial Revolution 4.0 which is marked by the presence of four things, namely supercomputers, artificial intelligence, cyber systems, and manufacturing collaboration. Therefore, competencies are needed that are able to balance the presence of these four things in the era of Education 4.0. The competencies needed by teachers in the era of Education 4.0 are critical *thinking and problem-solving* skills, communication and *collaborative skills*, creativity and innovation skills, *information and communication technology literacy*, and *contextual learning skills*. [4]

Based on the explanation above, one of the competencies needed by teachers this century is literacy. Literacy that leads to the improvement of technology and information skills or often referred to as digital literacy. Teachers of the 21st century and the next century are challenged to accelerate the development of information and communication. Classroom learning and classroom management in this century must be adapted to the standards of technological progress. Digital literacy has become very important in the world of education. In an increasingly advanced digital era, teachers must be able to master digital literacy in order to implement technology. Digital literacy is the knowledge and ability to use digital media, communication tools, or networks in finding, evaluating, using, creating information, and utilizing it in a healthy, wise, intelligent, careful, appropriate, and law-abiding manner in order to foster communication and interaction in everyday life. Digital literacy is the ability to utilize and be aware of information, technology, and digital media in evaluating, creating, and communicating as needed. [5]

The task of a teacher as a driving force of education is required to consciously change the traditional learning approach towards a digital approach which is currently felt to be able to provide a variety of learning methods according to the needs and level of understanding of students. This can be done through school leadership facilities by providing support related to digital literacy to develop teachers' professional abilities. There are various things that can be done by school leaders to develop teachers' digital literacy skills, namely providing digital literacy training, instilling digital literacy in schools, and forming digital literacy driving teams in schools. One form of support from school leaders for teacher needs is his role as a supervisor who has an important task in improving teacher professionalism in carrying out their duties with digital literacy skills for educators so that they will be able to take advantage of digitalization in the world of education.

The purpose and function of academic supervision are to help teachers develop their competencies, develop curriculum, develop teacher working groups, and guide Classroom Action Research (PTK). [6] Empowering school residents so that they carry out tasks, roles, and learning processes productively is one of the principal's responsibilities which can be said to be effective if individuals are able to realize it. The principal can be called a professional supervisor if he is able to help and move teachers to be able to improve their quality, especially in the midst of today's advanced digital era. Academic supervision by the principal is oriented towards guiding teachers through compromise and discussion with teachers. Supervisors will be able to assess whether or not the use of learning media is optimal, the success of the learning evaluation process, and efforts to adapt to new habits so as to encourage the optimization of learning quality, namely by providing media use skills, both debriefing in the form of directions and providing applications to how to use them. [7]

Teachers are required to be more active and creative in utilizing learning media to students so that the learning atmosphere becomes more lively and the delivery of material can be more diverse. With the implementation of the principal's academic supervision, teachers are given guidance, motivation, and coaching to overcome the lag faced. It is expected that with the implementation of supervision there will be new learning innovations, lessons will become more interesting so that the learning process is not monotonous and give direction to students that more information on learning materials can be obtained by utilizing digitalization. Based on this background, this study focuses on the principal's strategy in improving teachers' digital literacy through academic supervision.

Supervision etymologically comes from the English *to supervise which means to supervise*. The old understanding assumes that supervision according to the term, namely as a job of inspecting, checking, and supervising by finding errors as a goal for the improvement of work that has been given. With the old meaning of supervision such an influence on the pattern of implementation and the relationship between individuals who carry out supervision and people who will be supervised they will assume that a supervisor is a leader who has the authority to judge, even determine good and bad, right or wrong, from the performance produced by his subordinates. However, this old understanding is rarely found in conditions on the ground today. A more modern view explains that supervision is defined as a process of guidance, direction, and coaching towards improving the quality of work better, with a systematic and dialogical process. This modern interpretation makes the supervision relationship a process of cooperation, not a relationship between leaders and subordinates. [8]

Another opinion was expressed by Blandford who stated that supervision is, *"... Appraisal (Supervision) is... to improve the quality of education for pupils, through assisting school teacher to realize their potential and to carry out duties more effectively..."* Supervision helps the school and tries to find solutions. At the classroom or learning management level, supervision helps teachers realize their potential and know how to teach effectively. The academic supervision of the principal has a significant effect on the quality of education. Because the supervision carried out by the principal will affect the professionalism of teachers. [9]

The purpose of supervision is to help teachers develop their ability to achieve learning goals that must be achieved by students through increasing teacher commitment, willingness, and motivation because by increasing the ability and motivation of teacher work, the quality of learning will increase. In general, the purpose of supervision is to help teachers improve their ability to become better teachers in carrying out teaching. [10] [11]

Planning in carrying out supervision is important to seek the truth of the facts obtained and presented so that they can be accepted by various interested parties, to obtain objective data that can be used to determine actions in a future-oriented manner, well-planned supervision will increase trust, recognition, and acceptance from all parties involved, Well-planned supervision can be measured and clearly known because it is carried out with full awareness of the reasons, goals, and ways of doing it, and supervision carried out in a planned and programmatic manner can be used as a source of data for the development of education in general and school development in particular so that the benefits can be directly felt. [12]

The principal must master academic supervision planning well so that supervision can run smoothly in its implementation. Therefore, before the supervisor carries out supervisory activities, an activity program plan must first be prepared by paying attention to 1) meaning that planning must be comprehensive and reach various aspects of supervision, 2) Planning must be cooperative meaning that planning must involve many people related to supervision because a supervisor will need the help of others in supervising, 3) Planning must be flexible, meaning that the planning made It should not be rigid, but open space for dialogue and accommodate changes that occur on the ground, without having to change plans. [13]

Academic supervision is carried out through three stages, namely planning, implementation, and evaluation or follow-up. At the implementation stage, the principal must carry out coaching for teachers in conducting lesson planning, implementing learning activities, and assessing learning outcomes. One of the important duties of the headmaster is to carry out academic supervision effectively. Therefore, the principal in carrying out the academic supervision process requires conceptual, interpersonal, and technical skills. This skill will make the principal have the ability to apply appropriate academic supervision techniques according to the type of problem. As a headmaster holder, it is necessary to properly understand the basic needs of teachers for the implementation of supervision. Monitoring must be carried out on an ongoing basis. [14]

The implementation of academic supervision in schools should be carried out on an ongoing basis, in the sense that continuous supervision is carried out so as to avoid problems or discrepancies. The results of supervision need to be followed up in order to have a real impact on improving teacher professionalism. The follow-up is in the form of reinforcement and rewards, educational reprimands, and opportunities to attend further training or upgrading. The use of academic supervision feedback results includes two important activities, namely coaching and strengthening academic supervision instruments. The follow-up step of academic supervision can be done through an interactive dialogue process between the supervisor and the supervised, to discuss improvements to the shortcomings and weaknesses experienced by teachers in the learning process. The approach taken in the discussion must be colleague,

partnership, and kinship, not instruction from superiors to subordinates so that there is an open, humane, and mutually respectful process to jointly find the best solution in an effort to improve the quality of learning. Therefore, reports must be able to provide clear, valid, and accurate information, including obstacles and constraints in program implementation so that reporting can obtain data and information that will be used as a basis for evaluation activities. Reports should also be made concise and simple so that they can be easily understood by parties involved in the program.

The follow-up of academic supervisions are: 1) The main targets in the implementation of academic supervision follow-up activities are teaching and learning activities, 2) The results of the analysis and supervisor's notes can be used for the development of teacher teaching skills or improve the professionalism of teachers and education staff, at least can reduce obstacles that arise or that may arise, 3) Feedback will provide assistance for supervisors in carrying out actions further supervision, 4) Based on feedback, it can create an atmosphere of communication that does not cause tension, highlights the authority possessed, provides opportunities to encourage teachers to improve their appearance, as well as performance. [15]

While in general, literacy is a set of real skills, especially in the cognitive skills of reading and writing. Good literacy skills are a right for all humans throughout their lives as an effort to empower and improve the quality of individuals, families, and communities. The impact of literacy skills is "multiple effects" or can be interpreted as having long-term effects and broader domains such as helping to reduce poverty, stabilize population growth, and ensure sustainable development and the realization of peace.

Digital literacy was first proposed by Paul Gilster in his book in 1997. He suggested that digital literacy is the ability of software and hardware technology and interpret information from digital devices effectively and efficiently in various needs such as academic processes, work, and daily life. Digital literacy is the ability to use information and communication technology in searching, evaluating, creating, and communicating information, which requires cognitive and technical abilities. In a broader sense, Martin explained that digital literacy is the awareness, attitudes, and ability of individuals to use digital tools and facilities appropriately in identifying, accessing, managing, integrating, evaluating, analyzing, and synthesizing digital resources, building new knowledge, making media expressions, and communicating with others in the context of certain situations for constructive social activities. [16]

The Ministry of Communication and Information Technology gave an opinion that there are four areas of digital literacy competence consisting of: First, Digital Skills is the ability of individuals to know, understand, and use ICT hardware and software and digital operating systems. Second, Digital Culture is an individual's ability to read, decipher, familiarize, examine, and build national insight, Pancasila values, and Bhineka Tunggal Ika in everyday life. Third, Digital Ethics is the ability of individuals to realize, model, adjust, rationalize, consider, and develop digital ethical governance in everyday life, and Fourth, Digital safety is the ability of individuals to recognize, obtain, apply, analyze, and increase digital security awareness in everyday life.

21st-century education is education by integrating knowledge skills, skills, attitudes, and mastery of information and communication technology. The essence of digital utilization for learning needs begins with the emergence of various websites or applications that offer free and open science materials which are free encyclopedias because all internet users can access and contribute. This is in accordance with the objectives set by UNESCO in 2004 that the use of digital in learning activities must be able to open universal access to education, provide equitable education, deliver quality learning and teaching activities, develop professionalism, and create more efficient education administration, policy, and management.

Digital literacy can affect learning practices that occur in schools. Digital technology has shaped and continues to shape the life experiences of learners. As technology continues to evolve, teachers will become aware and strive to adapt the use of new learning component tools for use in the classroom. Digital technology that is growing rapidly concerns how the application of learning practices in the classroom will change towards more digitalization. The competence of subject teachers is to utilize technology and communication in the learning they teach. This means that in the future learning may no longer be conventional. Teachers are expected to be able to utilize digital technology in learning by applying various approaches, strategies, methods, and learning techniques that educate creatively. Students must also be able to follow the development of digitalization so that there is supportive reciprocity. The use of digital learning technology has four important roles in education, namely: 1) Expanding access to education, 2) Increasing

educational efficiency, 3) Improving the teaching and learning process, 4) Learning material sources, 5) Learning aids and facilities, 6) Improving the management system. [17] [18]

It is important for teachers to use technology not only because students need it, but also because the education system needs to keep up with changes in online research, communication, and social media in order for students to be ready for 21st-century learning. New teachers may be more familiar with digital as they grow in these technological developments, but new teachers also still have challenges in using technology in meaningful ways to improve the learning process. Meanwhile, longtime teachers face the dual challenge of acquiring dispositions that accommodate ongoing change, as well as relearning how to teach using technology.

2. METHOD

The approach used by researchers is qualitative research with descriptive methods. This method aims to explain empirical data in the field by describing and interpreting a phenomenon as it is and linking cause and effect at the time of research, so as to obtain a systematic, factual, and concrete picture of reality about the results studied. Data collection techniques are carried out by observation (observation), interviews, and documentation studies, using 2 (two) types of data sources, namely primary data and secondary data. The setting of this research was carried out at SMK Negeri 1 Cibinong, the sampling technique of this research used *snowball sampling*, by obtaining research subjects of 5 (five) informants

3. RESULTS AND DISCUSSION

Principal's Strategy in Improving Teachers' Digital Literacy

Based on the results of research conducted by researchers through interviews, observations, and documentation studies, researchers sought to know and describe deeply about how the strategies formed by school principals in improving teachers' digital literacy at SMK Negeri 1 Cibinong. The strategy used by school principals is based on the need to understand the digital literacy of each teacher to improve their professionalism. The principal sets strategies based on the vision, mission, and goals of the school so that the implementation of the strategy is expected to run in accordance with the achievements and needs in school development for the implementation of creative, innovative, and competency education. Based on this, the principal is implementing the policy set by the current government, namely the independent curriculum in schools. The application of this curriculum will help teachers to be able to sail freely how they manage labeling in the classroom. As one of the efforts to increase the potential of existing resources, the implementation of an independent curriculum will be able to assist teachers in exploring the management of education in the classroom with various alternatives that exist to achieve common goals. In addition, teachers can contribute collaboratively and effectively work with school curriculum development by organizing and structuring materials, textbooks, and learning content. Teacher involvement in the curriculum development process is important to align curriculum content with the needs of students in the classroom [19]

In its implementation, the principal also sets a policy to always use the *Learning Management System* (LMS) in the management of learning in the classroom. The policy is very well accepted by teachers in schools because it can help them understand technology effectively and efficiently. *The school's Learning Management System* (LMS) also helps teachers improve their digital literacy practices in the classroom. Every assignment and material that goes into the LMS helps teachers understand the use of digital technology. Other studies also mention the benefits of LMS for teachers including being able to improve learning materials, using the design of various concepts of new and innovative learning strategies, using *the right e-learning* on the internet, being able to create and apply learning materials with multimedia, correlation of learning with students is very extensive and multi-source teaching and learning. [20]

In evaluating how teachers' digital literacy skills are in the classroom, the principal utilizes the implementation of academic supervision. Academic supervision is carried out as a way to find out the teacher's ability to use technology in the classroom based on the learning challenges to be achieved or the learning program to be

carried out. The principal maximizes the implementation of academic supervision in schools to improve teacher performance and needs. The implementation of academic supervision will provide an evaluation to each teacher to assess himself in the use of technology in every learning in the classroom. Other studies also state that Academic Supervision also has a significant effect on teacher competence, an increase in Academic Supervision variables will have a significant effect on increasing teacher competence variables and a decrease in Academic Supervision variables will have a significant effect on decreasing teacher competence variables, later this will also affect teacher work motivation [21]

Furthermore, the principal also developed an *In-House Training* (IHT) program for teachers in schools to conduct training on the use of technology in managing classroom learning. This IHT will provide many benefits to teachers in schools in carrying out digital literacy practices. *In In-house training* (IHT) is present as training for teachers to develop the realm of knowledge, attitudes, and skills. IHT is carried out by schools at least 1 time in each semester. In the implementation of IHT, teachers will be given guidance and direction regarding the use of technology in education management so that it will help them to improve digital literacy competence. [22]

Furthermore, the principal has a strategy to increase teachers' digital literacy by improving infrastructure. Based on the results of observations and interviews conducted by the principal, the principal is also very concerned about the facilities and infrastructure owned by the school so that teachers feel facilitated in implementing their digital literacy improvement. In line with this, infrastructure improvement greatly influences teachers as one of the supporting factors for them in increasing digital literacy because with good infrastructure it will make it easier for teachers to access the internet and use technology in learning

4. Teachers' Digital Literacy Skills

Based on the results of research conducted by researchers in the field with interview, observation, and documentation study techniques, it is seen that the entry of technology and information in the world of education, especially SMK Negeri 1 Cibinong schools has been felt for a long time because it is also driven by the demands of external parties of the school. To meet these needs as a whole, the ability of teachers to understand digital literacy in schools can be said to be at a very good level because they are able to apply digital learning, utilize digital in learning methods, make a learning innovation based on technology, and understand how to analyze the information obtained with the material needs and abilities of students, and better yet teachers also understand how important the importance of rather than maintaining the confidentiality of information and data owned so as to avoid misuse.

The **first** thing that proves the digital literacy ability of teachers at SMKN 1 Cibinong is good is digital skills, where teachers of SMK Negeri 1 Cibinong already have the ability to access and operate technology and digital media in the implementation of classroom learning. Teachers use this to find information about things needed to deepen their knowledge or find important things needed in doing their duties and roles. Furthermore, the **second** is about *Digital Culture*, how teachers and the school environment build a digital literacy culture in schools. One of the things that teachers do to make it happen is to maintain a culture of manners, greetings, which is important in communicating on social media. With this, ethical habituation is in accordance with the norm for teachers in utilizing existing technology.

In addition, the **third** thing that is done to build a digital literacy culture of teachers at SMK Negeri 1 Cibinong often collaborate and work together, collaborating in producing digital-based learning media such as teaching modules. In addition, teachers also often conduct joint evaluations of the information obtained, which is done to avoid incorrect information or selectivity of the suitability of information with the needs of teachers in schools. From the results of the interview above, the understanding of digital literacy needed by teachers is not only looking for material but teachers also have to manage what they get in search media so that it can be conveyed to students. This is certainly needed so as to avoid hoaxes that come from unclear sources. Understanding how teachers must be wise in social media is certainly very important for teachers to do not just *copy and paste* convey what they find in search engines. Teachers of SMK Negeri 1 Cibinong understand the importance of this, they always try to analyze in advance the shortcomings or advantages of the information obtained to be further evaluated whether it is in accordance with the learning goals they want to address. It takes understanding and time to carry out the process, which is why digital literacy is not only how we can operate, but also how teachers understand in reading, analyzing digital media.

The fourth is *digital safety* regarding the security of data and information owned by teachers. Overall, teachers at

SMK Negeri 1 Cibinong have filled out student report cards online. This is where the ability of teachers to maintain the confidentiality of data needs to be done and according to the results of research, teachers have been very good at maintaining the confidentiality of student data or school data that is considered not public.

Unlimited technological information certainly makes access easy. In the world of education, it will be easy to get information with wide access. Understanding how to be wise in maintaining data confidentiality is an important thing that must be owned. Requested, teachers of SMK Negeri 1 Cibinong really understand this and try to maintain the privacy of their respective data and school data so that security can be maintained. Based on the results of the interview above, SMK N 1 Cibinong has fulfilled 4 pillars of literacy that are important to understand and introduce about information and communication technology devices, namely, *digital skills*, digital culture, *digital ethics* and digital safety. [23]

Academic Supervision of School Principals in an Effort to Improve Teachers' Digital Literacy

Based on the results of research conducted by researchers through interviews, observations, and documentation studies. Researchers try to know and describe deeply about how the implementation of academic supervision of school principals to improve teacher professionalism, especially to improve digital literacy. The purpose of the principal carrying out academic supervision at SMK Negeri 1 Cibinong is to ensure that the objectives of a learning process can be achieved or have not been achieved. Academic supervision is a routine activity carried out by the principal to see the suitability of learning in class to the design in the teacher administration. SMK Negeri 1 Cibinong carries out academic supervision 2 times a year, more precisely held around January - March and August - November.

In the initial planning stage, the principal will hold a meeting with teachers who have a higher class than other teachers. In the meeting, the principal will form a supervision team and mandate the person in charge of implementing academic supervision to help the principal carry out the academic supervision process. If the planning stages above have been completed, then the supervision implementation process is ready to run. According to the schedule, the first thing the supervisor does is conduct a *face-to-face* interview with each teacher who will supervise before making a visit to class. At this stage, usually the supervisor will see the completeness of the teacher's administration and assess the suitability of several aspects to be assessed. After conducting a personal interview, the supervisor will visit the class to observe how the implementation of learning by the teacher and how active students are in participating in the class.

After the implementation of academic supervision has been completed, the principal and team will hold a meeting to evaluate the assessment data they get to be given feedback as self-reflection according to the category and needs of the teacher. This follow-up will also be in the form of providing motivation or guidance through advice and input, or if necessary attending training and seminars to improve their self-competence.

Based on this, the principal as a leader has the responsibility to be able to analyze and adjust the state of the school to the changes and developments that exist in the current environment. One of the major changes in school organization today is how technology comes into education and education should go hand in hand by utilizing technology. In the past, technology and information were only limited to knowledge in the form of material explanations, but now technology must be used as a medium in helping the learning process in the classroom.

An important aspect most affected by this system change is a teacher who is key in the running of education in schools. Principles that can be applied by school / madrasah principals to encourage teachers to improve their professionalism are: the role of education staff will work harder if the activities they do are interesting and fun; the purpose of the activity is clearly prepared and involves the teacher in the preparation of the activity; always tell about the results of the work achieved by the teacher; Give gifts as a form of appreciation, and reduce punishment. However, if necessary at any time punishment is also necessary; Pay attention to the condition of teachers by providing motivation, security, and showing that as the principal pays attention to them. [24]

Teachers as key implementers of education must be able to have good digital literacy skills so that they can provide examples to students or provide examples of using digitalization properly and correctly. In addition, teachers as facilitators with good digital literacy can utilize learning resources from various other sources so that the application of learning to students is relevant to the state and development of the world. Teachers who have good digital literacy

will certainly affect the implementation of the learning process in a varied classroom, have high creativity, and improve communication between teachers and students. Therefore, digital literacy learning needs to be applied because it is a practical solution to build digital literacy competencies for teachers and students, in order to form human resources that have character in advancing education in Indonesia. [25]

When digital technology is currently developing in the educational environment as a teacher in the 21st century, they should have good digital literacy skills to be able to fulfill their duties and roles. Do not know senior and junior teachers in the context of applying learning technology but teachers must always follow the development of digital media to improve scientific insight so that learning materials are always updated and updated in learning engineering. If you were previously *silent readers* in a community of teachers in social media groups, then it's time now you need to start contributing to discussions about learning by writing constructive responses. If previously we got ideas for learning from other people's videos, now is the time we can try uploading learning videos of our own work, even though it is still simple. If we often take material from *websites*, blogs or other people's writing, it's good now that we try to write our own material that we will give to students. If yesterday what we *followed* was the social media of celebrities, starting today we also need to *follow* the social media of inspiring educators.

In line with this, academic supervision must be carried out with the principle of providing guidance to teachers to overcome difficulties, not to find fault. The principal in carrying out academic supervision must be carried out scientifically or planned. The implementation of academic supervision is carried out by starting at the planning, implementation, and feedback stages. Planning is the initial stage in carrying out academic supervision by the principal which must be carefully prepared. Academic supervision is carefully planned, integrated, directed, and systematic because with good planning, various strategies can be carried out to anticipate and adapt to various changes that will come. [26]

The implementation of academic supervision is not only an abort of the principal's duties on his obligations but, there are several things that become the background that the implementation of academic supervision must be carried out to teachers, namely due to social change, globalization, the development of science and technology, urbanization, regional changes, fertile bureaucracy, and educational democracy. Overall, these aspects require teachers to be able to carry out tasks in any situation, and encourage teachers to continue to adapt to technological developments and community mobility. Based on this, the influence of the implementation of academic supervision by the principal on teachers is very large as an effort to improve the quality of learning and management of learning in the classroom. Facing the new era with various kinds of changes that exist, school principals should support the improvement of teacher quality by conducting academic supervision on an ongoing basis to create a better school quality.

5. CONCLUSION

Based on the results of research conducted by researchers, it can be concluded that school principals are trying to meet teachers' needs for good digital literacy understanding skills to support the process of managing learning in the classroom. The headmaster has a strategy that is applied to the school environment. Principals as leaders in schools have short-term or long-term strategies so that teachers can continue to improve their digital literacy. One of the efforts made by the principal is to carry out his duties and role as a supervisor who carries out academic supervision in accordance with the principle of supervision so that it can improve the ability of digital literacy competence to teachers. The headmaster carries out academic supervision on an ongoing basis due to changes in the current education system. Technology that is currently part of education makes school principals have the task and role to improve their abilities and help teachers adapt to these changes.

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