



# Time Stamp Camera Application as A Presence to Improve the Quality of Education

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**Abstract:** The research was conducted at Yadika Lubuklinggau High School, Musirawas Regency, South Sumatra Province, aiming to determine the planning, organization, and implementation of supervision to improve quality. This research was conducted with a qualitative approach and used a case study methodology. The data collection technique is carried out by; observation, interviews, and documentation. The focus of the research is supervisory management to improve quality, with a sub-focus; on planning supervision, organizing supervision, and implementing supervision to improve the quality of Yadika Lubuklinggau High School, Musirawas Regency, South Sumatra Province. The research novelty is the time stamp camera application for attendance at Yadika Lubuklinggau High School. This research produces a supervision model at Yadika Lubuklinggau High School, where planning, organizing, and implementing supervision is carried out in predetermined stages and adds feedback from teachers as actors in the field so that the overall results provide an increase in the quality of Yadika Lubuklinggau High School as indicated by accreditation. A, student achievement at local, regional, and national levels.

**Keywords:** Novelty; Time stamp camera; Quality of education

## Introduction

Educational institutions and institutions are quality-oriented institutions that are focused on two customers, namely internal and external customers. Internal customers are principals, teachers, and employees who provide services to students or students who directly receive services (internal), while external customers are: students, parents, the community, governors, and student sponsors who have direct individual interests as well as groups and parties that have an important role, such as the government and society (Wirba, 2023). Internal customers at the Institution are people involved in the learning process who will ultimately determine the quality of the school.

The school principal as an internal customer, has main duties and functions, according to Law No. 28 of 2010 Article 12 paragraph 4, namely: planning programs, implementing programs, carrying out

supervision, carrying out school leadership, and implementing school information systems: With supervision, implementers will be more careful in carrying out their work and will pay more attention to the provisions that have been outlined and avoid mistakes. The role of supervision can be seen by examining the condition of the organization and its people, finding errors, making corrections, and making improvement efforts as a follow-up (Smeets et al., 2021). In essence, ideal supervision is supervision that has planning and looks forward, and the best supervision system is to correct deviations from previous plans with deviations that occur.

Supervision the process of monitoring, comparing, and correcting work performance. He further stated that effective supervisory activities can be carried out through three approaches, namely (Maisyaroh et al., 2021): first, market control is a supervisory approach that emphasizes the use of market mechanisms outside

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the organization as a supervisory standard. Second, is bureaucratic control, which is a supervisory approach that emphasizes authority. Duties, regulations, and procedures from policies, and third, clan control is a supervisory approach carried out on employee behavior in the form of regulations that are under the organizational culture (Verburg et al., 2018).

Clan control in schools is usually carried out by the principal, at Yadika Lubuklinggau High School this supervision is carried out carefully, and in various ways, one of the unique instruments used is the Time Stamp Camera application. This application can add a time stamp watermark on the camera in real-time, this is the only application that can record videos with an accurate time watermark per milli second (0.001 seconds). It is a perfect application that can be used to automatically add location, signature, date and time, and even a map of all the photos taken with your cell phone. Several studies on supervision show that supervisory management is expected to reduce errors, irregularities, leaks, defects, fraud, and so on, so that implementation must be under what is planned, running supervision well will improve the quality of an institution.

Based on the background above and after conducting a grand tour at Yadika Lubuklinggau High School, South Sumatra Province, it turned out that there was a uniqueness in the management carried out at the school, so research was carried out with a focus on supervision Management in Improving Quality. (Case Study at Yadika Lubuklinggau High School, South Sumatra Province) with Subfocus; planning, organizing and implementing, monitoring in improving quality. The novelty of this research is supervision management with the presence of a time stamp camera at Yadika Lubuklinggau High School.

**Method**

This research was conducted at Yadika Lubuklinggau High School, South Sumatra Province, from July to December 2023. This research method was carried out with a qualitative approach and used the case study method, while data collection used the following techniques (Priya, 2021):

*Interview*

Interviews are conducted with designated sources in the form of questions carried out in-depth with concepts that have been prepared in writing and depth according to the sub-focus that has been determined.

*Observation*

Data obtained through direct observation, by going to the field, seeing, and following what activities are

carried out so that data can be obtained with high accuracy.

*Documentation*

The data obtained was done by looking at stored documents, in the form of pictures, videos, and other files related to the research sub-focus.

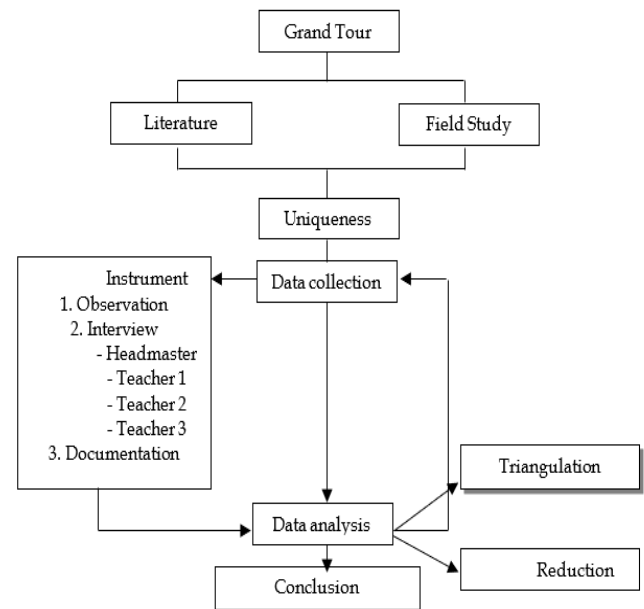


Figure 1. Research design (Widayatsih, 2021)

*Data Validity with Triangulation*

The validity of the data that has been collected must be tested using triangulation, that is, a cross-check is carried out, observations are made from the interview results and it is also proven by existing documents, if the results are the same, then the data is declared valid, but if there are differences then the data cannot be used. because it is considered invalid.

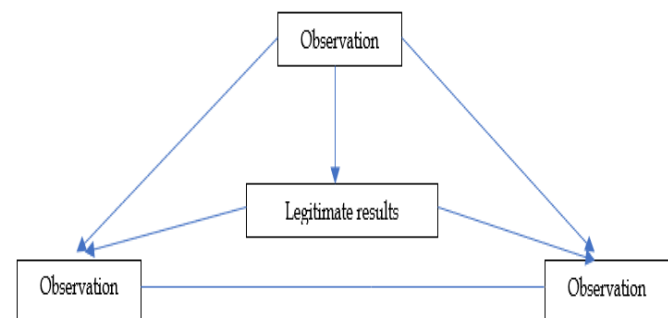


Figure 2. Triangulation

**Result and Discussion**

The results of this research can be seen in the Table 1.

**Table 1.** Research Findings

Sub focus	Findings in the field	Document
Planning	<p>Planning synergizes with the school's vision, inputting, and stakeholder input, creating a conducive atmosphere for teachers and employees</p> <p>Strategy: TA initially plans regulations regarding discipline along with sanctions, socializes and develops discipline together, receives input from teachers regarding discipline in teaching attendance</p> <p>The monitoring method regarding obedience discipline to comply with the rules comes early by using the time stamp camera application</p>	
Organizing	<p>Set an example for teachers to consistently discipline and focus on disciplining teachers</p> <p>Supervisory roles are shared</p> <p>The principal and teachers agree to carry out supervision using the application that has been informed (time stamp camera)</p> <p>The managerial supervisory role is carried out by the school principal, while the administrative role is carried out by the head of administration as a supervisor</p>	Organizational structure
Implementation	<p>Implementation guided by work discipline is part of the operative function of human resource management</p> <p>Continuous monitoring process, to ensure the achievement of the goals set in the planning</p> <p>Supervision plays a very important role in achieving the goals of a high-quality school.</p> <p>Supervision achievements; what will be evaluated, collect data, design evaluation activities, improve and follow up</p> <p>Deviation; periodic summons and direct coaching by the principal both verbally and if the disciplinary violation is at a very serious stage, a written warning is given by giving a warning letter.</p> <p>Rewards and coaching</p>	

*Planning*

In supervision, planning is an inseparable part, because in supervision, the role of planning remains an inherent part. The results of data analysis show that: Planning is in synergy with the school's vision, inputting, stakeholder input, creating a conducive atmosphere for teachers and employees, Yadika High School's vision, is planning in supervision in synergy with Yadika Vocational School's vision, namely Creating a Superior Generation, with a character that masters science and technology and Globally competitive, so that supervision planning is made to create a superior generation, one of which is by inputting input from stakeholders, where this input is very necessary based on findings in the field of what is needed from graduates, a school principal has a very big role in encouraging all teachers and employees work totally in providing services at school under the vision and mission for the progress of the school and are consistent with the vision and mission. This is outlined in the supervision plan, where one of the contents of the plan is mapping strict targets for learning, encouraging teachers to meet goals, and communicating. By designing a useful monitoring process in a systematic and structured manner so that the monitoring process runs according to what is needed. To carry out this process, managerial tools are needed because if an error occurs in the process, it can be corrected immediately so that the monitoring process can be realized properly.

This is under what was conveyed by Tuominen et al. (2023), educational institutions and institutions are quality-oriented institutions that are focused on two customers, namely internal and external customers (Madzík et al., 2019): first, school principals, teachers, and employees who provide services to students and students who directly receive services (internal). Second, external customers consist of students, community parents, governors, and student sponsors who have direct interests individually or in groups and parties who have an important role, such as the government and society. Because the institution's orientation is quality, supervision is indeed the main part that will support this quality orientation; Supervision planning strategy: at the beginning of the school year, plan regulations regarding discipline along with sanctions, socialize and develop discipline together, receive input from teachers regarding discipline in teaching attendance. The strategy that has been implemented at Yadika Lubuk Linggau High School in planning supervision is regarding discipline which is an indicator of success in improving the quality and quality of the school and can be carried out by the school community, including the principal, teachers, and students.

Supervision planning at Yadika High School is in synergy with fulfilling community expectations in the field of education, which can be done through a quality-oriented school organization. Quality is used, we usually think in terms of an excellent product or service that fulfills or exceeds our expectations. (Wang & Ahoto,

2022), saw that 80% of the problems faced by organizations in achieving quality were influenced by supervision carried out by management. On the other hand, Lewis said that supervision is a basic principle and philosophy in achieving quality efficiently by organizational goals (Nwosu et al., 2021). He further stated that a monitoring activity that is expected to be good starts with planning, implementation, inspection, and carrying out corrective actions known as the P-D-C-A (Plan, do, check, and Act) concept.

In carrying out supervision, a school principal generally determines the strategies used to effectively and efficiently achieve the goals of the school organization as a whole (Hoque et al., 2020). Supervision method regarding discipline to comply with the rules of arriving early by using the time stamp camera application (Petropoulos et al., 2022). In carrying out supervision, Yadika Lubuklinggau High School tries to make it effective and efficient to achieve its goals. In connection with this, in carrying out supervision, the principal uses the time stamp camera method. Furthermore, from the results of the interview, it was said that: The supervision method is mainly regarding the discipline of obeying the rule of arriving early at school which is carried out at Yadika Lubuk Linggau High School using the time stamp camera application which is downloaded via the Play Store on an Android cellphone.

Time stamp camera is an application as a tool, and several definitions regarding this application, in his paper he discusses the study of time stamps and their use in securing documents or data. The security in question is a person's legal authority over a document or data. A timestamp is an electronic seal and also includes a time indicator that is applied to a document. The display time indicates when the document was sealed so that each document has a different display time.

Time Stamp uses the concept of digital signature and hash function (Mondal & Mitra, 2016). Digital signatures are used to seal a document and are kept secret with a hash function so that the seal cannot be changed or deleted by unauthorized parties. The hash function used is a one-way hash function. A timestamp is the actual time of an event that is recorded by a computer and is used as a guarantee that the time of the event is valid or can be accounted for by the person giving the time stamp. This time is maintained by the computer so that it remains accurate by calibrating down to seconds.

As a substitute for the actual time of an event, a timestamp can be a time relative to another time (Schmid et al., 2023). For example, time stamps can be used in various synchronization processes, such as sequencing transactions that occur several times so that if an error occurs in a transaction, subsequent transactions can be canceled. Time stamps use digital signature techniques

and hash functions to add a signature along with the time.

The use of timestamps is very important in terms of documenting a document or data whose copyright is to be protected and attaching importance to the time of placing the seal on the document. One use of time stamps is to apply them to discoveries that have not yet been published. If another scientist has the same discovery, the discovery that is recognized is the discovery with a time stamp that is longer (than the current time) or was discovered earlier.

Time stamps have been widely used in documenting data that requires validity over time to show that the data is valid. This validity guarantees that the contents of the data have never been changed since it was time-stamped and the time contained in the time-stamp shows the actual time. Additionally, timestamps can be used to help improve performance (Grimes et al., 2023). Developers can use timestamps to track when data was last accessed. Developers can also use this information to help determine which data is most likely to be accessed and can be used to help improve caching strategies. Timestamp is an application for adding time, date, map, compass, etc. to photos or videos.

From the several definitions of Time Stamp Camera above, it can be concluded that the time stamp camera application is an application where the data displayed can provide information on when, and where, the application holder sends the data, with a high level of accuracy. With its high level of accuracy, Yadika Lubuklinggau High School uses this application as a tool for supervision and control. Looking at the time stamp camera application device, Yadika Lubuklinggau High School has used an application with a time display with a high level of accuracy and can be relied on for attendance. Furthermore, through interviews, information was obtained that the time stamp camera application could be downloaded for free on Playstore via each Android cellphone by teachers and education staff (tendik).

The results of data analysis show that using the time stamp camera application method makes it easier for the principal to monitor the indicators that want to be implemented at Yadika Lubuk Linggau High School, namely regarding school attendance discipline because this feature is equipped with photos, locations and times when we use it. Wherever, whenever teachers and educational staff are located, everything can be detected. This minimizes the level of lies so that it can improve discipline, and can be more effective in achieving school quality in line with the vision and goals set out by SMA Yadika Lubuklinggau.

Where and at what level the planning for supervision is carried out, supervision of the culture of discipline in the school can be carried out at any time according to needs, for example, the level of discipline,



attendance at school, accuracy of teaching, as well as carrying out other tasks either at school or wherever assigned to it so that it is easy to monitor and make The most relevant thing for honest teachers to use is obedience in adhering to the rules set by the school in carrying out their duties so that they can overcome irregularities that occur within them that cannot be detected.

### *Organizing*

The managerial supervision role is carried out by the school principal, the administrative role is carried out by the head of administration supervision: Set an example for teachers to discipline consistently and focus on disciplining teachers, in organizing supervision at Yadika Vocational School, the Principal sets an example for teachers and education staff by Arriving on time, even earlier than the school entry time regulations, this is done consistently and with focus, intended so that teachers and education staff follow the moral message that has been developed by the leadership, in this case the school principal. This is as stated by Alvesson et al., (2022) and Stankevičiūtė et al. (2021) Organizing, means making everything organized, something that is organized certainly reduces ambiguity which can be detrimental, it is further explained that no matter how carefully the plan has been prepared, if it is not followed up follow up with careful organizational activities, it will result in confusion and confusion in its implementation. In this case, there will be no more confusion in implementing work discipline because the school principal has set an example according to the plan; The school principal and teachers agree to carry out supervision using the application that has been informed.

Supervision begins by socializing at the beginning of the school year or the initial meeting of the school work program (Jalongo, 2021). So, all teachers including the principal have an agreement to carry out this supervision using the application that has been informed so that the principal and all teachers can understand, carry out, and comply with the supervision method. No matter how much a plan has been prepared in the form of a vision, mission, goals, or strategy, if it is not followed up with careful organizing activities it will result in confusion and confusion in its implementation. The vision, mission, goals, and strategies that had been planned could not be realized as expected (Errida & Lotfi, 2021); The supervisory role needs to be shared because it makes supervision easier and helps the principal to monitor all school activities so that they run well and learn to be truly responsible for each task given and can be carried out well by the expected results. The importance of the supervisory role is that it is shared to achieve what is desired, in a more efficient way, because it is not carried out alone, but has been shared with

several trusted persons by the existing organizational structure. Organizing is an activity related to preparing an organizational structure (Fuertes et al., 2020). The structure is arranged in such a way that it can show who does what, who is where, and who reports to whom in a working relationship.

This is what has been done at Yadika Lubuklinggau High School, where organizational supervision is distributed by the principal to people under the organizational structure that has been prepared, and roles are activated according to the main tasks and functions of each; The school principal and teachers agree to carry out supervision by using the application that has been informed. The managerial position is the principal of Yadika Lubuklinggau High School for teachers, while for administrative matters the head of administration has supervisory duties carried out as a supervisor because a principal has a large responsibility and can deal directly with directors or company leaders. Managerial means how to make processes, and decisions, and carry out activities to achieve certain goals. This means that all decisions regarding supervision at Yadika High School are made by the Principal. Everything is carried out using a time stamp camera, and apart from the application function which is used and optimized, the manual function also adds to the supervision carried out at Yadika Lubuklinggau High School which is more closely aligned with the school's vision of excellence.

### *Implementation*

*Implementation guided by work discipline is part of the operative function of human resource management*

In monitoring and implementation, it is guided by work discipline which is part of the operative function of human resource management which is very important. The better the discipline of teachers and employees, the better the results will be for their performance. Discipline can be enforced in a school organization, without support for excellent employee discipline, it is very difficult to achieve its goals. In schools, teacher discipline is an example for students, this starts with the discipline shown by the teacher in learning activities. Learning activities include various important components such as teachers (educators), students, lesson content, learning objective,s, media, evaluation, and teaching methods. This is supported by (Marpanaji et al., 2018) that, Leadership, leading, influencing, and motivating employees to be able to carry out their duties. At Yadika Lubuklinggau High School, teacher discipline is an example for students, this starts with the discipline shown by the teacher in learning activities. Here it can be seen that the teacher as a leader has set an example in terms of discipline.

*Continuous monitoring process, to ensure the achievement of the goals set in the planning*

In monitoring and implementation, it is guided by work discipline which is part of the operative function of human resource management which is very important. The better the discipline of teachers and employees, the better the results will be for their performance. Discipline can be enforced in a school organization, without support for excellent employee discipline, it is very difficult to achieve its goals. In schools, teacher discipline is an example for students, this starts with the discipline shown by the teacher in learning activities. Learning activities include various important components such as teachers (educators), students, lesson content, learning objectives, media, evaluation, and teaching methods. Qalati et al. (2022), said that a teacher as a leader in the classroom must set a good example for his students. They must be able to practice the values they teach, such as discipline, hard work, honesty, and tolerance. A teacher must also be a good role model for his students.

*Supervision plays a very important role in achieving the goals of a high-quality school*

Supervision or monitoring (Controlling) needs to be carried out in schools because it is a significant function in achieving school management and quality and managing potential, both in the context of education implementation in large, medium, and even small schools. So the concept of supervision or monitoring occupies a very strategic position. No matter how good the school program planning is, if it is not accompanied by an adequate monitoring process, the level of success of all previously planned programs will not be measurable. Irregularities can occur in it that are not detected. That's why supervision or monitoring is a very important part and cannot be ignored at all, its role and function in achieving the goals of a school, namely a high-quality school.

With supervision, implementers will be more careful in carrying out their work and will pay more attention to the provisions that have been outlined and avoid mistakes. The role of supervision can be seen in examining the condition of the organization and its people, finding errors, making corrections, and making improvement efforts as a follow-up (Dwivedi et al., 2023). Another opinion says that supervision can be defined as activities to direct individuals in achieving organizational goals (Swanson et al., 2020).

*Supervision achievements; what will be evaluated, collect data, design evaluation activities, improve and follow up*

The achievements of the implementation of supervision are achieving what will be evaluated, collecting data, as well as designing evaluation activities and improving the results of supervision and then for

follow-up evaluations including: Teachers increasingly have high discipline to attend school so they can set a good example to their students; Teachers can carry out their duties well, remembering that teachers play an important role in being an example of good character formation for their students; With this supervision, there will be fewer irregularities and people will learn to be more responsible for each task assigned to them; Increasingly improving good communication between the principal and teachers as well as with colleagues, so that good positive thinking, attitudes and behavior emerge to become highly disciplined teachers; Teachers easily give reasonable sanctions to students if they do not comply with established school regulations; Deviation, Periodic summons and direct coaching by the principal both verbally and if the disciplinary violation is at a very serious stage, a written warning is given by giving a warning letter. Findings that occur in the field happen. And not all of these findings are deviations, but some are positive.

Even after implementing this form of supervision, which is continuous and continuous, it has a positive impact on teachers personally and does not rule out the possibility that it could be carried over to other agencies where they work. If the findings in the field are irregularities, the principal carries out regular summonses and direct coaching by the principal both verbally, and if the disciplinary violation is at a very serious stage, a written warning is given by giving a warning letter. According to U-Sayee et al. (2021), the above supervisory achievements can realize quality in an institution or organization. There are three activities focused, namely: planning, monitoring, and improving which is known as the Juran Trilogy, while Feigenbaum sees that quality organizational activities can be seen from improving management. continuous, employee improvement, leadership, and supervision in the first line, as well as quality supervision (Jarvis & Williams, 2017). Yadika Lubuklinggau High School has carried out continuous supervision, the principal's leadership role is very visible and is a visible indicator of the quality of the school which has achieved A accreditation.

*Rewards and coaching*

The follow-up if there are findings in the field is to give rewards where a teacher can carry out the rules consistently and has high targets and loyalty for the progress of the school. They can be given rewards in the form of applications to become permanent teachers and punishment in the form of termination of employment is given if a teacher does not comply. rules or obeying all the rules and regulations that have been agreed upon even though they have been given gradual guidance according to the procedures that have been established at school.

In motivation theory, both reward and punishment have a positive effect on employee performance. Ogunmakin (2023), found that awards have a positive and significant effect on work motivation. Likewise, punishment was found to have a positive and significant effect on employee work motivation. Overall, reward and punishment have a positive and significant influence on employee performance. In practice, both can be seen as motivation, although from different sides, but produce a positive form. Saputra et al. (2020), in her research found that the reward and punishment method had an impact on changing attitudes, behavior, and learning outcomes. Good supervision can lead to improving school quality. This supervision can be carried out if supported by several factors such as good communication (Nasir & Masek, 2015); Quality of work results; Number of work results; Human resources; Facilities and Infrastructure (equipment resources); Attitude; Time.

To realize quality education, supervision of the implementation of education is needed. In essence, ideal supervision is supervision that has planning and looks ahead, and a good supervision system is to correct deviations from previous plans with deviations that occur and the implementation of good supervision can detect deviations that occur. As is the case at Yadika High School, supervision has been carried out with supporting factors that can detect deviations thereby minimizing deviations. These supporting factors are; good communication between leaders, teachers, education staff, and students, so that there are no problems that are not communicated, the quality of work results, where work is carried out to predetermined quality standards, as well as the amount of work results by achievement targets, resources people, adequate facilities and infrastructure, attitudes, manners and etiquette as well as time, arriving and leaving at the appointed time, work carried out by targets determined by the leadership.

Factors inhibiting the implementation of supervision or monitoring mostly come from external factors, only in the form of technical obstacles, for example, there are still various responses from teachers and employees, and there are still those who feel shocked, afraid, anxious, or anxious, or worried, even avoidant, and the support of facilities that inadequate because it is new, as well as transportation constraints due to distance.

In the implementation of supervision at Yadika Lubuklinggau High School, inhibiting factors arise from psychological, physical, infrastructure, and distance aspects. Over time, these factors will be minimized and will even reach zero with continuous efforts to use the seven supporting factors above continuously. In general, Yadika High School explained that supervision in the financial sector is carried out in banking, all forms of

finance, both tuition fees and other activity money, are deposited through the bank. So, the one who supervises the receipt and expenditure of all school financing is directly by the Yadika audit center throughout Indonesia.

From the results of the analysis of supervision at Yadika Lubuklinggau High School, feedback was obtained from the teachers, that the supervision carried out at Yadika High School; Discipline is an inseparable part of a teacher in carrying out his duties and obligations. Through high discipline, teacher performance can be built. With a good understanding of the discipline, a teacher can pay attention to the rules and make strategic steps in carrying out the learning process so that it can support and improve its performance. By using supervision methods at school, teachers can carry out their duties well and have a very positive impact on progress. himself or for school. Unconsciously it is beneficial to yourself because you feel there is a responsibility that must be carried out for a goal that will be achieved by making changes.

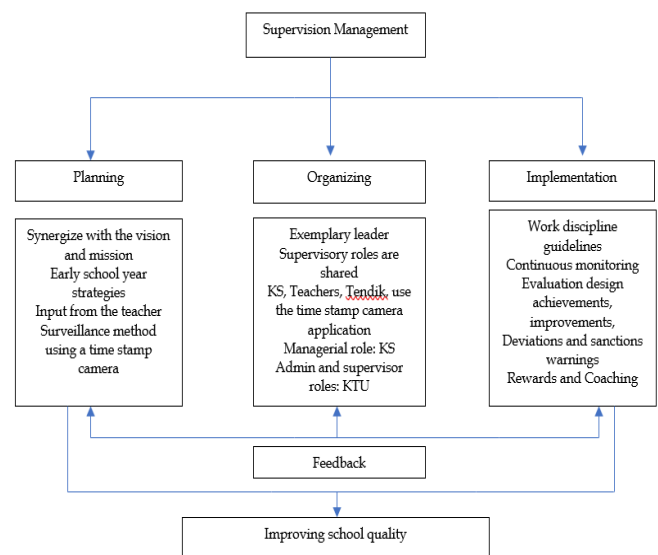


Figure 3. Supervision management model at Yadika Lubuklinggau High School

So, far the application of discipline in schools is still at a reasonable stage, perhaps a small number of them feel that they do not like the application of disciplinary supervision. But as time goes by, they feel challenged and can evaluate themselves if this has been neglected and try to improve themselves and be able to obey or comply with the rules and regulations that have been agreed upon at the beginning for the success of the school's vision and mission and work program in producing a quality school. After conducting research at SMA Yadika Lubuklinggau, a supervisory management cycle was obtained as shown in the figure 3.

## Conclusion

Supervision management at Yadika Lubuklinggau High School has been structured based on management functions, namely: planning, organizing, and implementing, as well as feedback from teachers. Planning, including; synergizes with the school's vision and mission, there is a strategy at the start of the school year, input from teachers, and monitoring methods with the time stamp camera application. Organizing, including; exemplary leadership, supervisory roles are shared, school principals, teachers, and education staff use the time stamp camera application, managerial roles are carried out by the principal, and administrative and supervisory roles are carried out by the head of administration. Meanwhile, implementation includes; work discipline guidelines, continuous supervision, achievements: evaluation and improvement design, deviations; warnings and sanctions, rewards and coaching. As for the uniqueness of surveillance management here, Presence uses a time stamp camera application, where the time and location of the user are measured, so that wherever, whenever, their presence will be detected during working hours, namely 07.00 to 16.00, five working days, from Monday to Friday. Every teacher and education staff must have an Android cellphone so they can download the time stamp camera application.

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## Author Contribution

Conceptualization, T. W., M. R., N.; methodology, T. W. M. R.; validation, N.; formal analysis, T. W.; investigation, M. R.; resources, N and T. W; data curation, M. R.: writing—original draft preparation., N.; writing—review and editing, T. W.: visualization, M. R. All authors have read and approved the published version of the manuscript.

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## Conflicts of Interest

The authors declare no conflict of interest.

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