Information and Communications Technology-Based Quality Management at Sekotong 1 Private Vocational School, Lombok Barat, Indonesia

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Abstract. This study aims to identify and describe quality management based on information and communication technology at SMP Negeri 1 Sekotong, West Lombok. This research uses a qualitative descriptive approach with a case study method. Data was collected using interviews, observation, and primary and secondary sources documentation. Data analysis techniques use interactive models consisting of data collection, data reduction, data presentation, and conclusion (verification), while data validity checking techniques use source and method triangulation. The results of the study show that 1) educational quality management planning is based on the needs and development of life skills, 2) coordinated organisation of software, hardware and Brainware, 3) the implementation of utilising the school information system based on job descriptions, 4) and supervision of the management of education quality management by the leadership on the performance and work processes of the school information system, facilities and infrastructure and human resources owned.

Keywords: Education quality; Quality management; Information and communication technology.

INTRODUCTION

Education is the key to progress. The better the quality of education held by a group of people or a country, the better the quality of that society or government. Law No 20 of 2003 states education is: "A conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious, spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation and country".

The low quality of our education lies in the elements of our education system, namely human resources, curriculum, facilities and infrastructure, school management, education financing, and leadership, which need attention. Apart from that, external factors such as the economy not favouring education, low political participation, socio-culture, and the use of science and technology significantly affect the quality of education.

The dominant factors that influence and contribute significantly to the quality of education are professional teachers, creative teachers, and highly motivated teachers. The problem with the use of ICT in education today is the lack of willingness of teachers to improve their competence during the current learning period, especially in mastering ICT. Meanwhile, the teacher is the driving force in the implementation of learning. The process of utilising ICT can help teachers' tasks so that teaching and learning activities both inside and outside the classroom become more effective. Therefore, teachers must master ICT to improve the quality of education to achieve 8 National Education Standards by Government Regulation No 4 of 2022.

From the results of the West Nusa Tenggara Education Quality Assurance Report for 2016-2020 concerning efforts to improve the quality of primary and secondary education, various breakthroughs have also been developed and adapted to global developments in the world of education. Regulations have been issued to encourage and ensure a better quality of education.

Based on the quality achievement data for the SNP at the SMPN level for West Lombok Regency

in 2020, according to 8 national education standards, the graduate competency standard is 5.86; the content standard is 5.4; process standard 5.01; educational assessment standard 5.88; standard of educators and education staff 5.87; standard of educational facilities and infrastructure 4.75; education management standards 5.43; and financing standard 5.1. School quality has not reached SNP 3.

In 2021, the education report card for West Lombok Regency can be seen from the results of the AKM achievements at the junior high school level, for literacy skills 1.55 below the minimum competency where the national achievement is 1.68; numeracy ability is 1.55 below the minimum competency where the national attainment is 1.62; character 1.98 needs to be developed where the national accomplishment is 2.05; the literacy gap is 2.67 there is no gap where the national achievement is 2.5; the numeration gap is three there is no national achievement gap 2.88; the character gap is 2.33 there is no gap 2.42.

Teacher skills in designing instruments for monitoring the fulfilment of the quality of secondary education units still need to be improved. This is because of compiled monitoring and evaluation tools. It is necessary to have a thorough understanding of the planning and implementation of meeting the quality of education units. Thus, teachers must be given more depth regarding how schools are doing to meet quality by the requirements of Government Regulation No 4 of 2022 concerning National Education Standards concerning 8 National Education Standards. These skills are beneficial for schools to improve quality fulfilment programs so that from year to year, the quality of schools will improve.

The skills of teachers in designing instruments for evaluating the fulfilment of the quality of secondary education units and carrying out measurements of the quality of education in educational units still need to be improved. This could be due to the teacher's understanding of quality compliance indicators that have yet to be comprehensively understood, so the instruments compiled have not fully met the bills to measure quality compliance. This needs to be paid attention to if the tools prepared are not appropriate or not appropriate so that they cannot provide an accurate picture of the achievement of quality fulfilment for national education standards. The instruments must be by the quality compliance indicators so that sources who meet the qualifications meet national education standards and their measurements [1].

The rapid development of technology at this time, especially in the world of education, which has entered 21st-century learning, demands various skills that must be mastered by every educator and education staff. Essential skills in the 21st century are still relevant to the four lives, which include learning to know, do, be, and live together [2]. The enormous impact of information and communication technology is significant for all human life in various fields. Many education providers still need to optimise information and communication technology, even though it is positioned as the basis of education management.

Today, information and communication technology (ICT) has become a fundamental requirement in an organisation, educational institutions, government agencies, companies, and the world of education. The role of ICT is as a learning aid, an educational management tool to achieve competency standards, support for academic administration and a storehouse of knowledge.

The education paradigm in Indonesia is currently leading to an information technology approach. This can improve the quality of education, especially for students. All these efforts are improving the quality of human resources capable of overcoming all kinds of life problems in society. As stated in Law No 20 of 2003, article 1 § 2 states the meaning of national education, which reads, national education is education based on Pancasila and the 1945 Constitution of the Republic of Indonesia, which is rooted in religious values, and culture Indonesia and responsive to the demands of changing times. Then, the functions and objectives of national education are contained in Article 3 of Law No 20 of 2003, which reads: "National education functions to develop capabilities and shape dignified national character and civilisation in the context of educating the life of the nation, aiming at developing the potential of students to become human beings who believe and fear God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen".

In the last few years, the national exam for SMPN students has shifted from paper-based to computer-based (CBT) tests. This has consequences for enormous changes in answer accuracy, use of paper as raw material, time efficiency, and supervision efficiency. The questions in CBT make

it easier for students to work on questions that contain visualisation in tables, pictures and videos. Developing and using information and communication technology in education can improve education system reforms.

In one of the SMPNs in West Lombok Regency, located in a suburban school at the southern tip of the West Lombok Regency, namely SMPN 1 Sekotong, one of the programs is a digital-based school. Information and communication technology, abbreviated as ICT, can become the basis of the learning-based school management process. The use of technology at SMPN 1 Sekotong extends to all activities, including education management. The management applied in this school has implemented technology in its activities. Preliminary observations appear to be dominant in terms of student affairs, such as online Ramadan Islamic boarding schools with tadarusan, takziah and Quran khataman activities, as well as the availability of guardian communication forums on social media, websites, YouTube, Facebook, all of the above actions are based on information and communication technology. SMPN 1 Sekotong is a driving school and has a principal who is active as a teacher driving teacher and as an ambitious school.

To evaluate the quality of education, a school must have an education report card where this education report card can be used as the primary reference for analysis, planning and follow-up to improve the quality of education. From the results of the education report card at SMPN 1 Sekotong, which was held for the first time to replace the National Examination in 2021 which was carried out with the AKM (Minimum Competency Assessment), a new form of learning quality assessment rolled out by the government.

Information obtained by the community about SMPN 1 Sekotong comes from the media, which involves the role of information and communication technology. In the end, the convenience offered by information and communication technology is increasingly shifting conventional patterns that are considered tiring and have many shortcomings into a new era that is more dynamic and fast.

Many schools still need to utilise the ICT media to the fullest. Based on the explanation above, the researcher wants to examine information and communication technology-based quality management applied at SMPN 1 Sekotong, West Lombok.

METHOD

This study used a qualitative approach to produce descriptive data in the form of written words using the case study method. Information technology management at SMPN 1 Sekotong was studied qualitatively. Looking at the reality on the ground during the initial observations, it was discovered that there was an increase in implementing information and communication technology even though it was in a suburban area. There was a significant increase in enthusiasts, so the author wanted to determine how quality management was implemented at SMPN 1 Sekotong in West Lombok Regency, from planning, organising, and executing to monitoring. The research results are compiled, and theories are built based on the data. Sources of data are primary sources and secondary sources. When viewed in terms of methods or techniques, data collection is done by interviews (interviews), questionnaires (questionnaires), observation (observation), and a combination of the three. Data analysis was carried out before entering the field, while in the field, and after finishing in the area. The analysis starts from formulating and explaining the problem before going into the field and continues until the research results are written. The data analysis technique in this study is an interactive model analysis from Miles and Huberman. The analysis starts from formulating and explaining the problem before going into the field and continues until the research results are written. The data analysis technique in this study is an interactive model analysis from Miles and Huberman. The analysis starts from formulating and explaining the problem before going into the field and continues until the research results are written. The data analysis technique in this study is an interactive model analysis from Miles and Huberman.

RESULTS AND DISCUSSION

Management of educational quality at SMP Negeri 1 Sekotong West Lombok has used ICT, which has contributed to achieving the success of school goals and school quality standards. With ICT-based education quality management, the quality of education is expected to prove quality output. According to several theories, the quality of ICT-based education is influenced by management information systems (MIS), facilities and infrastructure and human resources (HR).

Planning quality management based on information and communication technology at SMPN 1 Sekotong West Lombok. Based on the research results, the SIM planning process, in this case in the form of SISKO, was prepared and planned at a task division meeting at the beginning of the school year around July by holding a work meeting as a form of face-to-face group communication media that functions as a tool to reach consensus. For planning, the implementation of SISKO started in 2019 and continues to improve and is used to date. The planning process in the form of SISKO product trials has gone through a long stage, namely through several revisions to implement the product.

The IT team, who will operate SISKO, will produce responses in the form of a response questionnaire, which can be used as a basis for application development and revision to implement the application. Edits to the application went through three stages based on trial I, trial II and field trials, resulting in the final product of SISKO, which can be used today. SISKO was originally a simple application, but over time, it was developed according to existing needs.

For planning the quality of ICT-based facilities and infrastructure, the leader in the process of preparing the procurement of facilities and infrastructure analyses the number of needs with the ratio of users, in this case, the number of students, so that the existing facilities and infrastructure are felt to be lacking. Shortly, a process will be held to construct a new multi-storey building, as seen through the site plan displayed in the schoolyard. These development activities are expected to meet better standards of facilities and infrastructure. Planning for facilities and infrastructure also refers to educational facilities' quality, productivity, effectiveness and efficiency, which are the basic categories of infrastructure quality planning.

HR planning is an analysis and identification process of the need for HR. ICT-based HR planning starts with planning when the HR is still in education, considering that the existing HR, teachers and administrators are alums of the school. Habituation has been done by involving students in understanding how computers work. In ICT-based HR quality planning, namely identifying prospective HR, this shows that HR quality planning is like forecasting the future needs of workers/employees using appropriate information

sources, according to the vision and mission of SMP Negeri 1 Sekotong West Lombok.

After getting teachers/employees as superior human resources to facilitate access to various gadgets, the teacher/employee data is stored in the cloud system. In addition, the teacher/employee concerned will be included in the social media group to make information dissemination and coordination between teachers easier. The planning is made in a strategy with basic ICT-based processes and activities. This is to the opinion expressed by [3] that quality management in education is a way of managing all educational resources, which are directed so that everyone involved in them carries out their duties enthusiastically and participates in improving the implementation of work to produce appropriate services, even beyond expectations.

Leaders are obliged to continue to innovate from education, which, in this case, takes the role of technology and information to improve the quality of education management. This is similar to the opinion put forward by [4] that using technology and information systems, quality management systems, and culture significantly affects management performance. In addition, Terry's theory [5] also says that in planning, there is a must in every effort to develop related businesses or institutions. The planning activities will be uploaded to the cloud to be accessed via many gadgets anywhere and anytime. The note contains a collection of decisions on curriculum planning, SIM planning, HR planning, and infrastructure planning.

Planning based on ICT can be said to be of high quality because it is based on the need to develop students' life skills in the future. When these students face the world of work in Industry 4.0 and decide on plans, they are permanently stored and can be accessed via the Internet anytime and anywhere. So if the organising and implementation is carried out one day, planning access is more accessible. This is like Terry's theory [5] that planning can be considered a collection of decisions in a relationship where planning is regarded as an action to prepare for future activities by making decisions now.

Planning at SMP Negeri 1 Sekotong West Lombok is also in line with [6], in which the planning function includes setting organisational goals, establishing an overall strategy to achieve objectives and developing a general hierarchy of plans to integrate and coordinate activities. Leaders

show curriculum, SIM, HR, and planning for facilities and infrastructure based on the existing vision and mission.

From the research results above, ICT-based planning is a process that defines the goals of an organisation, in this case, an educational institution, which is carried out by creating strategies to achieve these goals. The system used is by utilising technology and information as well as human resources who understand the working principles of this technology.

Of the several planning theories, Terry's planning theory [5] is more contained in the planning process. Although other planning theories are also applied, Terry's view is closer to the planning process that occurs because Terry's idea includes the element that planning is an attempt to develop a business or develop an institution (in this case, an educational institution at SMP Negeri 1 Sekotong, West Lombok). So, the authors decided that the planning of SMP Negeri 1 Sekotong West Lombok used a theoretical approach from Terry.

Organising quality management based on information and communication technology at SMPN 1 Sekotong West Lombok. SISKO organisation has fully utilised ICT, which began with forming an IT Team that handles all student activities related to teaching and learning activities, student discipline, curriculum, school infrastructure, etc. This is described because the application is operationalised in the hands of the IT team. Therefore, teachers who serve as IT Team members must be skilled in operating computers. The organisation of SISKO can be seen from the organisation of hardware and software for the development of SISKO itself. In terms of organising the users (brainwave) who will operate the SISKO, ICT is more visible in the competencies possessed by each user, where each user is skilled and proficient in working SISKO.

The organisation of facilities and infrastructure is contained in the organisational structure of the laboratory, which will later be directly responsible for all rooms with ICT devices. The organisation of infrastructure facilities is adjusted to the conditions of the space used for learning, so mobile projectors and laptops will be placed because the numbers are insufficient for the entire room. The laboratory room is used for software development, so computers with high specifications and wifi speeds of 100 Mbps are placed. There is no room available to repair damaged hardware,

In organising ICT-based HR, teachers/employees are divided into several duties and functions based on competence and ICT capabilities in the form of a detailed organisational structure into categories that look at competence and then categorised into several fields to form a quality organisational structure. There is a teacher service program for the first year where they are primarily members of the PAL (Accelerative Learning Program) tutoring group with direct tutors according to each PAL, and each teacher is included in the talents and abilities possessed and directly guided by senior teachers. This follows the opinion of [7] that organising is a division of tasks or work, division, and uniting.

In conducting studies and evaluations using ICT in the telegram application as the basis for effective communication in an organisation, competitive human resource development based on communicative chats in the telegram application is used for various studies and in-depth evaluation of the organisation that has been formed. This leads to the theory put forward by [5] that organising as an activity allocates all the work that must be carried out between work groups, establishes certain authorities and responsibilities of each responsible for each component, and provides an appropriate work environment.

From this description, the organisation of ICT-based quality management is a process of activities using technology, such as preparing organisational structures and goals. Infrastructure organisations must be fully ICT-based, but ICT is still used as media/tools to help store and measure room conditions and functions. By paying attention to the shape of the room in its organisation, the implementation of infrastructure facilities can be achieved by planning the quality of infrastructure and accelerating the service process to students.

The education organisation at SMP Negeri 1 Sekotong West Lombok is of high quality because it contains several aspects of quality improvement, one of which is carrying out transformations that, in this case, utilise technology. This can be seen in the results of decisions regarding organising uploaded content to servers in the cloud, using various kinds of social media, and managing existing resources based on ICT.

In addition, the organisation of the SIM in the form of SISKO, the organisation of human resources, and the organisation of infrastructure facilities are evaluated whenever there are defi-

ciencies by several parties who are competent and have direct contact with the management contained therein, resulting in continuous improvements to the ICT-based organising system. This also indicates that the education organisation at SMP Negeri 1 Sekotong West Lombok is high quality.

Implementation of quality management based on information and communication technology at SMPN 1 Sekotong West Lombok. Regarding implementing SISKO, which includes several activities, PPDB has implemented an online system. This is in line with the opinion expressed by [8] that an information system is a system that can be defined by collecting, processing, storing, analysing, and disseminating information for a specific purpose.

Implementing facilities and infrastructure that utilise ICT to be used for learning by facilitating the use of LCDs but in limited numbers, preparing for teacher learning needs, and the use of facilities and infrastructure related to the usage of SISKO because SISKO is inseparable from ICT tools, as well as facilitating students to take advantage of the computer laboratory to complete school assignments.

The rooms that provide ICT facilities and infrastructure are all supervised over the use of ICT facilities and infrastructure by the IT Team and the Head of the Laboratory, who is directly responsible to the Principal. The implementation of technology in management above, by the opinion expressed by [9], states that an information system is a component consisting of humans, information technology, and work procedures that process, store, analyse, and disseminate information to achieve an aim.

The implementation of HR quality is carried out based on job descriptions and respective duties and functions that have been determined and formed by the leadership, in this case, the school principal, which begins with the formation of an IT Team whose task is to take care of all student activities related to teaching and learning activities, student discipline, curriculum, parenting - competence in the field of ICT. In addition, in practice, there are various efforts to increase the competency of human resources, including training, career development, and performance appraisal, and provide ICT job challenges to increase self-competence so that it can be said that ICT has an impact on Existing human resources at SMP Negeri 1 Sekotong, West Lombok.

Improving the quality of human resources is an important step taken so that ICT significantly impacts human resources who can develop programs or applications for their own needs. 99% of the existing teachers can operate computers well for Word, Excel, and e-mail, and it can be seen that students are used to working with SISKO.

The implementation of educational quality is to the opinion expressed by [10] that acting is an activity that includes determining and satisfying the needs of its employees, rewarding, leading, developing, and providing compensation. Based on the description of the research results above, implementing ICT-based education quality management is an activity to mobilise all tools in the form of SIP and infrastructure related to ICT. These resources are owned to work to achieve the desired goals.

Implementing education at SMP Negeri 1 Sekotong West Lombok also leads to Terry's theory [5], where the leader tries to move group members in such a way that they want and try to achieve the goals set. This can be seen in the implementation of education, which is processed from the process of quality planning and quality organisation, which also uses ICT, and the output is also in the form of ICT processed with ICT components.

Supervised quality management based on information and communication technology at SMPN 1 Sekotong West Lombok. Supervision has the main tasks and functions of coaching, monitoring, and development oriented towards the quality of education. SIM quality control in the form of SISKO, whether carried out by the Head of School, Deputy Head of Curriculum/Head of the IT team, or the head of the laboratory, has yet to implement ICT as a basis for supervision. SIM is essential in collecting, processing, storing, analysing, and disseminating data, so monitoring the SIM work process needs to be done. Supervision is carried out in manual monitoring, both in terms of using SISKO, monitoring operator work, surveying damage to both hardware and software and monitoring feature development. Through the Wakasek, the Principal ensures that SISKO's work is by its functions.

The supervision carried out on the application of SISKO includes decisions on the resulting output as well as oversight of the maintenance of facilities and infrastructure, which must be carried out every day, every week, every month and eve-

ry year to find out the damage to computer equipment. The Principal makes important decisions and policies regarding the results of the supervision.

Supervision is carried out through reports received directly from the chairman of KMI, who routinely supervises and monitors the recapitulation of daily, monthly, and annual activities contained in SISKO. Facilities and infrastructure quality supervision has yet to utilise or use ICT fully. Utilisation is seen only in recording assets or inventory regarding the number of facilities and infrastructure and in typing monthly reports regarding the condition of the computer laboratory and all computer laboratory utilisation activities. Supervision aims to ensure that all facilities and infrastructure are always in good condition and prevent these facilities from being damaged. Maintenance includes all continuous efforts to keep the equipment in good condition.

Supervision of facilities and infrastructure determines matters relating to facilities and infrastructure through considerations and the overall results of the supervisor's report, in this case, the Head of School. Supervision of facilities and infrastructure related to ICT, both hardware and software, is under the coordination of the head of the laboratory, especially students who want to use ICT infrastructure, so that it is effective in its implementation. The head of the laboratory will report to the head of the school regarding the condition of the ICT devices, which are under the responsibility of the director of the laboratory and report any incidents of use of the computer laboratory. If damage occurs, it can be dealt with immediately.

Every component of facilities and infrastructure, especially those related to computer equipment, functions effectively and efficiently to achieve educational goals. Supervision of the facilities and infrastructure at SMP Negeri 1 Sekotong West Lombok is an effort to maintain and make the best use of the facilities for the success of the learning process, which is carried out on an ongoing basis. Supervision of facilities and infrastructure carried out at SMP Negeri 1 Sekotong West Lombok is the opinion carried out by [11] that it is the responsibility of the school principal to carry out inspections and corrections to the condition of the room and all the facilities and infrastructure contained therein.

Every Principal has a strategy for supervision. The supervisory system is determined to determine the performance of human resources

owned. With this supervision, the Principal can evaluate the entire process according to the plan that has been prepared. Management of human resources owned by SMP Negeri 1 Sekotong West Lombok is in the form of performance on job descriptions and their respective duties, especially in teaching and learning activities for teachers in fulfilling obligations as an educator. HR supervision has yet to utilise ICT in the process. Maintenance is carried out by monitoring the performance of human resources directly by maximising their potential. The use of ICT is only seen in the coordination between the teacher and the Principal using social media groups.

Coaching activities are carried out through a persuasive approach for teachers/staff who should do their duties differently. Strict action can be taken if various efforts to improve human resources are carried out. Oversight of ICT-based quality management is a process to ensure that all activities carried out are what was previously planned. In this case, ensuring that SISKO, facilities, infrastructure, and human resources are working as they should is essential.

Supervision activities at SMP Negeri 1 Sekotong West Lombok include a) observing the performance of all employees, b) coaching employees, c) tracking the relevance of work to planning, d) controlling the quantity and quality of work, e) effectiveness implementation of activities, and f) efficient use of the budget. Besides that, the theory put forward by [5] is that supervision is considered an activity to find correct deviations in the results achieved from the activities carried out and those planned [7].

Supervision that is carried out also leads to Robbin's theory [6], where supervision is a process of determining what work has been done, assessing it, and correcting it, if necessary, with the intention that the implementation of the work is by the original plan. However, what happened to the supervision of education at Sekotong 1 Public Middle School was more in the direction of Terry's [5] opinion because Terry covered the process and focused on implementation objectives.

CONCLUSIONS

ICT-based Education Quality Planning already uses ICT as seen in SIM planning, Human Resources and Planning Facilities and Infrastructure because ICT functions as the basis for specification information needed in the categories of each of these facilities. Quality planning entirely

based on ICT is contained in the SIM planning in the form of the SMPN 1 Sekotong Information System (SISKO), which is self-made and developed by utilising the human resources it has to develop students' life skills. ICT-based quality education organisations have begun to be seen using ICT, although only in some of their activities. This activity can be seen from the IT team operating SISKO, utilising Microsoft Word to arrange job descriptions and coordinate social media groups on software, hardware, and software. ICT-based quality education has used and enabled ICT as a basis for exemplary performance of Informatics subject learning, Computer-Based National Assessment, and New Student Admissions, which have implemented an online system. ICT-based education quality management has the main objective of focusing activities on the use of computers to transform knowledge developing human resources based on predetermined job descriptions. The key to successful management is the monitoring process. If the control process goes well, other management functions will also be good, and vice versa. Quality control at SMPN 1 Sekotong West Lombok has yet to utilise or use ICT fully. Even so, the leadership's supervisory process was running as it should.

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