Information and Communication Technology Management at SMAN 1 Dompum, Indonesia

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Abstract. This research aims to determine and describe information and communication technology (ICT) management at SMAN 1 Dompu, a high school in Indonesia. The significance of this research lies in its potential to provide insights and recommendations for improving ICT utilisation in educational management, which can benefit educators, researchers, and policymakers interested in educational technology and management. This research uses a qualitative descriptive approach with a case study method. Data was collected using interviews, observation, documentation, and primary and secondary sources. The data analysis technique uses an interactive model consisting of data collection, data reduction, data presentation and conclusion drawing (verification), while the data validity checking technique uses triangulation of sources and methods. Education management planning focuses on meeting needs and developing life skills. Meanwhile, implementation utilises the school information system based on the job description. These results show a picture of ICT-based education quality management at SMAN1 Dompu.

Keywords: Information, Communication, Technology Management.

INTRODUCTION

Today's technology has developed rapidly to meet the needs of all human life, including in education, which has entered the 21st century of learning. The potential of information and communication technology to significantly impact all aspects of human life, including education, is immense. However, many education providers have not optimally utilised it as the basis of education management. Educational administrators must complete activities quickly and accurately, recording them systematically and continuously.

One example is the writing of the Student Parent Book. If, up to now, the writing was done manually and was done over a long period and involved quite a lot of personnel in doing it, then by using computerised technology, filling in the master book will be more systematic, fast and efficiently carried out by skilled personnel who are good at operating computers. This not only ensures the records' accuracy but also enhances the security of the data, as it can be stored in a cloud system for easy access.

Organisations have primarily used ICT for fingerprint attendance, initially intended as a guideline for assessing the discipline of civil servant employees. Still, they are only used as display items and do not function optimally. Fingerprints are no longer optimal and cannot necessarily be used as a benchmark in assessing employee discipline because fingerprints can be manipulated using a pin and can be 'ordered' by the operator; this means that even if employees are absent or arrive late, as long as they have a PIN and a good connection with the operator, it is possible to access fingerprint technology and manipulate the output it produces so that manipulation can be carried out. The newest thing that is being socialised to the teacher council, especially class teachers, is filling in and using online report cards (e-reports), which can make it easier not only for the students themselves but also for parents/guardians of students who want to immediately know the learning results of their sons and daughters from anywhere, anytime and recorded forever.

Regarding improving the quality of education, the eight National Education Standards (SNP) must be fully understood and implemented properly and widely by every program and/or educational unit. The vision, mission and programs formulated and owned by each academic unit should be concrete and well-correlated with activities to improve and guarantee the quality of the program and/or educational unit. A quality culture must grow and develop optimally in the management and administration of education. There should be a heightened awareness and commitment of education unit leaders, education administrators in the regions, and central education managers regarding the importance of a quality educational institution.

Based on the quality achievements of the 2018 NTB National Education Standards (SNP), it shows that the achievements of the Graduate Competency Standards for all levels in the category towards SNP 4, which means they are in the value range of 3.71–5.06, is caused by the factor that the use of teaching materials has not been packaged in the form of technology-based media as an effort to improve the quality of education. Limited competent human resources are assigned to manage the system information, and the burden on teachers/educational personnel does not include information management coupled with a sophisticated technology-based Management Information System where school infrastructure is still minimal.

In the last few years, the National Examination for SMA/MA students has shifted from Paper Based Test (PBT) to Computer Based Test (CBT). This has consequences for considerable changes in answer accuracy, use of paper raw materials, time efficiency, and supervision efficiency. The questions in CBT make it easier for students to work on questions that contain visualisations in tables, pictures or videos. Author [1] stated that developing and using information and communication technology in education can better reform the education system.

The above reality is different from what happened at SMAN 1 Dompu. Information and communication technology, abbreviated as ICT, can be the basis of a modern technology-based school management process. Technology in this school has reached all activities, including educational management. The management at this high school has implemented technology in its activities. Initial observations appear to be dominant in the student affairs sector, such as permission to go home activities, visits by parents/guardians of students, broadcast of information from the school to parents, as well as the availability of guardian communication forums on social media Facebook bases all of the above activities on information and communication technology.

Examined further, the reason the community chose to send their sons and daughters to SMAN 1 Dompu was not based on facilities such as a school building, because based on initial observations, the building owned by this SMAN was a permanent building, and many even used complete facilities for studying. The public's information about this school comes from the media, which involves the role of information and communication technology. In the end, the convenience offered by technology, information and communication will increasingly shift conventional patterns that are considered tiring and have many shortcomings into a new era that is more dynamic and faster. Even though information and communication technology offers so many conveniences, many schools have not fully utilised ICT media.

METHODS

This research on Information Technology Management at SMAN 1 Dompu uses a qualitative case study approach to produce descriptive data in written form. By looking at the reality in the field during the pre-survey, it was discovered that there was a significant increase in interest, so the author wanted to know how quality management was implemented at SMAN 1 Dompu, starting from planning, organising, implementing, and supervising.

This research collects data using interviews, questionnaires, observations, and a combination of these techniques [2]. The data analysis technique in this research is an interactive model analysis from authors [3], namely Data Collection (data collection), Data Reduction (data reduction), Data Display (data presentation), and Conclusion Drawing/ Verification (concluding). Researchers can check the validity of the data using the Credibility, Transferability, Dependability, and Confirmability tests [4].

RESULTS AND DISCUSSION

Author [5] states that management is a unique process of planning, organising, mobilising, and

monitoring actions to determine and achieve predetermined targets using human resources and other sources. The following describes two stages of the management process: planning and implementation in the Development of Information and Communication Technology (ICT)-Based Education at SMAN 1 Dompu.

Planning (Planning) for Information and Communication Technology (ICT) Based Education Development at SMAN 1 Dompu

Based on the research results, the SIM planning process, in this case in the form of ICT, was prepared and planned at a task distribution meeting at the beginning of the academic year around July by holding a work meeting as a form of face-to-face group communication media which functions as a tool for reaching consensus. Planning for ICT implementation began in 2013 and continues to be improved and used to this day. The planning process for testing ICT products has gone through long stages, namely several revisions to implement the product in schools.

As the person who will operationalise ICT, the deputy head of curriculum will produce responses in the form of a response questionnaire, which can be used to develop and revise the application to implement it. Revisions made to the application went through three stages based on trial I, trial II, and field trials to produce a final ICT product that can be used today. Initially, developers created ICT as a simple application, but over time, they improved it to meet existing needs.

In planning the development of ICT-based facilities and infrastructure, the leadership analyses the number of needs and the number of students, ensuring that the existing facilities and infrastructure adequately meet user requirements. Shortly, there will be a process of building a new multi-storey building that can seen through the site plan displayed in the schoolyard. We expect these development activities to meet higher standards for facilities and infrastructure. The facilities and infrastructure planning process also refers to the quality, productivity, effectiveness and efficiency of educational facilities and infrastructure, which are the basic categories for planning infrastructure development.

HR planning is an analysis and identification process based on the need for human resources. ICT-based human resource planning starts with planning when the human resources are still in education, remembering that the existing human resources, both teachers and administrators, are alums of the school. Habituation has been carried out by involving students in understanding how computers work. In ICT-based HR development planning, namely identifying prospective HR, this shows that HR development planning is like forecasting workforce/employee needs in the future using appropriate information sources, of course by the vision and mission of SMAN 1 DOMPU.

After getting teachers/employees as superior human resources, the teacher/employee data is stored in a cloud system to make it easier to access with various gadgets. The school administration will include the teacher or staff member in their social media group to facilitate information dissemination and teacher coordination. The planning uses a strategy consisting of a set of basic ICT-based processes and activities; this is the opinion expressed by the author [6] that development management in education is a way of managing all educational resources, which is directed so that everyone involved in it carries out their duties with enthusiasm and participates in improving the implementation of work to produce services that are good meets or even exceeds expectations.

Leaders are required to continue to make innovations in education, which in this case takes the role of technology and information to improve educational management's development; this is the opinion expressed by the author [7], who states that the use of technology and information systems, development management systems, and culture together significantly affect management performance. Apart from that, Terry's theory [8] also says that in planning, there is a necessity in every effort to develop the business or related institution. We will upload the activities from the plans to the Cloud, allowing access from various gadgets anywhere and anytime. These notes contain a collection of decisions on curriculum planning, MIS planning, HR planning, and infrastructure planning.

ICT-based planning is developmental because it aims to cultivate students' life skills for the future. When these students face the world of work in Industry 4.0 and developing plans, they are permanently stored and can be accessed via the internet anytime and anywhere. So, if the planning is organised and implemented at any time, access to planning will be easier to reach; this is like Terry's theory that planning can be consid-

ered a collection of decisions in a relationship where planning is regarded as an action to prepare actions for the future by making decisions now.

Planning at Sman 1 Dompu Putri is also in line with [8], where the planning function includes setting organisational goals, establishing an overall strategy to achieve goals and developing a comprehensive hierarchy of plans to integrate and coordinate activities. The leadership determines curriculum planning, MIS planning, HR planning, and facilities and infrastructure planning based on the existing vision and mission.

Based on the research results above, ICT-based planning defines the goals of an organisation, such as an Islamic boarding school educational institution. It involves creating strategies to achieve those goals. The approach used is to utilise technology and information as well as human resources who understand the working principles of this technology.

Of the several planning theories, Terry's theory is more contained in the planning process. However, other planning theories are also applied; Terry's theory is closer to the planning process that occurs because Terry's theory contains the element that planning is an effort to develop a business or developing institutions (in this case, the educational institutions at SMAN 1 DOMPU Putri Narmada). So, the author develops the plan for SMAN 1 DOMPU Putri using Terry's theoretical approach.

Implementing (Actuating) Information and Communication Technology (ICT) Based Education Development at SMAN 1 Dompu

The implementation of ICT includes several activities. For example, PSB has implemented an online system for new and old student settings. There is a financial section related to various monthly student payment activities. The system calculates the total student fees and arrears and automatically connects to each student's guardian's cell phone. In the licensing section, the system automatically records students who apply for permits and directly tracks the number of permits each student has obtained; this is in line with the opinion expressed by the author [9] that an information system is a system that can be defined as collecting, processing, storing, analysing, and disseminating information for specific purposes.

Implementation (actuating) of facilities and infrastructure that use ICT for learning by facilitating the use of LCDs but in limited quantities, preparing teachers' learning needs, and using facilities and infrastructure related to ICT because ICT cannot be separated from ICT tools, as well as facilitating students' use of the computer laboratory to complete school assignments.

Rooms that provide ICT facilities and infrastructure, such as financial rooms and licensing rooms, are used directly by operators who are part of the school. In contrast, students are the only ones who implement visitation rooms. However, all supervision over the use of ICT facilities and infrastructure is under KMI, and the head of the laboratory is directly responsible to the principal. The implementation of technology in management above, the opinion expressed by the author [10], also states that an information system consists of humans, information technology, and work procedures that process, store, analyse, and disseminate information to achieve a goal objective.

The implementation of human resource development is carried out based on the job description and respective duties and responsibilities, which have been determined and formed by the leadership, in this case, the school principal, starting with the person in charge of managing all student activities related to teaching and learning activities, student activities, curriculum, who has greater competence in the field. ICT. Additionally, the school implements various efforts to enhance human resource competency, including training, career development, performance appraisals, and providing ICT work challenges to improve personal skills. These initiatives demonstrate that ICT positively impacts human resources at SMAN 1 Dompu.

Improving the quality of human resources is an important step taken so that ICT significantly impacts human resources, which can develop programs or applications for their own needs. 99% of existing teachers can operate computers well for Word and Excel programs and use E-mail, and students are accustomed to operating ICT.

The author [11] argues that implementing educational development involves activating, which includes determining and satisfying employee needs and rewarding, leading, developing, and compensating. Based on the description of the research results above, implementing (actuating) the management of ICT-based educational devel-

opment is mobilising all tools in the form of ICT and infrastructure related to ICT, as well as the resources available to work to achieve the desired goals.

Implementing education at SMAN 1 also leads to Terry's theory, where the leadership tries to mobilise group members in the desired way and achieve the targets set; this can be seen in the implementation of education, which is processed from the planning and organising development process and uses ICT. The output is also in the form of ICT processed with ICT components.

CONCLUSION

Based on the research findings presented in the previous chapter, we can conclude the implementation of Information and Communication Technology (ICT)-based education management at SMAN 1 Dompu, specifically:

1) Planning (Planning) for Information and Communication Technology (ICT) Based Education Development at SMAN 1 Dompu.

a) The planning process for implementing informatics management begins with holding a work meeting at the beginning of the school year as a form of face-to-face group communication media. This function functions as a tool to obtain deliberation and consensus results. The process began in 2012 and continues to be improved and used. The planning process of testing information management products has undergone long stages, namely several revisions to implement the product.

b) Planning for facilities and infrastructure makes the number of students the basis for the planning. In IT lessons, follow a predetermined schedule, considering that the number of laboratories there are only 3 ICT lab rooms. Through observations made to meet building suitability standards for teaching and learning activities, shortly, there will be a process for constructing a new multi-storey building, which can be seen through the site plan displayed on the school grounds. We expect these development activities to meet higher standards for facilities and infrastructure.

2) Implementing (Actuating) Information and Communication Technology (ICT) Based Education Development at SMAN 1 Dompu.

a) Implementing (Actuating) the development of Information and Communication Technology (ICT) Based Education at SMAN 1 DOMPU. The school provides many facilities and conveniences, such as student affairs for New Student Admissions (PSB), finance, visitation or visiting, licensing, etc., staffing and other sections required by institutions, each of which has its function and characteristics. In recent years, computerisation activities, especially for admitting new students, have made the registration process more manageable, given the many applicants wishing to enter the school.

b) Management information systems based on information and communication technology have been said to be developed based on implementing several activities. Computer laboratory implementation activities include learning and various application development activities. The principal stated that the utilisation of facilities and infrastructure, such as computers in laboratories, has been implemented and used daily by students. Even though other schools have generally removed ICT subjects from the curriculum structure, the school still provides additional ICT lessons, called Tikom (information and communication technology), to help students develop life skills.

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