

School Based Management of Information Technology for Quality Improvement of Junior Secondary Academic Service in Bandung

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Abstract—This study seeks to analyze the implementation of management in information technology-based schools, which involves the technical policies and the management process in information technology-based schools. A descriptive case study methodology is used in conducting the study. The data collection techniques are inter-view, observation, and document analysis. The findings indicate that the Management Information System support policy is formulated in the school's vision, mission, and goals; the implementation of the Management Information System-based school is conducted through the development of the human resource competencies. Yet, the knowledge management processes based on the objective of national education in using information technology to support school-based management is unavailable.

Keywords—*information communication technology; school based management; education quality*

I. INTRODUCTION

The development of education has considerably in-creased and has become one of the primary needs of today's society, which should be met. Indonesian government also gives serious attention to the quality of national education by enacting several regulations related to it, namely Law No.23/2003 on National Education System, Law No. 22/2016

on Standards of Content in Primary and Secondary Education, Government Regulation No. 19/2013 amending the Government Regulation No. 19/2005 concerning National Education Standards, Government Regulation No. 22/2016 on the Management and the Delivery of Education. All these regulations point out the needs to improve the quality of education in all levels, types, and paths.

The enhancement of education quality, particularly at schools, becomes the most crucial and strategic things to do as the demands for competition in various fields are getting stronger both nationally and globally. Some studies reveal that the quality of Indonesian human resources is far behind that of those of other developing countries. This weakness is indeed the effect of the low quality of education as education is a vital means needed to raise the quality of human resources. According to United Nation Development Program (UNDP), in terms of the level of achievement in education, health, and income per capita, Indonesia's Human Development Index is rank 107 of 174 countries (Table 1). In 2015, Indonesia is rank 110, after Palestine, and even lower than its rank in 2013. [1]. Based on these data, Indonesia is still categorized a country with Medium Human Development. World Competitive-ness Report which was published in 2014 also placed Indonesia in rank 34, which was an alarming position in Table 1.

TABLE I. THE HUMAN DEVELOPMENT INDEX

	Human Development Index (HDI)	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Gross national income (GNI) per capita	GNI per capita rank minus HDI rank
Country	Value 2014	(years) 2014	(years) 2014	(years) 2014	(2011 PPP \$) 2014	2014
Singapore	0,912	83,0	15,4	10,6	76.628	-7
Hong Kong, China (SAR)	0,910	84,0	15,6	11,2	53.959	-2
Korea (Republic of)	0,898	81,9	16,9	11,9	33.890	13
Japan	0,891	83,5	15,3	11,5	36.927	7
Brunei Darussalam	0,856	78,8	14,5	8,8	72.570	-26
Malaysia	0,779	74,7	12,7	10,0	22.762	-14
Thailand	0,726	74,4	13,5	7,3	13.323	-13
Indonesia	0,684	68,9	13,0	7,6	9.788	-9
Bangladesh	0,570	71,6	10,0	5,1	3.191	5

TABLE II. THE GLOBAL COMPETITIVENESS REPORT

	Period 2014- 2015	Period 2017-2018
Singapore	2	3
Hong Kong, China (SAR)	7	6
Korea (Republic of)	26	18
Japan	6	9
Malaysia	20	23
Thailand	31	32
Indonesia	34	36
Bangladesh	109	99

Table 2 illustrates the urgent educational problem in Indonesia in which the quality of education in each level is remain low. There are three main suspected causes which lead to this condition. First, the insufficient implementation of education policy which employs education production function approach. The implementation approach which ideally requires a total quality control involving the subsystems of input, process and output, is not completely done in the process aspect. Second, the implementation of education system tends to be centralistic- bureaucratic, which considers schools as merely the subordinate of bureaucracy. It makes schools lose their independence, flexibility, creativity, and motivation to develop themselves and improve their quality. Finally, the roles of school community, particularly teachers, society, and stakeholders, in the process of decision making is very minimum [2].

The challenges must be answered by the organization, in this case: school, to win the tight competition in this globalization era, such as collaboration, innovation, adaptation and technology mastery, and the management of intellectual as-sets. Those challenges stimulate the emergence of needs on the implementation of knowledge management. The implementation of knowledge management is expected to give benefit for educational institution for knowing the resource strength to re-use the existing knowledge, and accelerates the creation of new knowledge from the existing knowledge.

The advancement of technology in this era is really fast and developed. One of them is the advancement of Information Communication Technology or ICT. The science advancement of technology, particularly both software and hardware technology in this era, is not only common, but al-so strange and expensive as well. Nowadays, al-most in every field, there are needs for tools in the form of software as assisting device, because it has advantages in terms of speed and accuracy. If we notice, in education sector, there are enormous applications used mostly not only in staff system and learning process, but also other sectors, such as office system, health, engineering, banking, science, and governmental or private business. In this rapid information change, due to the existence of internet connection, everyone can communicate through ICT in every corner, either in the city or overseas.

The effectiveness of ICT implementation in school management needs special attention due to the central role in

the proses of decision making by the managerial or other decisions. Regarding this, it is important in improving the effectiveness of this implementation, which certainly influences the effectiveness of education achievement conducted by institution. Consequently, all the influenced factors in the effectiveness of ICT implementation in organization management specifically in academic administration need to be examined further. It is intended for management process at school to become more effective and efficient until it can support the accomplishment of high performance from the institutions.

Besides, it is required to develop the alternative model for Information Management System which can support every process of academic management related to the stakeholders. It is seen as a predominant aspect in order to synchronize the dynamics of both users' needs and the development of information management system as a formation creator for the necessities in all services and decision ma-kings.

A. Information System

According to Leonard Jessup and Joseph Valacich, the system of information is the combination of hardware, software, and telecommunication network in which people build, use, collect, create, and distribute data which is useful in the organization [3]. Moreover, the information system can be illustrated through the following figure:



Fig. 1. The combination in information system.

Human as one of factors in information system has vital role. In this term, Leonard and Joseph emphasize knowledge as the core:

1) *Employees' knowledge*: An educated professional who creates, modi-fies, or synthesizes the knowledge on someone's profession.

2) *Society's knowledge*

- It also known as digital society, new economy
- Working using brain not hand
- The importance of education
- Digital gap

According to Leonard and Joseph, information technology has three advantages, such as

- Automating: performing in the fastest way, such as storage and calculation is really helped due to its pace.
- Organization learning: performing in the best way. It can input daily data, analyze, and supervise the process of TQM.
- Supporting strategy: performing smart things

Elston distinguished between Information Technology (IT) and Information Communication Technology (ICT) that "IT as the technology used to managed information and ICT as the technology used to manage information and aid communication". While, UNESCO defined Information Communication Technology as explained that "ICT generally relates to those technologies that are used for accessing, gathering, manipulating and presenting or communicating information. The technologies could include hardware e.g. computers and others devices, software applications, and connectivity e.g. access to the internet, local networking infra-structure, and video conferencing" [4].

UNESCO has already identified four stages in education system which adopts ICT, such as:

- Emerging stage: the higher education/school is in the first step. The teacher and staff start to aware, chose/buy, or accept donation to provide facility and infrastructure (supporting work performance);
- Applying stage: the higher education/school has the new knowledge regarding ICT contribution. The teacher and staff use ICT in school management and curriculum (enhancing traditional teaching)
- Infusing stage: engage curriculum by integrating ICT. The higher education/school develops technology based-computer in laboratory, class and administration. The teacher and staff explore through the new knowledge in which ICT changes the professional effectiveness (facilitating learning);
- Transforming stage: the higher education/school has already utilized ICT in all organizations. The teacher and staff create the learning environment which is integrative and creative (creative innovative learning environment) through ICT.

Priscilla Wohlster and Albert Mohrman widely explain that Management Based-School (MBS) is political approach to re-design school organization by giving authority and power to school participant in local level in order to develop their school. The intended local participation is the participation of principals, teachers, and local society [5].

Related with description above, Management Based-School (MBS) is giving the full autonomy to the principals who are active-creative and also independent in developing and performing innovation through various programs in order to improve the quality of education related with the school needs it-self. It cannot be separated from the framework of national education goals by involving the stakeholders, and the school must be able to account for the

societies. In other words, Management Based-School in essential is the harmonization of resources independently done by the school by involving all the interest groups directly related with the school in the process of decision making to fulfill the needs of school quality improvement or to achieve the education aim.

II. RESEARCH METHOD

In this research, the method used is the descriptive method using qualitative approach which aims to create data in form of the result of human activity which is directly observed. The location of this re-search is conducted in governmental junior high school (school X) and private junior high school (school Y) located in Bandung City which the score of accreditations are A. Data collection technique is conducted by observation, documentation study, and also noting in the field. Data analysis is conducted by describing the collected data. Observation technique which is the authors used is the participative observation through observation process made it happen by participating in several events in the school whilst for the documentation study which is used is the documentation related with this research.

III. RESULT AND DISCUSSION

The policy of the school operational based on the Information Communication Technology in academic service from the result of interview and observation have been listed in the school operational plan. It is reflected in the vision and mission of the school.

The implementation of ICT school-based management in aca academic service in both schools covers:

- Emerging process: it is already good enough as it has been reflected during the meeting, in the communication, and also in job distribution.
- Applying process: in this process, the provision of human resources in private school Y is better than school X.
- Infusing process: the infrastructure for both schools are already good. After observing it deeply, the infrastructure in private school Y is better than school X.
- Transforming process: the implementation and control in ICT school-based management to improve academic service is already good.
- The impact on the school academic service: the school information which is needed by stakeholder is easy to reach and access. Yet, there are still slow responses in updating the data, especially regarding the outside class event (extracurricular activities, financial, and the others). For school Y, it is shown that the reliance on the school is in-creased as reflected in the total number of students who enroll in that school. Meanwhile school X try to make itself as the best ICT based-school in Bandung City.

Based on all information above, to realize the information communication technology school-based management in academic service, there are several aspects needed:

The creation of system: creating the good information system. If the system is already existing, the improvement can be made through inviting all the related parties to participate, convey their knowledge, experience or their tacit knowledge so that all the important information can be acquired. In this stage, the analysis of all kind of service throughout the particular time can be conducted.

The information management is showed by the pointed section, such as operator. All of the events occurred in the school are reported or connected with each other, therefore creating the information system is beneficial to show the latest data. In the latest trend, it uses the information system based-website in order to allow faster access considering it can be accessed from various fields with certain rights, so the information can be distributed better. We do not have to spend much for the printing. All changes can be done faster and the archives can be stored in smaller storage.

Yet, the created system is not always in a good idea. There will be a time where there is an obsolete due to the current development or caused by human demands. Therefore, it needs to be continually enhanced. All the expected parties can give the best input concerning the development in its each section.

Creating the ICT information school-based management in academic service, such as academic ser-vice system is really helpful, because: (1) there are a lot of involved parties who spread in various places (various rooms/building or collages), (2) the current development is really fast, therefore it needs to work fast. The system supported by information technology will accelerate the performance, (3) It is simplifying the communication. It is effective and efficient to do more works. All of the complex calculations can be solved by computer. (4) It can save more, whether it is paper, printing cost, communication cost, and others.

The school hypotactic management model based on information and communication technology in academic services aimed for quality improvement consists of: Planning (referred to the model), Organizing, Leadership, Implementation, Quality assurance.

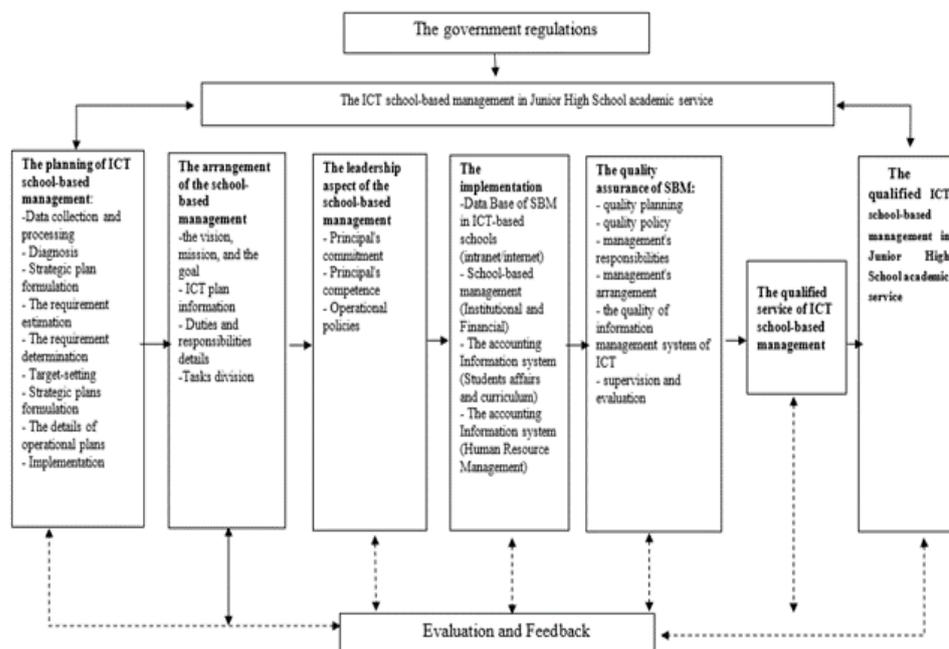


Fig. 2. The hypotactic model of junior high school management based on information communication technology in academic administration.

IV. CONCLUSION

The conclusion of this research is:

- The utilization of computer information technology refers to the use of computer technology in doing several tasks to help with the work and improve the effectiveness of education management.
- The existence of information school-based management in academic service makes the academic

management process in the school is more effective and efficient.

- The information technology school-based management can be well managed, since it eases all school staff activities.
- The school hypotactic management model based on information and communication technology starts with the quality design, the quality policy, the management responsibility, the organization, the

quality of information system based on ICT, the supervision, and continued evaluation will lead to an effective management model.

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