Management of Information and Communication Technologies-Based Curriculum in Private Vocational Education Unit

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Abstract—This research is titled "Management of information and communication Technologies-Based Curriculum in private vocational education unit". Curriculum management is a cooperative, comprehensive, systemic, and systematic curriculum management system in order to realize the achievement of curriculum objectives. The use of ICT in education is an innovation and the answer to the change of time challenges. School management system, especially good curriculum real life, will have a big impact on the quality improvement of the school. This research aims to describe the planning, implementation, evaluation, and follow-up of ICT-based curriculum management on the unit of vocational education. The approach used in this research is the case study's qualitative descriptive approach. The data collection techniques used in the study consist of interviews, observations, and document studies. The results showed that the planning of ICT-based curriculum is based on the needs of the business and industrial world, as well as applicable government regulations. For the implementation of the ICT-based curriculum conducted by the teachers by conducting learning activities based on the use of ICT. The evaluation of ICT-based curriculum showed that the lack of integration material delivered by the teachers with program skills. As for the follow-up implementation of ICT-based curriculum the school needs to improve the pedagogic competence of teachers.

Keywords—*curriculum management; ICT; vocational high school*

I. INTRODUCTION

Education process is a fundamental process. So the hope arises that the potential developed in the educational process is able to bring a better life for the individual concerned. School is one of the place for the education process, which has various levels starting from basic education level to higher education level. One type of formal education is a vocational education with a priority government that prioritizes to produce a suitable workforce of talent and skills on certain types of work which is further expected to minimize unemployment [1]. However, in fact, it is the opposite of reality, based on the official news statistics released the data that the open unemployment rate from February – August 2018 increased by 5.34% where the second position is occupied by the community that is set in the education of vocational high school [2].

Quality education will have an impact on the qualities of the human resources concerned. Education quality improvement is the most important thing that must always be done in every unit of education to fulfil the needs in the real life and interests of the stakeholders. Management is a very important activity to achieve a common goal. The management process can be analyzed the capabilities and advantages or disadvantages of an organization. Management can minimize barriers in achieving objectives and provide predictions for tackling environmental changes. Management in the educational world is an effective way of keeping in determining the direction and objectives of education. Education management can be interpreted as is a series of activities that process the cooperation of an educational organization in achieving the objectives that the discussion area is very broad [3]. Curriculum management is one of the efforts that can be done to ensure the purpose of education has relevance to the needs of the real life so that there is no inequality between the competencies that the learners have with the need of business and industrial world. The link between management and curriculum is a cooperative, comprehensive, systemic and systematic curriculum management system in order to realize the achievement of the curriculum [4]. The functions or principles contained in the curriculum management are generally the same as the general management functions that exist [5]. The functions of the curriculum management include planning, organizing, implementing and evaluating the curriculum. Curriculum management will greatly impact the sustainability of the results (outputs) that will be obtained in vocational education, which is now highly demanded to have qualified competence in order to compete in the digitalization era.

The Era of digitalization can be characterized by the rapid utilization of Information Communication and Technology (ICT) which is especially in the world of education is able to improve the quality of learning and expanding access to education services. In general, there are three approaches in the use or utilization of ICT for education and learning namely 1) learning about computers and the Internet, 2) learning with

computer and the Internet, and 3) learning through computers and the Internet [6]. The rapid development of Information and Communication Technologies (ICT) is a considerable challenge in the current world of education because rapid development is sometimes not in line with human resources available. But this cannot be the reason for the school to provide the best education to the students. To foster the rapid growth gap of ICT, a management plan that is able to accommodate the needs in the real life with existing human resources, one of the strategies that can be done is in the form of Information and communication technologies based curriculum management.

II. METHOD

The approach used in this research is a qualitative approach. The choice of this approach is because the research aims to describe aspects that focus on research related to ICT-based curriculum management at Vocational High School Wirakarya 1 Ciparay, this approach also used to find and interpret and to describe deeply the information conveyed in straightforward curriculum management. A qualitative approach is used to describe ICT-based curriculum management in the form of a description that is the result of information obtained from the informant (informant), observation results (observation), and documentation studies. Research conducted a case study type, where researchers reveal related ICT-based curriculum management at Vocational High School Wirakarya 1 Ciparay. The selection of these types of research is done so that the information obtained can be described and analyzed deeply.

This research was conducted at Vocational High School Wirakarya 1 Ciparay which is located on Andir Highway No. 17 Ciparay, Bandung Regency. Vocational High School Wirakarya 1 Ciparay consists of four skills programs, namely electrical power utilization, machining techniques, light vehicle engineering, and computer and network engineering.

The data-collecting techniques used in this study were conducted using primary sources as well as secondary sources. The primary data source is the principal, the Deputy school principal curriculum and the teacher of the subjects. The primary data source is used to be able to explore information directly related to the implementation of ICT-based curriculum management at Vocational High School Wirakarya 1 Ciparay. While the secondary data source is the observation of the situation or documents by researchers. Based on the data sources described above, this study used data collection techniques in the real life. Some of the data collection techniques that used are interviews, observations and study documents.

Data analysis is done after researchers get data from research subjects, by conducting the selection of data corresponding to the focus of the research. Qualitative research requires systematic data analysis meaning data analysis is done in a process. The data analysis process begins with studying all the available data from various sources i.e. from interviews, observations already written in real life notes, personal documents, official documents, and images.

Conclusion taken after through the process of checking the validity of data findings, it is done as an attempt to provide valid information. As for the validity checking techniques of data used through observational diligence and triangulation of sources.

III. RESULTS AND DISCUSSION

A. Results

ICT-based curriculum management at the planning phase at Vocational High School Wirakarya 1 Ciparay is currently in accordance with the needs of business world and the industrial world. This happens because the school continually keeps intensive communication related to the needs of resources that fit the needs of the business world and the industrial world. Besides based on the analysis of needs in the real life, Vocational High School Wirakarya 1 Ciparay develops the structure of ICT-based curriculum that is based also on the regulation of the Director-General of Primary and Secondary Education Ministry of Education and culture.

The development of ICT-based curriculum is essentially a development of the dedicated curriculum structure of vocational schools related to the subject of productive subjects. Basically, the school resources involved in the development of the curriculum consist of the principal, the deputy principal of the curriculum and the staff, the Program head, and if required by the industry. The cycle of curriculum development conducted at Vocational High School Wirakarya 1 Ciparay begins with the creation of a curriculum design that will be implemented by the vice headmaster of curriculum and its staff. Furthermore, the draft was submitted to the principal but if needed sometimes the design made by vice headmaster of curriculum was analyzed also by the Program heads and stakeholders from business and industrial world.

The academic calendar used by Vocational High School Wirakarya 1 Ciparay as reference material for planning effective days and holidays is sourced from the Education office. With the use of ICT-based curriculum planning, schools are sorted to always update information and encourage to always know the latest technologies used in the world of the working industry. Until now, the implementation of ICT-based curriculum can be said to suit the purpose of the school. However, there are obstacles that arise like attitudes, characters, and absorption in different students. However, the constraints are still able to be controlled by the school.

The curriculum planning of ICT's work enables us to encourage learning activities to use ICT, including on the learning media used. Although the teachers apply the ICT-based curriculum differently, all teachers have agreed to use ICT as a learning medium. ICT's developed in learning allows students to play a more active role and the teacher serves only as a facilitator. Vocational High School Wirakarya 1 Ciparay applies the effective day of nature lessons in schools only five days, i.e. Monday-Friday. While Saturdays are used for extracurricular delays and additional hours of instruction for teachers who need them. In addition to designing the curriculum structure, Vice Headmaster of Curriculum and its staff have other tasks, namely the preparation of the lesson

schedule, the determination of the workload of the teacher, and the determination of teachers in teaching a real life of study.

Based on the planning stage to the implementation, there is an evaluation of the implementation of ICT-based curriculum, which is in implementing the curriculum. To date, teachers have not completely integrated the subjects that they can with the skills of the real life taught, so there is often an in connection between skills programs and lessons outside of the productive real life. In addition, what needs to be evaluated is the achievement of learning programs in schools by looking at the school's success in absorbing the aspirations of the industrial world. Curriculum evaluation is conducted every year, usually at the end of the lesson year. Curriculum evaluation results are poured into reports made by Vice Headmaster of Curriculum and its staff. The report and evaluation instruments are adjusted to the needs of the school so that no special instrument is developed.

The evaluation of the curriculum conducted aims to see the extent to which the school's achievement of the objectives has been developed. So that the evaluation of the curriculum must be accompanied by follow-up. One follows up from the evaluation of the curriculum is the improvement of competence in teachers, especially in pedagogic competence. So far, the obstacles arising from the implementation of ICT-based curriculum is still a small obstacle, which is still able to be handled by the school. In other words, so far there are no complex obstacles in the implementation of ICT-based curriculum.

B. Discussion

Planning ICT-based curriculum at Vocational High School Wirakarya 1 Ciparay conducted based on the needs of schools and real life needs. To increase objectivity in the development of curriculum conducted, consideration, input, and advice from the industry are also involved. To date, the curriculum that runs in various vocational high schools is based on a spectrum of curriculum designed by the Directorate General of Education for vocational schools. The use of such a spectrum can be developed more broadly by the school based on the needs of schools and industry needs. Curriculum development process based on the combination of spectrum and school needs is made as curriculum analysis. The spectrum used today is an update of the previous school curriculum. The change is the impact of the analysis conducted, in which the previous curriculum is assessed is not in accordance with the demands of the development of science, technology, and the needs of the workplace. The spectrum used today focuses on the real life of expertise, skill studies, and expertise competencies that come with a description of each curriculum competency. Each spectrum material is compared to the standard of the curriculum is related to Standard Content and Standard Competency Graduates. For material from normative and adaptive subjects, the school refers to the 2013 curriculum while the productive subject matter and local content are guided by the ICT-based curriculum. Although normative, adaptive and productive subjects were developed with different strategies, the three remained within the boundaries and rules established by the policy Government.

The conceptions that have been displayed, can be noted that the curriculum planning is highly dependent on the development of the curriculum and the purpose of the curriculum that will be the liaison of the educational theories that will be applied in the real life. Curriculum planning is a complex social process that demands various types and levels of decision making [7]. So in the spectrum of productive subjects the school was given the authority to develop curriculum planning. Not only the school's productive subjects are given authority in curriculum planning, but this also applies to local content subjects. The substance of local content subjects is determined by the individual Education unit, not limited to skill subjects. The presence of local content is an effort to increase the relevance of education implementation to the circumstances and needs of the real life.

The implementation of curriculum planning at Vocational High School Wirakarya 1 Ciparay is not much different from the development of existing theories, in which the normative and adaptive subjects are based on the government-imposed spectrum, while the subjects are productive and The local content is developed independently by the school to meet the needs in their respective areas. The use of ICT-based curriculum is a strategy developed by the school to prepare students for the workplace, considering that the region of Ciparay is an area close to the industrial area so that competence in ICT is very needed. The implementation of ICT-based curriculum at Vocational High School Wirakarya 1 Ciparay based on the reviews done has been done according to what was planned by the school. So in the implementation of ICT-based curriculum is not experiencing significant constraints to date. But it is impossible if there is no problem in implementing ICT-based curriculum in Vocational High School Wirakarya 1 Ciparay, as for the constraints that arise only in the form of technical matters, which in principle does not change the planning made. One common obstacle is the ability and level of intelligence of the diverse learners among the students who are one with other learners. However, these constraints can still be addressed by the school.

Curriculum implementation is basically a form of action from the curriculum planning that has been developed and aims to make the planning made possible with maximum. To keep the implementation in accordance with the planning made it takes the management process that runs systematically. In this case, the management provides materials, personal facilities, and conditions so that the curriculum can be carried out. The implementation of the curriculum is divided into two namely the implementation of the school level curriculum and implementation of the class level curriculum [8]. Implementation of a school-level curriculum, in this case, is handled by the principal. The principal is responsible for ensuring the curriculum can be carried out well, and is also obliged to conduct academic activities that include the preparation of the academic calendar that will be used every one academic year, drafting Schedule of lessons in one week, the duties and responsibilities of teachers, and other activities relating to the achievement of the curriculum objectives. Related to the implementation of the class curriculum in this regard is divided and assigned directly to the teachers. The Division of tasks carried out includes; (a) Activities in the real

life of teaching and learning process, (b) the construction of extracurricular activities that are located outside the provisions of the curriculum as supporting the objectives of the school, (c) Learning guidance activities aimed at developing the potential in Students and help students solve problems.

The implementation of the ICT-based curriculum implemented in Vocational High School Wirakarya 1 Ciparay requires the use of IT-based learning media, although the way teachers teach is still varied. The teaching and learning process is often characterized by an element of purpose, materials, methods, and tools, as well as evaluation. The four elements synergize to achieving maximum learning objectives. Because basically methods and media are elements that cannot be separated from other elements of learning. In addition, the implementation of teaching and learning activities requires students to be more active than teachers because teachers only act as facilitators. With the more active learners than teachers, students are expected to have a higher creative and imaginative power than teachers. This is of course very important in informatics-based learning because with a high creative and critical power will stimulate learners ' knowledge to be more developed than ever. In addition to the implementation of his studies, Vocational High School Wirakarya 1 Ciparay implements effective hours only as five days, namely Monday to Friday. The current schedule of lessons used, the determination of the teacher's teaching weights, and the determination of teaching teachers for one real life of study, organized and designed by the deputy principal of the curriculum in conjunction with its staff with the Division of their respective duties. So can conclude that the implementation of ICT-based curriculum at Vocational High School Wirakarya 1 Ciparay So far can be said to be controlled even though there are still technical constraints, but it is not to reduce or disrupt the process of teaching-learning. This is because the functions and tasks of the executor are done optimally. The use of ICT in the curriculum developed creates an IT-based learning process where the learning process is done with the help of learning media that allows students to become more active.

The evaluation of ICT-based curriculum at Vocational High School Wirakarya 1 Ciparay is performed every year once more precisely before the new school year begins. The main focus of curriculum evaluation is the implementation of the curriculum in Vocational High School Wirakarya 1 Ciparay itself, especially related to the relevance of the content. The content of the curriculum used should be relevant to the needs, but must also be adapted to the competency and ability of the teacher. Ideally, the evaluation process is also followed by the supervision of the principal to teachers who need help. If this evaluation is needed it will also be required to be discussed together because the ability of the school is sometimes in providing equipment in limited learning. Because the equipment in the world-based ICT in the real life has always undergone a change quite dynamic.

Evaluation of curriculum and evaluation of education has an integral characteristic [9]. That characteristic is the birth of various definitions for the same technical term. Evaluation is an act of judgment based on a set of agreed criteria and can be held accountable. The follow-up of evaluation is the ability of

teachers who must always be developed through teacher enhancement programs. Moreover, follow-up also applies to the curriculum itself as a matter of attempts to ensure the curriculum used is still relevant to the needs in the real life. Based on the above exposure, it can be concluded that the evaluation of ICT-based curriculum at Vocational High School Wirakarya 1 Ciparay is done according to the needs, and is also continuously carried out the evaluation at least once a year, namely before the school year New starts. In addition, evaluation from the principal to the teachers is also done through supervision. With this, it can be known that the school principal's efforts in the ICT-based curriculum management process can run well and to the expected and planned. Further follow-up of this evaluation also needs to be implemented continuously so that the ICT-based curriculum can still be developed and according to the expected objectives. Follow-up plans can be done in a variety as could essentially be a plan for the next activity, or it could be just a conclusion and a form of application of the conclusion that has been formulated [10].

One of the barriers contained in ICT-based curriculum management at Vocational High School Wirakarya 1 Ciparay is the competency and teaching ability of teachers, because the science of information and communication technologies (ICT) will continue to evolve and become more advanced, but if this does not Accompany by an improved competency and teacher's knowledge, the teacher will be worried about the information on the knowledge that exists, of course this will impact the learners who can be said to be difficult for learners to Developing. Because the responsibility of a teacher to learners is very heavy. The teacher's job is to provide education to the learners. Teachers must strive for students to continue and develop life values. At this level teacher are required to be able to transfer value to learners who can be used as guidelines in themselves. Students are not only required to be clever, but students are required to have good morals or morality. The teacher's behavior will greatly affect the child's personality because the concept of the teacher is a human figure that is made a worthy example to emulate. Thus, the appearance of a teacher must demonstrate an exemplary attitude to the learners.

Basically, the implementation of curriculum management that is done in school will surely face obstacles, but that is not the reason for the school to develop, precisely with the constraints the school should be able to find a solution to keep it Developing. This is done also by Vocational High School Wirakarya 1 Ciparay where the obstacles arise in terms of the ability and competence of teachers in teaching, but it is well solved. The strategy that is carried out in the face of the obstacles is to develop teacher's quality improvement programs in competencies and teaching skills that are intended for the teachers to improve their competence and potential That is in him. Because the science of information and communication technologies (ICT) will always advance and evolve over time because technological advances will never cease. Programs that can be followed by teachers to improve their competence, such as through training, workshops, and study of Appeals, and others.

Curriculum development at Vocational High School Wirakarya 1 Ciparay is based on input from the industry through students ' internships, for example, Prakerin, PKL, and

so on. Because students are designed at graduation later to be ready and able to work, then the advice and input from the industry will be the consideration material used for school curriculum development. The curriculum development steps conducted by Vocational High School Wirakarya 1 Ciparay consist of the first is the formulation of objectives. Objectives are formulated based on the analysis of various needs, demands, and expectations. Therefore, the purpose is formulated by considering the factors of society, the students themselves as well as science. The second is to define the content. The content of the curriculum is a plan of learning experience that is planned to be obtained by students during the education process. This learning experience can be a study of subjects, or other types of learning experiences according to the form of a curriculum developed. Third, choose activities. Organizations can be formulated according to the objectives and learning experiences that become the content of the curriculum, taking into account the form of the curriculum used. Fourth formulates evaluation. Curriculum evaluation refers to the purpose of the curriculum as previously described. The evaluation must be done to obtain information as the basis for making repairs., so that the evaluation process needs to be done continuously [11].

In fact, the development of the curriculum is a process of drafting a plan related to the content and learning materials that must be learned and how to learn it. But in its implementation, developing a curriculum is not a simple and easy thing. Determining the contents or content of the curriculum must be based on the vision, mission, and objectives to be achieved, while determining the objectives that want to be achieved closely related to the issues of value system and community needs when reviewed from the theory The implementation of curriculum management implemented by Vocational High School Wirakarya 1 Ciparay is ideal because it performs the process of developing a curriculum consisting of formulation of objectives, determining content, selecting activities, and formulating evaluation. However, in addition to the development process, in the management of an ICT-based curriculum need to also manage supporting resources, especially resources directly involved such as teachers. Because as good as any management done if not supported by competent resources then cannot be achieved to the fullest. The competency of teachers in conducting ICT-based learning is very important, considering that science and technology continue to evolve and progress over time, but if the teacher's ability and knowledge is not developed it will automatically lag with advances in science and technology.

IV. CONCLUSION

Based on the research that has been done, it can be concluded that in general the implementation of curriculum management of information and communication technologies-based curriculum in SMK Wirakarya 1 Ciparay has been done optimally, although there are some things that still need to be emphasized. The planning stage of the school curriculum is based on two things, first is the policy of the government and based on needs of business and the industrial world. Both of

these are the basis for school considerations in planning the ICT-based curriculum because they are expected to meet the needs of the world's industrial and labor markets. In the planning of ICT-based curriculum, schools are encouraged to continuously update information and encouraged to continue to know the latest technologies used in the industry. The curriculum planning cycle is done by creating a curriculum design that will be implemented by vice headmaster of curriculum and its staff. Furthermore, the draft was submitted to the principal but if needed sometimes the design made by Vice Headmaster of Curriculum was analyzed also by the Program heads and stakeholders from business and industrial world. Learning Media used in the implementation of ICT-based curriculum should prioritize the use of ICT itself, although the fact is applied in different ways by the teachers but the teacher remains in accordance with the objectives set. The effective day is five days from Monday to Friday. As for Saturdays, it is allocated for the implementation of extracurricular and additional hours for teachers in need.

Evaluation obtained from the planning phase to the implementation stage is related to the implementation of the curriculum. It is known that teachers have not fully integrated the subjects that can be taught by the real life expertise so that there is often an inconnection between expertise programs and lessons outside of the productive real life. In addition, what needs to be evaluated is the achievement of learning programs in schools by looking at the school's success in absorbing the aspirations of the industrial world. Follow-up based on evaluation result is the improvement of competence in teachers, especially in pedagogic competence. So far, the obstacles arising from the implementation of ICT-based curriculum is still a small obstacle, which is still able to be handled by the school. In other words, so far there are no complex obstacles in the implementation of ICT-based curriculum.

REFERENCES

[1] Undang-Undang Nomor 20 tentang Sistem Pendidikan Nasional.

[2] Badan Pusat Statistik, "Keadaan Ketenagakerjaan Indonesia Agustus 2018," [Online], retrieved from https://www.bps.go.id.

[3] E. Mulyasa, Kurikulum Tingkat Satuan Pendidikan. Bandung: Remaja Rosdakarya, 2007.

[4] D. Wahyudin, Manajemen Kurikulum. Bandung: Remaja Rosdakarya, 2014.

[5] Arief and Rusman, "Character Building Based Curriculum Management At Sekolah Dasar Negeri Ujung Menteng 01 Pagi Jakarta," Jurnal Penelitian Ilmu Pendidikan, vol. 12, no. 1, pp. 38-54, 2019.

[6] B. Warsita, Teknologi Pembelajaran Landasan dan Aplikasinya. Jakarta: Rineka Cipta, 2008.

[7] O. Hamalik, Manajemen Pengembangan Kurikulum. Bandung: PT. Remaja Rosada Karya, 2007.

[8] D. Suhardan, Supervisi Profesional Layanan dalam Meningkatkan Mutu Pengajaran di Era Otonomi Daerah. Bandung: Alfabeta, 2010.

[9] S.H. Hasan, Evaluasi Kurikulum. Bandung: Remaja Rosdakarya, 2008.

[10] Rusman, Manajemen Kurikulum. Jakarta: Rajawali Pers, 2011.

[11] M. Ali, Pengembangan Kurikulum di Sekolah. Bandung: Sinar Baru, 1992.