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An Evaluation of Educational Facilities and Infrastructure in Vocational High School

(Availability, Completeness and Conditions Owned by the Facilities and Infrastructure at State Vocational High School 5 Bandung, West Java, Indonesia)

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***Abstract*—Educational facilities and infrastructure are used to facilitate students' understanding of the subject matter delivered by using appropriate educational facilities and infrastructure in teaching and learning programs to be more effective and efficient. Research conducted at Vocational High School 5 Bandung Competence Expertise Design Modeling and Information Building. The purpose of this study is to determine the availability, completeness, and condition of educational facilities and infrastructure and also to find out if the existing facilities and infrastructures already compatible the specified standards. The standard used is standards of Education Ministry Decree No. 40 of 2008 and architectural standards taken from several literatures. The research method is a descriptive evaluative method and uses a qualitative approach. From the observation it was found that the existing educational infrastructure is almost completely in accordance with the established standards, while in educational facilities there are still some facilities that have not met such as lack of educational equipment, educational media, other equipment and incompatible furniture with architectural standards.**

Keywords—evaluation of facilities and infrastructure, curriculum, architectural standards

I. INTRODUCTION

Educational facilities and infrastructure are the elements of educational management that has an important role in the learning process of teaching. Educational facilities and infrastructure are things that cannot be ignored. Educational facilities and infrastructure are also used to facilitate student understanding of the material delivered by using appropriate education facilities and infrastructure in the learning activities program in order to be more effective and efficient. The availability of educational facilities and infrastructure for teaching and learning activities will become more meaningful with good quality and more fun.

Completeness of facilities and infrastructure in a Vocational High School is regulated in National Education Ministry Decree no. 40 of 2008 [1] concerning facilities and service infrastructure that must be fulfilled by a Vocational School and the terms of those facilities and infrastructure. "The learning process in the classroom is expected to be able to provide a comfortable and able student environment that can encourage student actively learning" [2]. Good learning can be obtained from the fulfilment of educational facilities and infrastructure as well as the level of comfort when using these facilities and infrastructure.

Evaluation is the act of assessing the data collected to provide better recommendations in the future. Vocational High School 5 Bandung Competence Expertise Design Modelling and Information Building has been built for a long time and are required to meet the standards of facilities and infrastructure that have been determined by standards of Education Ministry Decree No. 40 of 2008 and architectural standards. Besides there are facilities and infrastructure needed by the curriculum so an evaluation is needed to see the availability, completeness and conditions owned by the facilities and infrastructure Building Design and Information Design Skills Competencies.

This research has the following objectives: to find out the availability, completeness and condition of facilities and educational requirements in Vocational High School 5 Bandung Competence Expertise Design Modelling and Information Building based on curriculum requirements and regulatory standards. Also to find out the availability, completeness and condition of facilities and educational requirements in Vocational High School 5 Bandung Competence Expertise Design Modelling and Information Building based on curriculum requirements and regulatory standards.

Evaluation of educational facilities and infrastructure is also included in the form of inventory and maintenance of education facilities and infrastructure. As revealed by Matin in the Manajemen Sarana dan Prasarana Pendidikan [3] that: the inventory of educational facilities and infrastructure is the

recording or registration of items belonging to an institution (school) into an orderly inventory of items in an orderly manner in accordance with applicable regulations and procedures. Maintenance of educational facilities and infrastructure is an activity to carry out the management and regulation of facilities and infrastructure so that all facilities and infrastructure are always in good and good condition to be used in a way that is useful and successful in achieving the objectives of the education.

The purpose of inventory is to facilitate the control and supervision of facilities and infrastructure owned by schools, whereas the purpose of maintenance is to maintain or prevent damage to an item, so that the item is always in good condition and ready to be used. So that the evaluation carried out also includes inventory and maintenance activities after seeing the evaluation results.

The evaluation used by the research is only to measure and compare and take conclusions about observations, measurement and practice with observation and interview techniques, after that the data is compared with the standards that have been determined for driving the conclusion of evaluation data to produce recommendations.

Facilities is something that can be used as an instrument in achieving intent or purpose. Infrastructure is everything that is supporting the implementation of a process (business, development, project). Facilities are intended more for movable furniture such as drawing tables, work chairs and cupboards, whereas infrastructure is more aimed at immovable objects, such as land and buildings.

Facilities and infrastructure are facilities and equipment to support certain activities so that the objectives of the campaign can be achieved. Equipment that is direct can be used directly referred to by means of facilities, while infrastructure is a basic facility that has a long service life and is a supporting activity.

Educational facilities and infrastructure are facilities to support the implementation of educational activities and the achievement of learning objectives. According to Education Ministry Decree No. 40 of 2008 the facilities of education is "Movable learning equipment while the learning plan is basic facilities to run the function of vocational school".

In Government Regulation no.19 of 2005 [4] also stated that standards of facilities and infrastructure are standard international education related to the minimum criteria of learning spaces, places for sports, places for worship, libraries, laboratories, workshops, places for play, places for creation and recreation, as well as learning other things, needed to support the learning process, including the use of information technology and communication.

According to Education Ministry Decree No. 40 of 2008 about standards of facilities and infrastructure for high vocational schools, the school has at least the following facilities, Types, Ratios, and Description of Facilities: Classrooms, Computer Laboratories, Rooms of Practices Expertise Design Modelling and Information Buildings Competencies, Masinal Drawing Rooms, Laboratories of Ground Measures.

In addition to the regulations referred to in the Ministry of National Education, existing facilities and infrastructure must also have minimum standards based on architectural standards. Even in the stipulations of the Ministry of National Education, it is stated that the infrastructure used must be strong and comfortable, in relation to the standard characteristics of such sectors as ergonomics and anthropometry.

A piece of equipment that is made and used for day-to-day work must have an ergonomical nature, meaning that the tool can interact with it when it is used. The benefits of equipment that has the economic efficiency reduces fatigue caused by excessive waste disposal and increases similarity in working with these tools.

The architecture standards taken are based on a number of sources, books Architects Data by Ernst Neufert [5] and Human Dimension and Interior Space by Julius Paneroand Martin Zelnik [6]. In addition to the comfort of using equipment and circulation, some references to facilities and infrastructure are broad expanses of light and a suitable size of furniture.

II. RESEARCH METHODS

The research methods that will be used are methods of evaluative descriptive research and use a qualitative approach. The evaluative descriptive method is used to see the achievements of the planning done by transmitting and gathering data on the present condition. Data obtained from the results of observations and measurements in the field are explained in a descriptive manner compared to existing needs and standards.

This research was conducted at Vocational High School 5 Bandung, located at Jalan Bojongkoneng 37A Bandung, West Java Indonesia. The measuring instrument that will be used in this study consists of: Meter (50 m), Roll Meter (7.5 m), and Writing tools, computers and other equipment to support data recording and processing research data [7].

Retrieval of data for facilities and infrastructure evaluation was carried out on educational facilities andinfrastructure in Vocational High School 5 Bandung Competence Expertise Design Modeling and Information Building Competency Expertise Design Modeling and Information Building by observing and measuring directly. Measuring the suitability of facilities and infrastructure is done by directly observing all existing facilities and infrastructure, while measuring the condition of facilities and infrastructure by directly measuring using tool and equipment that has been provided previously.

Documentation is also carried out in the form of facilities and infrastructure, the steps undertaken in data collection include: interview with Head of Department and Head of Workshop on expertise competency of Vocational High School 5 Bandung, facilities and infrastructure observation, recording

of observations in the research instrumenttables, documentation of facilities and infrastructure.

III. Results and Discussion

Research data can be obtained from the results of observation and measurement of the facilities and infrastructure of the learning and driving studies conducted by discussing the research data obtained and providing recommendations for the facilities and infrastructure needed.

The discussion is carried out with the research data compared with the standards that have been determined by the Ministry of National Education and architectural standards. Every observation that is included in the checklist form for each time is added to the driving score and made for the fulfillment that is reached for each aspect.

The research instrument is the form of a checklist which will become the data and also photo documentation as a support of the research data. Measurements are carried out for every facilities that has standardized sizes - such as tables and chairs, some furniture equipped with pictures of illustrations.

After the number of scales is known, then a discussion of each data is made. Recommendations are given for any findings that do not meet predetermined standards. The following are the data and discussion of the facilities and infrastructure of each subjects: Almost all class ratios are not up to standard.85,7% 85.7% still exceeds the class ratio it should be, while 14,3% in accordance with the standard ratio of classrooms. It should be considered again the number of students in one room with class room capacity.

The width of classrooms generally comply the standards. 85,7% classrooms already have room widths that comply with minimum standards, as for 14,3% not comply with standards.

Classroom function 85,7% the classroom is in accordance with its designation. Whereas 14,3% classrooms are not used properly.

Circulation of classrooms only 42,9% that are in accordance with circulation standards, 28.6% are still not in accordance with the standards, and 28.5% do not comply with circulation standards. Some furniture placement in the classroom must be reorganized so that the classroom has good circulation.

Classrooms that have lighting that is in accordance with the standard are 42.9%, while 57.1% are still not in accordance with the standards.

Tables for student learning contained in each classroom, only 42.9% are in accordance with standards, 57.1% are still not according to standards. Provision of desks for student learning both desk and drawing table in accordance with standards must be done so that students can learn comfortably and in accordance with learning needs.

Chair for student learning in general are not in accordance with existing standards, only 14.3% are in accordance with the standards, while the other 85.7% are still not in accordance with the standards. Procurement of chair for students in accordance with the standards must be done immediately.

The teacher's desk in general is in accordance with the standard that is equal to 85.7% of the teacher's desk in each room is in accordance, while 14.3% is still not in accordance with the standard.

Almost all teacher's chairs are in accordance with the standard that is equal to 85.7%. The other 14.3% are still not in accordance with the standards.

Whiteboard in general is in accordance with the standard. 85.7% according to the standard and 14.3% still not according to the standard.

The projector for learning does not conform to standards. Only 28.6% had met the standard, while 71.4% still needed to procure a projector in the classroom.

The contact boxes in the classroom are generally in accordance with the standard.71.4% is in accordance with the standard, 14.3% less than the standard, 14.3% did not accordance with the standard.

Almost all clocks do not comply with the standard. 85.7% do not comply with the standard, and 14.3% did not comply with the standards. This means it is necessary to procure clocks in almost every classroom and repair repairs on clocks that do not work.

57.1% of the classrooms already have bins in accordance with standards, while the other 42.9% do not comply with standards. This means that it is necessary to procure trash bins for rooms that do not have bins.

It is proven that there are still many facilities and infrastructure that are still far from the standard, it can be seen from the low percentage. Of course this is an interesting discussion because there may be local elements that must be considered, and will be very useful for school management in meeting the quality and quantity appropriately [8].

After observing in the field, collecting data and discussing research data, there are several findings from research that have been done, including the poor planning of facilities and infrastructure and subject facilities that are not comply. The following research findings were obtained some classrooms found in the DPIB Study Program are classified as excess capacity, this can be seen from the ratio of students to the area of classrooms that is not appropriate.

Classrooms that should be used by students comfortably according to their capacity, become less comfortable due to rooms that exceed capacity will result in acoustic comfort when learning is reduced and classroom circulation is not good.

Reduced acoustic comfort due to excessive classroom capacity causes the class to become more noisy, students will find it difficult to focus on paying attention to the subject matter, and the teacher will have difficulty conveying subject matter because of class noise so the delivery of material must

be done with a high tone. The excessive number of students has an effect on increasing the number of furniture, adding an amount that exceeds the class ratio makes the classroom circulation decreases.

In addition to the excessive number of students, there are also classes that are not used for their designation, namely classes on technical drawing subjects that are used for subjects in soil measurement techniques due to the absence of soil measurement laboratories.

The use of drawing space of the Technical Drawing lessons used for the study of the Soil Measurement Technique course is incompatible with the actual class function [9]. Although there is the same subject matter that is drawing, but the whole Soil Measurement Technique subject cannot be facilitated by the Technical Drawing classrooms.

Using a classroom that is not appropriate will certainly result in some special room facilities for these subjects that do not exist. This will relate to subject facilities that are not comply.

Infrastructure in the form of existing classrooms is not well planned, this can be seen from the natural lighting standards of some classrooms that are not in accordance with the standards. The natural lighting source is from the window openings in the classroom, each class must have a minimum total opening area ¼ of the floor area of the classroom. Here are a few classrooms for subjects not comply the minimum standard of natural lighting:

Lack of window openings for natural lighting causes the intensity of the light needed to support the learning process to be reduced. Reduced classroom lighting can cause eyestrain when learning activities. When students experience eye fatigue, the focus to pay attention to the subject matter is reduced.

Poor infrastructure planning can also be seen from the absence of classroom infrastructure for the Soil Measurement Techniques, so that with good planning there will be no classrooms that are not available for certain subjects. Analysis of infrastructure requirements that are not good results in infrastructure planning that is not appropriate to the needs and does not meet the needs.

Some basic competency facilities related to subjects cannot be fulfilled, whereas some of these facilities can helping the basic competencies be achieved by students. By not fulfilling some of the basic competency facilities of each subject, the learning objectives may not be achieved by students. No achievement of the learning objectives can make a student not have any special skills that match the competencies that students take.

The absence of a number of lessons, lessons, damage to existing infrastructure and infrastructure, and the incompatibility of facilities and infrastructure with the standards is caused by management of less than optimal facilities and infrastructure. The intended management is at the procurement and maintenance stages.

Procurement of facilities and infrastructure must be based on an analysis of subject needs and applicable regulatory standards. Provision of facilities for some of the students is not comply [10].

In addition to inappropriate procurement, maintenance of existing facilities and infrastructure is not optimal. This can be found from some damage to existing classrooms, student desks and chairs, and damage to subject facilities such as teaching equipment. In addition to damage to some facilities and infrastructure, the loss of facilities in the form of student education equipment also enters the maintenance of facilities not optimal.

IV. CONCLUSION

Based on the results of the study about "Management of Educational Facilities and Infrastructure at Vocational High School 5 Bandung Competence Expertise Design Modeling and Information Building" it can be concluded that the educational facilities and infrastructure available at Vocational High School 5 Bandung are entirely in accordance with the standards. Facilities and infrastructure of Land Measurement Engineering subjects, it is necessary to construct a new class or replace the unused class and procure facilities such as furniture, educational equipment, educational media, and other equipment.

Some deficiencies of existing infrastructure are in the aspect of class circulation which is also good due to irregular placement of furniture and natural lighting sources that are not up to standard. Completeness of facilities and infrastructure that is less than the competency of each subject can result in students not being able to have the skills that are in accordance with the desired expertise program.

The condition of poorly maintained facilities and infrastructure resulted in some parts of the classroom being damaged, educational equipment that was partially lost by students, educational media such as blackboards that were left damaged and not repaired.

Poor management of facilities and infrastructure also resulted in the overall existing facilities not meeting the specified standards and not in accordance with the facilities of each subject needed. This is also caused by poor facility procurement.

Based on the conclusions that have been described, the implication of this research is to be able to help theschool, especially Vocational High School 5 Bandung Competence Expertise Design Modeling and Information Building to improve, complete, and maintain existing facilities and infrastructure so that it can be maximized in supporting the learning process of students.

From the research that has been done, researchers can provide research recommendations as follows: the school management, especially the competence of Design Modeling and Information Building at Vocational High School 5 Bandung can facilitate and make data collection to continue the

implementation of infrastructure and infrastructure according to standards and needs. The vice principals of facilities and infrastructure can maintain, complete, and improve the facilities and infrastructure of schools so that educational facilities and infrastructure are in accordance with regulations and architectural standards.

The teacher in order to be able to adjust the delivery of material with the facilities and infrastructure available so that students can achieve the desired subject competencies.

The next researcher is expected to be able to develop this research better as a form of contributing to the creation of schools with facilities and infrastructure that are in accordance with the standards.

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