

## Conference Paper

# How Do School Facilities Affect School Quality? Case Study in Vocational High School at Pati, Indonesia

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### Abstract

The study aims to determine about how does school facilities affect school quality at vocational high school in Pati, Central Java, Indonesia. The approach and methods used in the study was evaluation research using a discrepancy model. The data were collected by observation, interview, and documentation. Meanwhile, the analysis used interactive model by Milles and Huberman. The results showed that the school facility at vocational high school in Pati is up to standard of Regulation of National Education Minister Number 40 Year 2008. The value of school infrastructure is 72.5% or adequate category, while school facility is 84.3% or adequate category. School facilities become one of the factors in supporting student learning achievement and teacher performance. Therefore, learning achievements can be improved through improved the school facilities. Thus, it is able to improve the school quality.

**Keywords:** school facilities, discrepancy model, school quality, learning achievement

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## 1. Introduction

Education is a substantial necessity that must be fulfilled for life (Ihsan, 2008). As stated in The Law of National Education System Number 20 of 2003 stated that education has functions to develop the ability and build the character. In addition, another function of education is encouraging educational advancement, so the government established policies such as SNP (Standar Nasional Pendidikan or National Education Standard). SNP is minimal criteria about education system in Indonesia which serves as the basis for planning, implementing, and supervising of education to realize the quality of education (Government Regulation of Indonesia, Number 19 of 2005).

National Standard for Infrastructures and Facilities in consonance with Government Regulation of Indonesia Number 19 of 2005, Chapter 1, Article 1, Paragraph 8 stated that one of national standards for school facilities should have the minimum criteria which

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there are classroom, sport venues, worship place, laboratory, workshop, playground, recreational area, and other learning resources which are needed to support the learning process, including the use of information and communication technology. Along with Sutomo (2015), facilities are all basic equipment and furniture either directly or indirectly that can support the education process such as location, building, sports field, space, book, library, laboratory, and so on. They are those things which enable a skillful teacher to achieve a level of instructional objectives that far exceeds what is possible when they are not provided (Earthman, 2002 and Adeipe, 2007). Meanwhile, the standard of infrastructure and facilities for Vocational High School especially Department of Office Administration is regulated in Regulation of National Education Minister Number 40 of 2008 described in table 1.

TABLE 1: Standard of Infrastructures and Facilities for Office Administration

Type	Ratio	Description
Typing/Computer Laboratory	4 m <sup>2</sup> /student	Capacity for 8 students. The minimum area is 32 m <sup>2</sup> and the minimum width is 4 m.
Filing Laboratory	4 m <sup>2</sup> /student	Capacity for 8 students. The minimum area is 32 m <sup>2</sup> and the minimum width is 4 m.
Office Machine Laboratory	4 m <sup>2</sup> /student	Capacity for 8 students. The minimum area is 32 m <sup>2</sup> and the minimum width is 4 m.
Office Laboratory	4 m <sup>2</sup> /student	Capacity for 8 students. The minimum area is 32 m <sup>2</sup> and the minimum width is 4 m.
Space for Instructor	4 m <sup>2</sup> / instructor	The minimum area is 48 m <sup>2</sup> and the minimum width is 6 m.

Depend on the result of observation on 10th to 13th December 2018, researchers found several problems in school facilities in Pati, Central Java, Indonesia which affected the value of competency test. Whereas, the accreditation value of Office Administration Department in SMK Nasional Pati is A, but it has only two laboratories namely office and typing/computer laboratories. Moreover, the result of interview showed that each practical subject, student only does the practice in office laboratory. Furthermore, student will use the computer laboratory if they have typing material.

Theory of constructivist learning from Slavin and Slameto (2010) shows that student learning success is determined by how far the educators can create situation and condition which students can be active in the learning process. Consequently, the pleasurable situation and condition for learning process is the keys to improve the achievement, motivation, and outcomes, so the evaluation is required for educators or teachers to create a pleasant environment.

Implementation of evaluation by Purwanto (2009) aims to obtain the data or evidence where will demonstrate the level of ability and achievement to carry out the learning

goals. If school can get hold of triumph for students, it can attain a good quality. Hence, the school facilities can affect the school quality, thus researchers are interested to find out how does school facilities affect the school quality in Vocational High School, Department of Office Administration at Pati, it is necessary to evaluate the adequat of facilities.

## 2. Literature Review

### 2.1. Theoretical Framework

This research was designed to find out the affect between adequate of school facility and school quality. The research suggest an affection can be found between school facility and school quality, then school division can make better decision about facility management. These decisions could affect the school quality, students' achievement, and teacher performance. Cash (1993) and Crook (2006) suggested that school facility could influence the school performance. When there is adequate facility to address the need of student population, there is positive improvement from academic outcomes (Dawson and Parker, 1998). In line with Earthman (2002), school facilities have an impact on effectiveness in learning process. Reported by Lowe (1990), inadequate facilities had a negative impact upon the learning climate. MacGowen (2007) found that students' achievement was one of two dependent variables proved to have statistically significant relationship to school facility. Adequate facility of school influences the performance of teacher and student (Johnson, 1990). Many researchers such as Harner (1974), Group (1999) Earthman (2002), Buckley (2004), Boese and Shaw (2005), Revathy (2008), Earthman (2002) in the research by Nepal (2016) declared those adequate facility is important for students' academic achievement. As stated in Leung and Wang (2006), adequate facility has an impact on the working behaviors of teachers and students. A good infrastructure and facility could affect and relation between student achievement and the educational quality, because the failure to create and maintain optimum learning can undermine other efforts to reform education (Vendiver, 2011).

### 2.2. Evaluation

Confirming to Edward Wand and Gerrald W. Brown in their book with title about Essential of Educational extracted by Wayan Nurkancana (1983) emphasized that evaluation refer to the act or process to determining the value of something. Ralph Tyler cited by Hamzah

(2013), evaluation is a process of collecting data to determine which in what case and for what the educational goals have been achieved, if it is not achieved, what the causes it. Furthermore, Cronbach and Stufflebeam provided by Hamzah (2013) clarified that evaluation is not just the extent to how far the purposes are achieved, but it used to make decisions. In agreement with Hamid Hasan, evaluation is a process presenting the consideration about the value and sense of something considered (Sanjaya, 2008). Evaluation in keeping with Hamalik is the whole measuring activity (data and information collection), processing, interpreting, and reasoning to make a decision about learning outcomes that have been achieved by student after learning activity (Darmadi, 2010). In Law about National Education System Number 20 of 2003 defined evaluation is carried out in controlling of national quality education as accountability of stakeholders.

### 2.3. School Facility and Improving the Students' Achievement

School is a system in which the environment is just one of many interacting pedagogical, social-cultural, curricular, motivational and socio-economic factors (Higgins, 2005 in Monk 2006). Facility and infrastructure are the most expensive asset of a school. Maximum educational value should be derived from them. Adequate school facilities positively influences to an effective learning environment (Loughlin and Suina, 1982).

O'Neill (1999) states that school facilities have an impact on the learning environment for student. This has been understood since the early days of school facility planning in the United States. Schnieder (2002) declared that school facilities impact the daily performance of teacher and students, and its design can positively affect long-term academic achievement. Well planned school facilities could have a positive impact on the learning environment (Graves, 1993). While there is a consistent correlation between the quality of a facility and student's academic performance, Atkinson (2000) in Ronald (2012) shows an even stronger link between facility and teacher motivation, effective teaching takes place when teacher have enough space for student to learn.

## 3. Research Methods

Type of this research used qualitative and evaluative method using a discrepancy model. Pursuant to Kaplan (2005), Qualitative method is being used increasingly in evaluation studies, including evaluation of school facilities. At the same time, discrepancy model emphasizes gaps in implementation. The result achieved is compared with the result that should be achieved (category). Conclusion is based on the result of comparison

between the result and criteria, so that it can be seen the discrepancy between criteria and result achieved. Model of study case in the research used to describe the fact by comparing the facilities between Regulation of National Education Minister Number 40 of 2008 and Implementation adequate of facilities in SMK Nasional Pati, Indonesia. Hereafter, data was processed using a percentage scale described with the result of observation, interview, and documentation. Snowball sampling was chosen to measure the total of informant in the research, and number of informant's as many as three informants. Technique of data analysis used triangulation method with interactive model.

## 4. Result and Discussion

### 4.1. Result

#### 4.1.1. Infrastructure of Laboratory in Office Administration Department at SMK Nasional Pati

The regulation about infrastructure is arranged in Regulation of National Education Minister Number 40 of 2008. SMK Nasional Pati has 2 laboratories, namely typing/computer and office laboratories. Further information is explained below.

##### a. Typing/computer Laboratory

Typing/computer laboratory space and width area in Regulation of National Education Minister Number 40 of 2008 are at least 32 m<sup>2</sup>/ student and 4 meters/ student, while laboratory at SMK Nasional Pati is 81 m<sup>2</sup> and 9 meters. The capacity of it for students is sufficient for all students who practice. Found the interview with Head of Office Administration Department, the number of students using this laboratory is 5 classes of 16 to 28 students, so each student has space area of 2.8 to 5.06 m<sup>2</sup>. Then, the rating scale obtained for laboratory is 3 to 5 (shown in table 2).

##### b. Office Laboratory

Space and width area of office laboratory by Regulation of National Education Minister Number 40 of 2008 are a minimum of 32 m<sup>2</sup>/student and 4 meter/student, at the same time SMK Nasional Pati has 63 m<sup>2</sup> and 7 meter. In this way, it has exceeded the minimum standard. On the grounds, each student has space of 2.25 to 3.93 m<sup>2</sup>, the rating scale obtained is 3 to 4 (table 3).

TABLE 2: Performance Percentage of Infrastructure in Typing/Computer Laboratory

Type	Result	Scale	Score
Space area of Typing/Computer Laboratory	2.8 to 5.06 m <sup>2</sup> /students	Area for each student 4 m <sup>2</sup>	5
		Area for each student between 3 and 4 m <sup>2</sup>	4
		Area for each student between 1 and 2 m <sup>2</sup>	3
Score Total			12
Percentage			80%
Category			Adequate

TABLE 3: Performance Percentage of Office Laboratory

Type	Result	Scale	Score
Space area of Office Laboratory	2.25 to 3.93 m <sup>2</sup> /student	Area for each student between 3 and 4 m <sup>2</sup>	4
		Area for each student 2 and 3 m <sup>2</sup>	3
Score Total			7
Percentage			70
Category			Adequate

#### 4.1.2. Facility of Laboratory in Office Administration Department at SMK Nasional Pati

##### a. Laboratory Furniture

##### a) Typing/computer Laboratory

(a) There are 25 typing desks for students and 2 desks for teacher. The height of each desk is 72 cm and made of wood. All desks are good condition and can be used which each desk applied for two students.

(b) There are 45 chairs and each student gets one chair also two chairs for teacher. Chair made from wood which has a height of 43 cm.

(c) There are a cabinet for storing tools and materials that made of glass with good condition and can be locked.

##### b) Office Laboratory

Condition of office laboratory is clarified in table 5 below.

TABLE 4: Performance Percentage of Furniture at Typing/computer Laboratory

Type	Result	Scale	Score
Typing desk	Total of desk: 25 Height of desk: 72 cm Material: Wood Condition: Good	Standard of desk height is between 65 to 75 cm, and the number of tables should be suitable with the number of students/room which can be used entirely.	5
		Standard of desk height is between 65 to 75 cm, and the number of tables is not suitable with students/room, but it is more than half of students/room which can used entirely.	4
Chair/ stool	Total of chair: 45 Height of chair: 42 cm Material: Wood Condition: Good	Standard of chair height is 40 to 50 cm.	5
Cabinet	Total of cabinet: 1 Material: Glass Condition: Good	There is a cabinet that made from glass and can be work	5
Score Total			19
Percentage			95%
Category			Very Adequate

TABLE 5: Performance Percentage of Furniture at Office Laboratory

Type	Result	Scale	Score
Office desk	Height of desk: 70 cm Total of desk: 8 desks with L shape and 8 desks Condition: Good The number of students: 16-27 students	a) Standard of desk height is 65-75 cm. b) Total of desk is in accordance with students c) All of desk can be used entirely	5
		a) Standard of desk height is 65-75 cm. b) Total of desk is not in accordance with students, but the number of desks is more than half of students/room c) All of desk can be used entirely	4
Office chair/ stool	Total of chair: 8 units of swivel chair and 20 chair Condition: Good	a) Standard of chair desk is 40-50 cm b) Total of chair is in accordance with students/room c) All chairs can be used	5
Cabinet	Total of cabinet: 2 unit Material: Glass Condition: Quite Good and Unlocked	There are two cabinets that made from glass and can be used to support the learning process	5
Score Total			19
Percentage			95%
Category			Very Adequate

**b. Tools of Laboratory in SMK Nasional Pati**

**a) Typing/computer Laboratory**

SMK Nasional Pati has 40 typewriter/computer and 3 printers with good condition in computer laboratory.

TABLE 6: Performance Percentage of Tools at Typing/Computer Laboratory

Type	Result	Scale	Score
Typewriter or computer	Total of typewriter: 40 Condition: Good	The number of typewriters is in accordance with students, and all typewriters can work.	5
Printer	Total of printer: 3 unit Condition: Good	The number of printers is not in accordance with students.	1
Paper	Type of paper: A4	It has provided the paper in accordance with the number of students that can help in the learning process.	5
Stop map	Each student gets a stop map	It has provided the stop map in accordance with the number of students.	5
Score Total			16
Percentage			80%
Category			Adequate

**b) Filing Tools**

When each student practices about archive/filing in office laboratory, they receive a folder and guide as many as they need. All tools of filing are good condition and can work. Tables 8 will be demonstrated clearly.

**c) Office Machine Tools**

Tools used for practice about office machine has supported with 5 computers, 1 printer, 5 telephones, and 14 calculators. All tools are used interchangeable because the machine is limited. Whilst, SMK Nasional Pati is still not having a photocopy; duplicate; and laminating machines. Meanwhile students would like to practice about duplicate machine, they do not using a photocopy machine but they work a printer for duplicating some documents.

TABLE 7: Performance Percentage of Filing Tools

Type	Result	Scale	Score
Folder	Total of folder: same with the number of students	Each student grab folder when they practice.	5
Guide	Total of guide: same with the number of students	Each student grab guide when they practice.	5
Tickler file	None	None	0
Filing cabinet	Total of filing cabinet: 1 unit with 4 drawer Condition: quite good	All of filing cabinet is in accordance with the number of students Condition of filing cabinet is not good, but it still can work	4
Box	None	None	0
Score Total			14
Percentage			46.66%
Category			Quite Adequate

TABLE 8: Performance Percentage of Office Machine Tools

Type	Result	Scale	Score
Computer	Total of computer: 5 unit Condition: Good	The number of computers is not in accordance with the number of students All computers can work.	1
Printer	Total of printer: 1 unit Condition: Good	The number of printers is not accordance with the number of students All printers can work.	1
Photocopy	None	None	0
Telephone	Total of computer: 5 unit Condition: Good	The number of telephones is not accordance with the number of students All telephones can work	1
Calculator	Total of calculator: 14 unit Condition: Good	The number of calculators is not accordance with the number of students All calculators can work	3
Laminating	None	None	0
Paper shredder	Total: 1 paper shredder Condition: Good	Paper shredder can work	5
Score Total			11
Percentage			31.42%
Category			Quite Adequate

#### d) Office Laboratory

Office tools provided include 5 computers and 1 printer. Each student applied the computer and printer alternately, because all machines are limited. The number of stationeries is 30 pieces with good condition, hence it can work entirely. In addition,

there are paper (type of paper: A4 and F4), stop map, envelopes, 20 scissors, 75 perforators, 39 stamps, 7 trays, 36 rulers, and 59 staplers. All of tools are good condition, except the filing cabinet is quite good but it still works in learning process.

TABLE 9: Performance Percentage of Office Laboratory Tools

Type	Result	Scale	Score
Computer	Total of computer: 5 unit Condition: Good	a) The number of computers is not in accordance with the number of students b) All computers can work.	1
Printer	Total of printer: 1 unit Condition: Good	a) The number of printers is not in accordance with the number of students b) All printers can work.	1
Paper	Type of Paper: A4 and F4	All of papers are in accordance with the number of students.	5
Stationery	Total of stationery: 30 pieces	All stationeries are in accordance with the number of students	5
Envelope	Each student gets at least one envelope during learning	The number of envelopes is the same with the number of students	5
Stop map	Each student gets at least one envelope during learning.	The number of stop maps is the same with the number of students	5
Scissors	Total of scissors: 20 Condition: Good	The number of scissors is the same with the number of students	5
		The number of scissors does not match the students, but all of scissors is good condition and can work in learning.	3
Ruler	Total of ruler: 36 Condition: Good	The number of rulers is the same with the number of students	5
Stamp	Total of stamp: 39 Condition: Good	The number of stamps is the same with the number of students	5
Stapler	Total of stapler: 59 Condition: Good	The number of staplers is the same with the number of students	5
Perforator	Total of perforator: 75 Condition: Good	The number of perforators is the same with the number of students	5
Tray	Total of tray: 7 pieces Condition: Good	The number of trays is not the same with the number of students	1
Filing cabinet	Total of filing cabinet: 1 unit Condition: Good	The number of filling cabinet is in accordance with necessity in learning process	4
Calender	None	None	0
Score Total			55
Percentage			73.33%
Category			Adequate

### c. Media for Learning Process in Laboratory

#### a) Typing/computer Laboratory

Media for learning process in typing/computer laboratory in keeping with Regulation of National Education Minister Number 40 of 2008 should have a whiteboard to block of 8 students. Rest on research result, there is 1 unit of LCD used in typing learning, yet it has not a blackboard. On the other hand, LCD is in good condition, though it is no projection screen.

TABLE 10: Performance Percentage of Learning Media at Typing/computer Laboratory

Type	Result	Scale	Score
Whiteboard	Total of whiteboard: None, however it is replaced with LCD.	There is no whiteboard; nonetheless it is replaced with LCD that has same function.	3
Score total			3
Percentage			60%
Category			Quite adequate

#### b) Office Laboratory

Learning media given in office laboratory is usually used for filing practice, office machine practice, and office practice. It has a whiteboard located in front of the class, with the result that it can be reached by all students in the laboratory.

TABLE 11: Performance Percentage of Learning Media at Office Laboratory

Type	Result	Scale	Score
Whiteboard	Total of whiteboard; 1 Condition: quite good	There is a whiteboard in each room, reached by all students, and can used.	5
Score total			5
Percentage			100%
Category			Very adequate

### d. Other Tools in Office Administration Department

**a) Typing/computer Laboratory**

(a) Box. The minimum standard of box in typing/computer laboratory in agreement with Regulation of National Education Minister Number 40 of 2008 is 8 boxes/ room. It serves to support the operation tools that require electrical power. Form on the fact in SMK Nasional Pati, it has unique box that is used for operational tools that requires electricity. There are 40 boxes in the typing/computer laboratory.

(b) Trash. Typing/computer laboratory has 1 trash in good condition and can be used. Thusly, standard used by SMK Nasional Pati is in accordance with Regulation of National Education Minister Number 40 of 2008 which is told that the minimum standard for each laboratory should have 1 trash.

TABLE 12: Performance Percentage of Other Tools at Typing/Computer Laboratory

Type	Result	Scale	Score
Box	Total of box: 40 boxes Condition: Good	There are 8 boxes with good condition and can work in learning process	5
Trash	Total of trash: 1 Condition: Good	There is a closed trash in each laboratory, and the location is affordable and used.	5
Score Total			10
Percentage			100%
Category			Very Adequate

**b) Office Laboratory**

TABLE 13: Performance Percentage of Other Tools at Office Laboratory

Type	Result	Scale	Score
Box	Total of box: 5 boxes Condition: Good	There are 4 boxes with good condition and can work in learning process	5
Trash	Total of trash: 1 Condition: Good	There is a closed trash in each laboratory, and the location is affordable and used.	5
Score Total			10
Percentage			100%
Category			Very Adequate

**4.2. Discussion**

#### 4.2.1. Infrastructure of Office Administration Department in SMK Nasional Pati

Infrastructure standard for laboratory of Office Administration Department to the degree that Regulation of National Education Minister Number 40 of 2008 is 4 laboratories consisting of typing/computer laboratory, filing laboratory, office machine laboratory, and office laboratory. Nevertheless, SMK Nasional Pati has only 2 laboratories that include the typing/computer and office laboratories, so that it needs to count up the filing and machine laboratories. The calculation of laboratories is demanded because it can hand learning activities being effectively and efficiently. The performance percentage of infrastructure in SMK Nasional Pati is 72.5% (adequate category).

Research finding in line with Cynthia and Megan (2008), the walls speak: the interplay of quality facilities, school climate, and student achievement. This study shows that school infrastructure has a significant relationship to student achievement in learning. As reported by Jannah (2018) reveals that school infrastructure has a strong influence of 53% on student motivation. Along these lines, infrastructure becomes a determining factor in improving the motivation of student learning. The use of laboratory also effects of 31.47% on outcomes of student learning in SMK Negeri 5 Padang (Saputra, 2019).

#### 4.2.2. Facilities of Office Administration Department in SMK Nasional Pati

Facility of laboratory in office administration department conforming to Regulation of National Education Minister Number 40 of 2008 consists of furniture, tools, learning media, and other tools. The performance percentage of facility in SMK Nasional Pati is 84.33% including very adequate category. The highest of adequate percentage of laboratory facilities is found in learning media in office laboratory, and also other tools in typing/computer and office laboratories which are 100% (very adequate category). During the time, the lowest percentage of office machine tools reaches 31.42% with quite adequate category. It is still inadequate because SMK Nasional Pati has no a photocopy machine, a multiplier machine, and a laminating machine.

Inadequate facilities of school disrupt the learning process. Supplementary, it can be rattled the performance of students and teachers. The discomfort in learning process and reduction the performance of teacher can have a negative impact on student learning achievement. Supported by the result of Onesto Ilomo (2016), inadequate facilities supported the teacher and student cause poor performance for school. Stand

on Yasmin (2019), the learning facilities both partially and simultaneously has the positive and significant influence toward students learning outcomes. Similar to the results of Asabaka (2008), Susanti Uno (2013), and Onesto Ilomo (2016) are proving that school facilities have a positive effect on student learning motivation.

In the line with Santosa (2009), school facilities have positive effect of competence by 84%, it means that school facilities are vital variables in improving student competencies. Depend on Mulyasa's Theory (2006), learning outcomes are the interaction result from various factor. In consonance with Slameto (2010), one of the factors that influence learning outcomes is tools and facilities in laboratory. An adequate school facility is part of external factors that has an effect on learning outcomes (Wati, 2011).

## 5. Conclusion

Hinge on the result of study, it is known that the laboratory facility and infrastructure at SMK Nasional Pati is 72.5% and 83.44% or in the adequate category. Suggestions for improving the infrastructure and facility of school, they are: (1) school should regulate the number of students when practicing in accordance with standard of Regulation of National Education Minister Number 40 of 2008, to prevent the comfort and safety of students is maintained, and the last the effectiveness in learning process will run well. (2) School need to add the laboratory room for filing and office machine. (3) School commitments to be fulfilled the completeness of the facilities in office machine tools.

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