

Factors that Affect the Quality Status of Vocational High Schools

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Abstract—In Indonesia a huge number of students prefer enrolling in general high school (SMA) over vocational high school (SMK), yet the government want more students (70%) enrolled in vocational high school. This article was aimed at investigating the effects of student gross retention rate, quality of teachers, student self-efficacy and condition of infrastructure on schools' quality status. Factor analysis was used to determine the influence of each factor on the quality of the school. Data was extracted from Indonesia Center for Education Data and Statistics (MoEC). The research population was made up of 13236 vocational schools. A purposive sample of 34 provincial clusters was deliberately selected. It was found that, there was an association between the quality of a school and state of the school infrastructure. Students self-efficacy had a strong influence on students' high school enrollment decisions. The government should increase the infrastructure budget for the vocational schools (SMKs), help schools to mobilize capital development funds as well as help fight negative publicity affecting vocational schools.

Keywords—*quality vocational school; TVET; quality infrastructure*

I. INTRODUCTION

There is no commonly agreed formula to evaluate the quality of a vocational school and its subsequent effect on quality outcomes. The quality of a school is influenced by several factors like quality teachers, quality students, class size, conducive and clean environment, well ventilated classroom, well-resourced libraries, e-learning to mention a few factors [1]. The size of the class influence class attendance by the students [1]. So many studies investigating the impact of school quality using measures such as class size, teacher characteristics and expenditure per capita on students' outcomes came up with varying conclusions [1]. Hanushek as cited by Bernal, Mittag, and Qureshi found that student to teacher ratio had a positive effect on student performance by 14%. Bernal, Mittag, and Qureshi found that school teaching and resources quality had a positive effect on student achievement [1].

Indonesia has a tropical climate and as such most of the infrastructure is easy to be damaged by weather and in some extreme circumstances by recurring earthquakes in some islands like Aceh. Infrastructure quality has a bearing on the quality of schools. It is therefore an important determinant of quality schools.

Another study in Switzerland focused on leadership, cooperation, climate and class room management as determinants of vocational school quality [2]. The schools were inspected on the basis of the above factors to try to establish their quality. Expectations of school inspection by the education officers were found to be a major drivers of a school's quality improvement [3]. In order to enhance school-based quality management, schools were inspected on the basis of school climate; classroom climate; instruction and classroom management; working climate and cooperation; leadership and quality management; school improvement activities and parental involvement [2]. The emphasis of the inspections was continuous quality improvement with the anticipation that quality outcomes will come out gradually. It was discovered that teachers' collective efficacy can help to improve quality.

Hrmo, Kristofiakova, and Petnuchova, developed quality evaluation model of vocational education and training for secondary vocational schools in Slovakia. The researchers found that the quality of schools and teacher satisfaction determines the quality of teaching process, outputs and outcomes. Quality teaching can be affected by the following factors; age of teachers, salaries, parent's/student aggressiveness, bad work environment and conflicts among workmates [4].

Eichhorst, Rodrigues-Planas, Schmidl, and Zimmermann, investigated the relevance of quality vocational school training, apprenticeship and dual training systems in Europe, America and Australia. They found that the returns of school based vocational training were not as strong as expected [5]. The returns of apprenticeship were relatively high. Apprenticeship trained employees earned more than school trained employees by 5 to 7% showing that apprenticeship graduates were of high quality. The dual system was considered the best. Wages for employees who came out of the dual training systems were the highest by 15-20% in Germany and Austria and wider returns to the economy were great [6]. Yan and Liu proposed the 2+1 model also known as the "Dinggang" internship. The students learnt theoretical knowledge in colleges in the first two years and learnt hand-on skills in enterprises in their final year [7]. The school-based education does not produce highly competent graduates when compared with the dual system because most vocational schools lack relevant state of the art equipment and machinery and in some extreme situations, they use outdated machinery and equipment.

Poor infrastructure, unusable or leaky classrooms, was found to be a significant predictor of poor performance in Ghana’s combined general and vocational education system [8]. A study in 507 schools in Nigeria found that students’ achievement in Mathematics had a positive correlation with school infrastructure, including the availability of toilets and instructional materials in the school [8]. A longitudinal study in rural Malawi found a mixed association between school infrastructure, resources (student teacher ratio, classrooms, blackboards, working water source, clean toilet facilities sports equipment and fields, books, etc.) and educational outcomes [8].

Another relevant research was carried out in the United States of America. The objective of the research was to examine the correlation between state assistance on Indoor Air Quality (IAQ) and district level policies and practices related to IAQ and Integrated Pest Management (IPM). Factor analysis was incentivized. The factors considered include heating, ventilation and air conditioning, moisture and mold, cleaning and maintenance, materials selection source control, integrated pest management. It was found that 65.3% of the districts provided IAQ to schools. The researchers discovered that state assistance on IAQ was correlated with IAQ promoting places and practice implementation. The state was recommended to provide districts with model policies, technical assistance and professional development [9].

Various researchers considered different factors which they considered influential to the local TVET education systems. This shows that, there is room for further research mainly because of differences in TVET systems operating in different conditions.

The overall objective of the paper was to investigate the effects of student gross retention rate, quality of teachers, student self-efficacy and condition of infrastructure on schools’ quality status. To meet this objective a comparatively analysis was conducted for two consecutive academic years of 2015/2016 and 2016/2017.

II. METHODS

A. Research Design

In order to achieve the overall objective, the researcher used content analysis method. It was chosen mainly because it is method of evaluating data and data for analysis was extracted from online uploaded historical documents [10]. Content analysis is a nonreactive research method [11].

B. Population and Sample

The population was made of 13236 registered vocational high schools in Indonesia. The researcher purposively chose the averaged vocational school data for the 34 provinces. Purposive sampling was deliberately opted. Purposive

sampling was chosen because it is cost effective and less time consuming, ensures intensive study of the selected items, and gives better results if the investigator is unbiased and has the capacity of keen observation and sound judgment.

C. Instrumentation

The researchers used secondary data obtained from Indonesia Center for Educational Data and Statistics. The researcher himself purposively chose certain items which to his judgment are best representative.

D. Research Procedure

The researchers extracted data which was consistent with student gross retention rate, quality of teachers, student self-efficacy and condition of school infrastructure. Data for two consecutive years was extracted from Indonesia Center for Educational Data and Statistics. With this data the researcher compared the two academic years to determine whether there was an improvement or deterioration of vocational schools’ quality status.

E. Data Analysis

To evaluate the quality of the school data, a qualitative comparison of two successive academic years 2015/2016 and 2016/2017 was done.

III. FINDINGS

A. Quality of Teachers

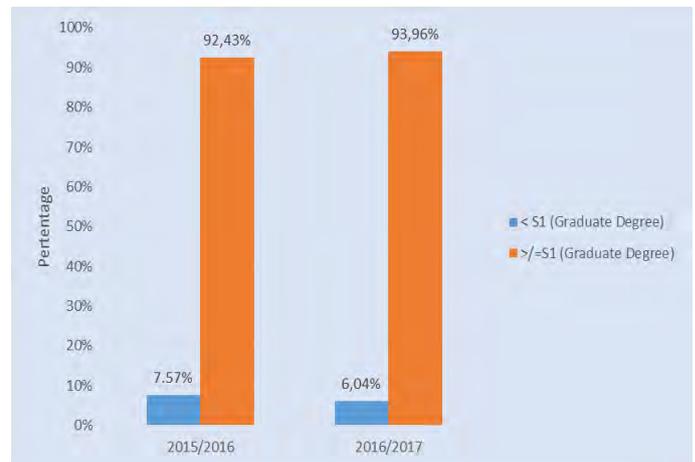


Fig. 1. Teachers qualification trend.

From the bar graph above it can be seen that most vocational teachers are qualified although post graduate teachers are proportionately limited. An insignificant decrease in the proportion of post graduate teachers was realized during the academic year 2016/2017 compared to 2015/2016. This revealed that Indonesia vocational schools are sufficiently staffed with qualified personnel although there was a slight decrease of post graduate teachers.

B. Infrastructure Conditions

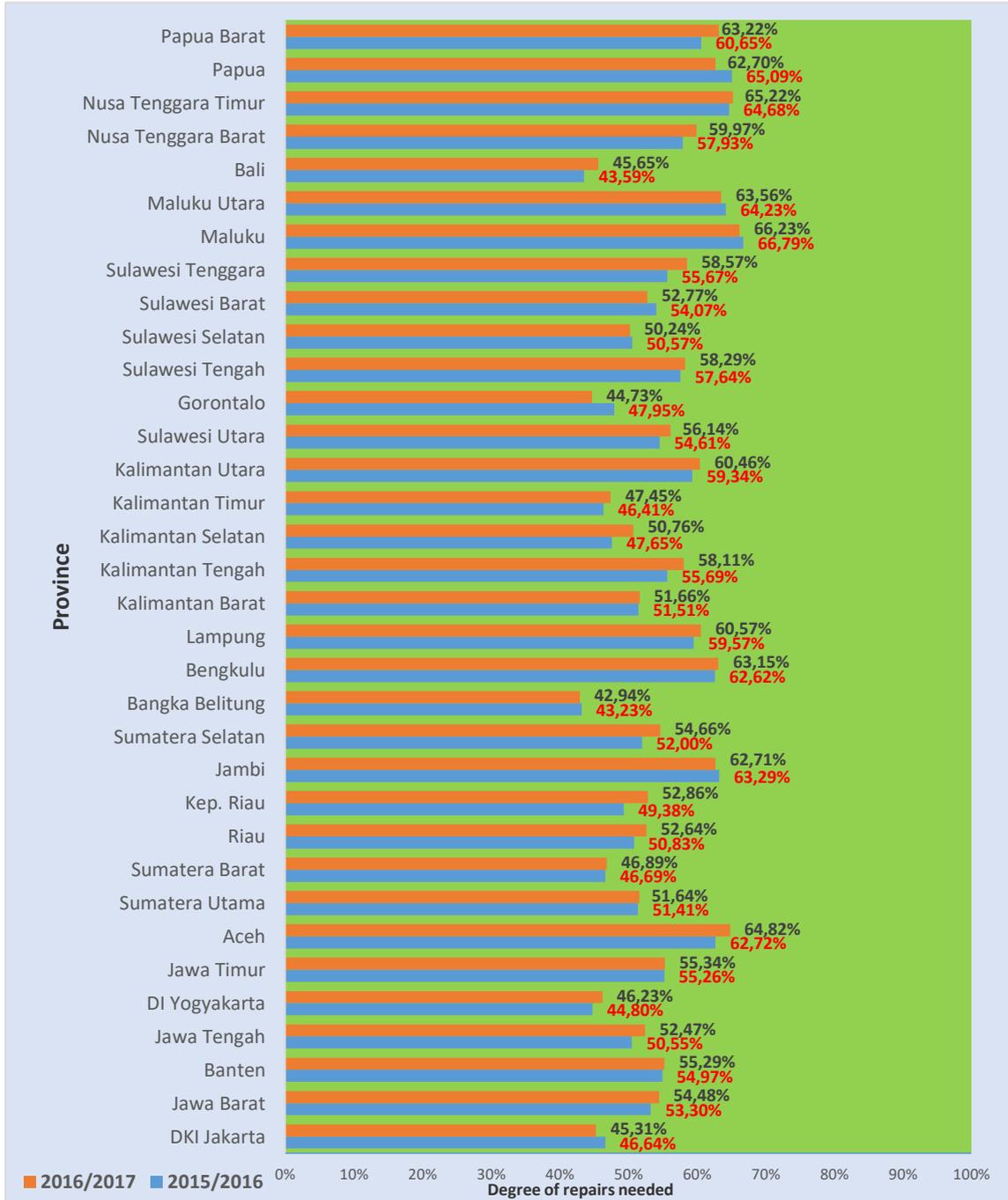


Fig. 2. Proportion of infrastructure that require repairs.



Fig. 3. Earthquake damaged library in Aceh.

As shown by figure 2 and figure 3 above, the number of school buildings that needed attention was relatively high compared with those in good condition. Nearly half of the school properties in all the provinces required minor to major renovations in 2015/2016 and 2016/2017 academic years. This could be mainly attributable to the adverse effects of climate and other natural disasters. There was a noticeable increase in classroom deterioration in most provinces in the academic year 2016/2017. This is because most schools normally engage in major renovations when there is infrastructure accreditation by responsible authorities usually from government in the case of government schools. The schools also operate on tight budget as such they don't afford to repair infrastructure regularly. In Sumatra high infrastructure deterioration was mainly

attributable to recurring earthquakes. The condition of infrastructure is an immense determinant of the quality of schools as poor infrastructure can affect students' cognitive abilities [8]. Therefore, there is need for continuous quality improvement of school infrastructure because of the high frequency of natural disasters like volcanoes, earthquakes, flash floods and excessive rains.

Poor construction of schools building was also found to be a problem in some parts of Indonesia. The infrastructure inspectors often find poor workmanship with regards to buildings. Badly built schools' buildings expose students to danger. Figure 4 below shows poor construction of a classroom blocks in Ciamis.



Fig. 4. Poor classroom construction.

C. Students Self-Efficacy

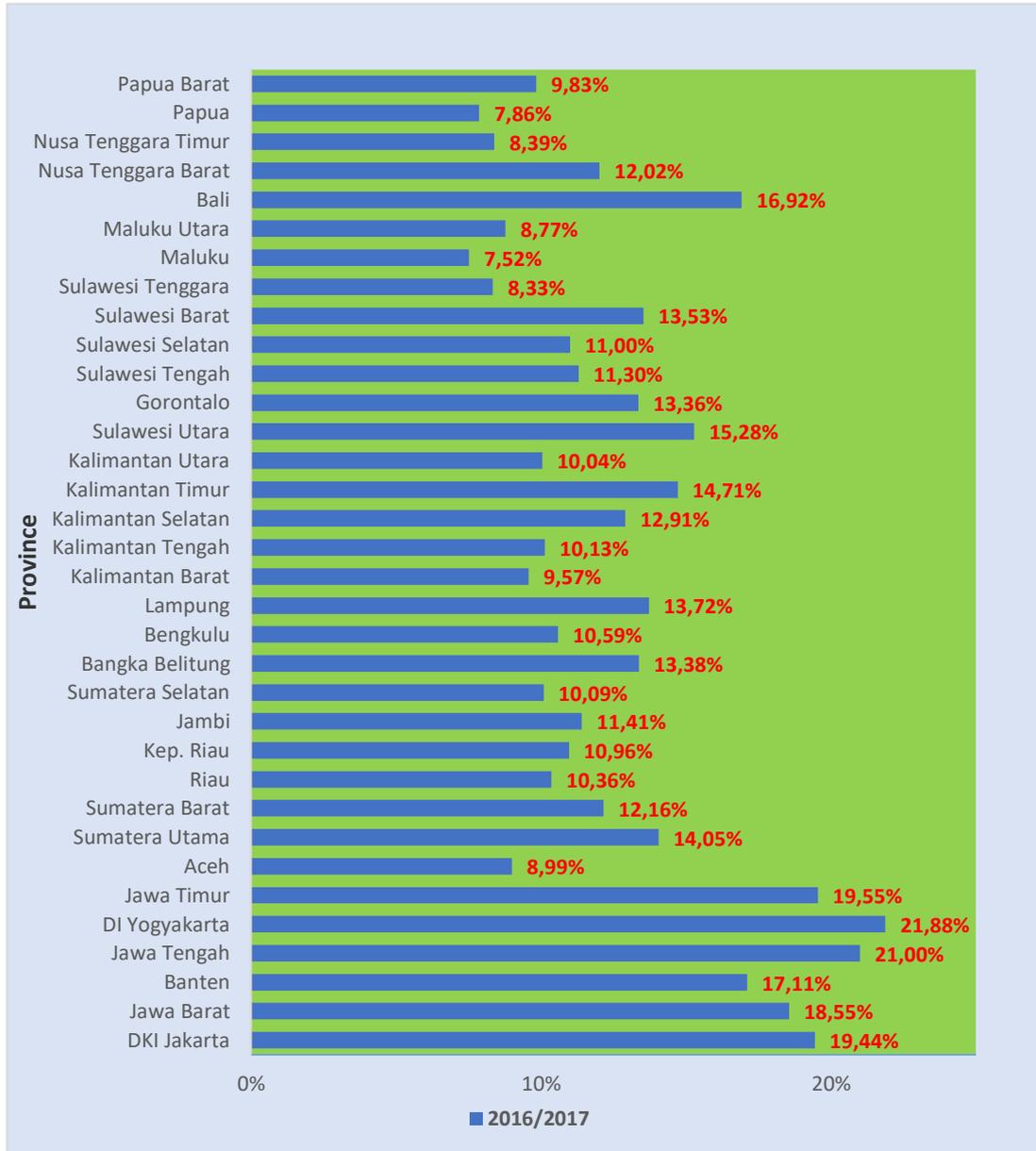


Fig. 5. Students self-efficacy (Vocational high new entrant as percentage of high school new entrants).

Student self-efficacy is measured by the proportion of new entrants to vocational schools as a proportion of high school new entrants. The proportion of students who enrolled in vocational high school during the academic year 2016/2017 was relatively low with highest figures recorded in east Java island. This was far below government targets of 2015 of

increasing the share of TVET in upper-secondary education to 70% (from 30%) [12]. This could be because of long term causes like stereotyping of vocational education as a study field for non-academically gifted students, and absence of job placements upon completion.

D. Gross Retention Rate

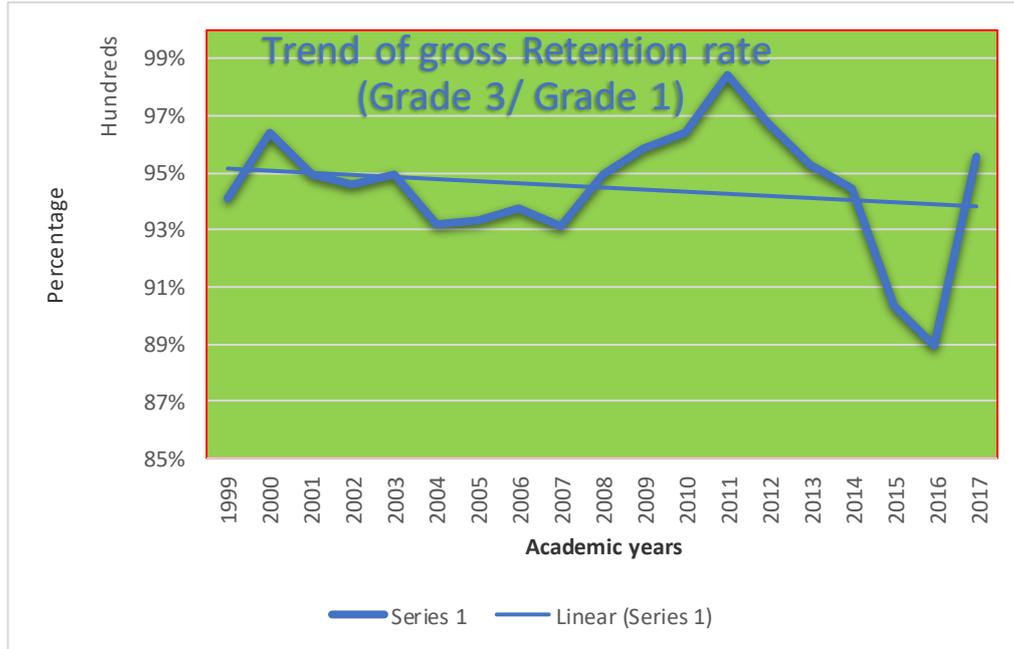


Fig. 6. Gross retention rate.

Gross retention rate measures the number of students that remained in vocational schools up to completion. The ability of all Indonesia high schools to train students up to the completion level declined over the period under consideration (1999-2017), although a sharp rise was realized between 2015/2016 and 2016/2017 academic years. Some students might have dropped because of various reasons like getting an apprenticeship. Some students could have been attracted to general high school because of the low student self-efficacy. It is therefore important for policy makers to promote and incentivize vocational education graduates by guaranteeing job placements and offering scholarships. Quality schools should retain all the students until they graduate.

IV. DISCUSSION

The researchers concurred with Santhya et al. that the state of infrastructure have a great effect on students’ cognitive capabilities as supported by decelerating gross retention rate. There is a positive association between enrollment and the state of infrastructure. If the infrastructure is poor, students, parents and teachers might lose confidence in the ability of the school to deliver quality outcomes [8].

The findings were also in consistent with Everett et al. who concluded that the condition of the school infrastructure resembles how much the government is investing in school’s infrastructure [12].

Qualitative findings presented in this article have revealed challenges vocational schools face in trying to restore and keep a quality image. The findings have also revealed that teachers, school managements and government are blamed for not ensuring quality in vocational schools yet there are some

exogenous factors beyond the control of the schools like natural vagaries of nature which make the school infrastructure out of condition. The restoration process might take longer because of budgetary constraints.

V. CONCLUSION

It was found that, there was an association between the quality of a school and state of the school infrastructure. Students self-efficacy had a strong influence on students’ high school enrollment decisions. The government should increase the infrastructure budget for the vocational schools (SMKs), help schools to mobilize capital development funds as well as help fight negative publicity affecting vocational schools.

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