

School Facility Conditions and the Graduate Competences of the Diploma III Vocational Education of Polytechnic

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Abstract

The credentials of graduates' abilities are determined by their competences. The competences included in the learning outcomes at the graduate level include attitudes, knowledge, and abilities. Following the completion of a learning process, statements are made to characterize the learner's knowledge, comprehension, and abilities; these are known as learning outcomes. At the end of the day, a graduate's competence is defined by the quality of their education, and school facilities are one factor that affects that quality. In order to understand the role and importance of school facilities for learning outcomes, especially in vocational education, this study intends to show that the educational goals of school facilities must be considered. The paper begins by noting that there is a lot of weight in the research literature that links the conditions of school facilities to pupils' ability to graduate. School facilities significantly and positively affect the quality of learning, according to studies conducted at Politeknik Manufaktur Negeri Bandung (POLMAN) and Politeknik Negeri Bandung (POLBAN) on the opinions of school graduates. In POLBAN, a t-value of 4.02 and a regression coefficient of 0.35 were recorded. The t-value was 4.52, and the regression coefficient was 0.55 in POLMAN. The average score for the facilities of Polan's schools is 79.12%, whereas Polban's schools average about 71.23%. Despite having slightly varied viewpoints on the qualities of the facilities, it is evident that the school facilities in POLBAN and POLMAN significantly affect the quality of education that pupils receive. On average, the learning facilities in POLMAN got a far lower score than the learning facilities in POLBAN. In contrast to POLBAN, POLMAN's learning outcomes place a greater emphasis on vocational training, according to further evidence.

Keywords: Graduate Competences, Dublin Descriptors, POLBAN, POLMAN.

INTRODUCTION

Nationwide progress and prosperity depend on postsecondary education. Higher education the highest degree granted by the national education system is essential for national development. Education helps the economy grow. The Direktorat Jenderal Pendidikan Tinggi (2004) views higher education as a moral force that shapes character and integrity. It is also thought to assist develop a democratic society that can collaborate with social and political forces, supply information, and

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produce human resources for all socioeconomic classes. Increasing national unity via belonging and togetherness is expected to achieve these goals.

Universities struggle to evaluate their programs and graduates in relation to job market needs when students and faculty can freely migrate between nations. A school's instruction affects student performance. Education quality is affected by instructor skill, classroom surroundings, media utilized for instruction, cultural institutions, students, pedagogical techniques, and course offerings. Several World Bank and Asian Development Bank reviews of Indonesian institutions in recent years showed that university degrees still had little impact on the workforce. This applies to polytechnic vocational education. Table 1 shows data on Indonesia's education system, including attainment and quality, from the World Economic Forum's 2018 Global Competitiveness Report. This data comes from Pillar 6: Skills, which assesses labor skills.

Table 1. Human Capital Rankings of Several Asian and Australian Countries in the Global Competitiveness Index

Country	Pillar 6: Skills	
	Rank	Score
Australia	12	81.0
Singapore	20	76.0
Malaysia	24	74.2
Brunei Darussalam	58	66.0
Indonesia	62	64.1
Thailand	66	63.0
Philippines	67	62.9

According to this data, the overall level of skills possessed by the workforce, as well as the quantity and quality of education in Indonesia, are still underdeveloped in comparison to those of some of the nations that are located in close proximity to Indonesia. Improving the quality and relevance of higher education in Indonesia is a policy goal of the Directorate General of Learning and Student Affairs. This study's evaluation of educational performance, especially in vocational education, is crucial to that effort. Training at Indonesian universities

For almost 35 years, Indonesia has offered vocational education, sometimes known as polytechnic education. Vocational education has long been thought of as primarily concerned with producing workers who are "ready for work" in the workplace. Therefore, it is imperative that those who complete vocational education programs show they can handle the rigors of the workplace competently. Here, "job competence" is defined as the Indonesia National job competency standard, or KKNI. To meet the demands for technicians with the ability to apply theoretical knowledge of science and technology to real-world problems, Institut Teknologi Bandung and the Ministry of Public Works collaborated to establish the Polytechnic Institute of Public Works (LPPU) in 1973. The Indonesian government officially launched vocational education at this time. It was in the same year that a

comparable educational program called "Politeknik Mekanik Swiss" (PMS) was established in collaboration between the Swiss government and the Bandung Institute of Technology. Afterwards, in 1979, six public universities were reorganised to form polytechnics. The universities in question were Brawijaya University, Sriwijaya University, Diponegoro University, Bandung Institute of Technology, and the University of North Sumatra, all of which were polytechnics.

The provision of vocational education in Indonesia is carried out by a number of different universities. Universities, colleges, institutes, polytechnics, and institutes all fall under this category. In contrast to vocational education, which aims to equip students with marketable skills, academic education tends to concentrate on the acquisition of general knowledge. The initial idea of polytechnic education was shown (Hadiwaratama, 2010). Competence at the Diploma III Polytechnic level as it relates to the graduates' educational background and intended occupation is depicted in Figure 1.

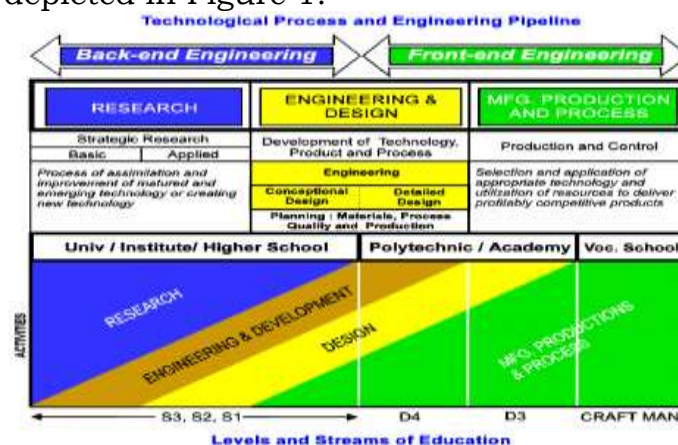


Figure1. Figure Showing the Relationship Between Educational Attainment and Occupational Traits

Professional technicians in this field are able to collaborate closely with engineers and take abstract ideas and turn them into actionable tasks.

LITERATURE REVIEW

Vocational Education Learning Characteristic

Lacheman (1988) cites Gavin (2008:26) as suggesting that a country's educational history shapes its views on general and vocational education. Epistemological vocational education focuses on modes of knowing, learning contexts, and disciplines of knowledge. Unlike adaptive, creative, and inventive higher education, vocational education trains students for repetitive tasks. It emphasizes knowing and doing, theory and practice, reason and experience. Blunden (1995) in Gavin states that vocational education emphasizes specific tasks, while general education emphasizes abstract concepts and generalized assertions about knowledge. Instead of textbooks or classroom implementation, vocational education is best taught through observation, imitation, and self-correction. According to the International Standard Classification of Education for Global

Consultation, June 2010, vocational education differs from general education: Many "general education" classes aim to develop students' analytical, critical, and basic reading, writing, and arithmetic skills. These programs usually prepare students for further education. These programs are usually in schools. Vocational education programs teach students the skills, knowledge, and understanding they need to work in a given industry. Schools and industries offer vocational education. Such programs provide nationally recognized vocational qualifications for the job market.

When it comes to education, vocational education is a type of education that places a strong emphasis on the acquisition of skills as a result of learning. As a result, the availability of laboratory facilities or workshops for student practice is significant. A number of learning theories, including those proposed by Clark Hull, Edwin Guthrie, and B.F. Skinner, have been proposed on the necessity of practice in the process of learning abilities. For the purpose of explaining their theories, these three specialists make use of stimulus-response variables. Edwin Guthrie, on the other hand, maintains that the stimulus does not necessarily have to be in the form of biological demands. Clark Hull, for instance, maintains that the stimulus is virtually always related with biological needs, despite the fact that the reaction may take on a variety of characteristics. It is the contention of the behaviorists flow experts that the stimulus response may be strengthened by practice and training.

In order for active learning practices to be successful, it is necessary to have access to high-quality learning facilities. An article written by Mel Silberman and published in Munthe (2009) regarding active learning tactics states that:

1. I forget what I hear,
2. I recall a small bit of what I see and hear, and forget what I see and hear.
3. I begin to comprehend what I hear, see, and inquire about or discuss with another person, including what I ask questions about.
4. I am able to acquire knowledge and skills from what I hear, observe, talk, and do.
5. I am able to completely grasp what I teach to another person.

This strategy assumes that: first, what students experience in the learning process through hearing alone will tend to be forgotten, because lecturers say 100-200 words per minute and students can only hear 50-100; second, learning strategies that use hearing and seeing are relatively small on learning success; and third, a strategy that leverages hearing, sight, and asking.

School Facilities

The school's learning facilities affect learning quality in this study. Educational facilities are designed to make learning comfortable and successful. Learning facilities include cleanliness and comfort, as

well as complete equipment in the laboratory and workshop, cleanliness and comfort as well as the completeness of teaching aids in the classroom, and the cleanliness and comfort of services and the completeness and adequacy of textbooks and other teaching materials in the library.

School facilities (general conditions of buildings, air conditioning, lighting systems, acoustic systems, air quality, and classrooms) have a significant impact on the learning atmosphere (student moral and commitment, teacher moral and commitment, and teacher-student relationship factors), according to the findings of Robert's study (2009), which measured the influence of school facilities on the learning atmosphere. The study was conducted to determine the extent to which school facilities have an impact on the learning atmosphere. Increased learning facilities (space management, teaching aids, lighting and room air circulation, classroom cleanliness, and other supporting facilities) have an influence on improving student learning behavior (coordination, academic performance, attention, discipline, and achievement of learning outcomes), according to the findings of a study conducted by Leung and Fung (2005) on the effectiveness of improving learning facilities and their effect on improving student learning behavior in public high schools in Hong Kong. Fung and Leung's study was conducted in Hong Kong.

Quality Learning

As a species, we are able to adapt to new environments and overcome many obstacles in our life because of the capacity to learn and grow. Winkel characterized learning as follows: "learning is an activity of a mental or psychological nature, which took place in an active interaction with the environment and which produces a number of changes in knowledge, understanding, skills, attitudes, and values" (2009: 59). You can notice this change in the learner's behavior, and it's really consistent. What constitutes high-quality learning in the context of universities is the degree to which institutions support their students as they go through the academic year. All parts of the learning process lecturers (teachers), classrooms, learning goals, course materials, and students themselves interact throughout this process. It is important that the many parts of learning work together in an effective and efficient way. When we speak about the quality of learning, what we mean is effective learning. This is based on the level of satisfaction that the institution's consumers, the students, have with the learning process. A performance indicator for higher education was considered by Ramsden (1991:129-150). We created the Course Experience Questionnaire (CEQ) to assess student achievement in this study. Ramsden says measuring has five aspects. Clear learning standards and objectives, suitable learning load, conformance evaluation, and freedom to learn are the dimensions. The POLBAN and POLMAN education study assessed excellent instruction, well-defined objectives

and standards for learning, sufficient student work, a welcoming environment, and curriculum flexibility.

Excellent instruction, well-defined objectives and standards for learning, sufficient student work, a welcoming environment, and curriculum flexibility were the criteria used to evaluate education in POLBAN and POLMAN. Instructor professionalism, learning resources, and school environments impact the educational experience.

METHOD

The research aims to look at four things: (i) how school facilities affect learning quality; (ii) how professional teachers are; (iii) how well students learn; and (iv) what kind of competency profile graduates have. In order to gather information for this study, surveys were utilized. The three graduates who are now enrolled in the third year of Bandung State Polytechnic (POLBAN) and Bandung State Polytechnic of Manufacture (POLMAN) were asked to fill out a structured questionnaire that was used to gather data. Utilizing confirmatory factor analysis and structural equation modeling, we sought out measurement models for each construct and tested the expected structural relationships between them.

RESULTS AND DISCUSSION

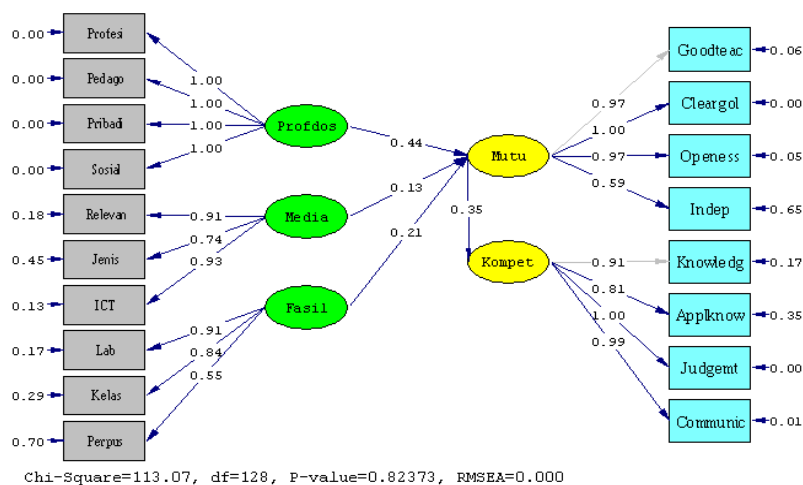


Figure 2. Structural Learning Management Model Coefficient POLBAN

Structural model coefficients of 0.44 and 0.21 reveal that teachers' and schools' professionalism affect students' learning. However, the zero-eighths coefficient indicates that learning material does not significantly affect learning quality. POLMAN reveals that learning quality considerably affects competency with a structural coefficient of 0.35 (Figure 2).

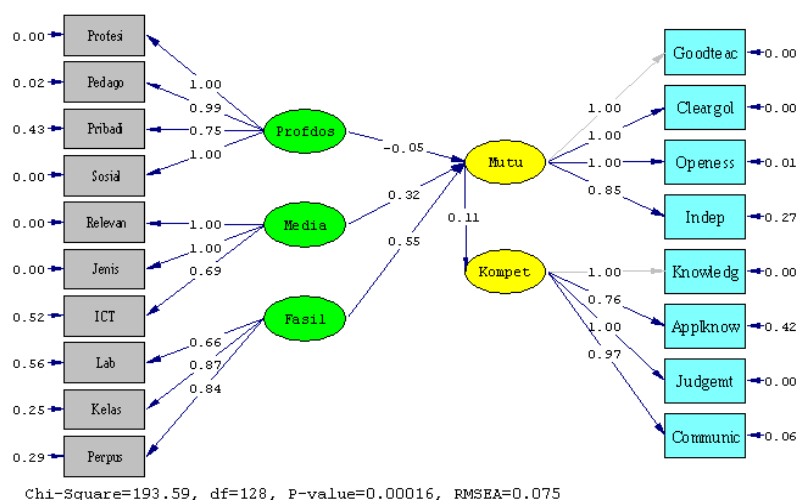


Figure 3. POLMAN Structural Learning Management Model Coefficient

With structural model coefficients of 0.32 and 0.55, respectively, the results show that the learning media and teaching facilities significantly affect the quality of learning. Contrarily, the structural coefficient of 0.11 indicates that teacher professionalism does not significantly impact student learning outcomes. Competence is less affected by learning quality (structural coefficient of 0.11) than by other factors.

Educator professionalism affects student learning. The data reveal that professionalism affects education quality differently in all polytechnics. A structural model coefficient of 0.44 shows that lecturers' professionalism strongly impacts POLBAN learning. With a coefficient of -0.05, lecturers' professionalism virtually negatively affects POLMAN but not elsewhere.

At POLMAN, students follow the 3:2:1 model, which means they spend three semesters in class, two semesters interning, and then one more semester back on school. The role of the instructor is diminished from the student's point of view since practical lessons take precedence over abstract ideas in this method. The students are more certain that their education will be of high quality because of this situation because they know that their work in the lab, workshop, and apprenticeship site will determine its quality. Conversely, classroom theory accounts for a larger proportion of POLBAN's curriculum than does instruction in labs and workshops. What this means for the students is that they are more assured that their level of success in class is directly related to the instructor's competence and professionalism.

The Impact that Learning Media Has on the Quality of Education

This study found that learning media in POLBAN improve classroom performance to a lesser extent than in POLMAN. POLBAN's good learning circumstances depend on learning media, but it's not getting enough attention. In contrast, POLMAN emphasizes learning media, notably ICT integration into classroom and workshop education. The student handbooks are easily accessible, relevant to the learning

objectives, and have enough practice guidelines. In POLBAN, manual instructions, instructional resources, and ICT for education and learning are scarce, unlike in POLMAN. Most learning occurs in "lecturer"-style classrooms, making instructional material, especially for workshop and laboratory practice, poor. This is partly because theoretical knowledge is acquired faster than actual abilities.

The Influence of Learning Facilities Towards Quality of Learning

Using the Diploma III structural model, this study demonstrated that learning facilities considerably and positively enhance learning quality in POLBAN and POLMAN. This applies regardless of the institution under review. The structural model coefficient of 0.21 in POLBAN and 0.55 in POLMAN reveals that learning facilities affect learning quality. The facility helps personnel achieve company goals, according to West and Danny (Leung & Fung, 2005:585–594). The organization guarantees students can study by providing learning-friendly facilities. Facility management space management, instructional aids, classroom lighting and ventilation, and comfort affects students' learning behavior, according to Leung. This matches Dale's analysis of learning by experience in Dale Cone of Experience. Dale considers direct experience (what I've had) the most essential cone of experience. This analysis suggests good learning facilities.

Practical activities account for less than half of the entire time spent learning and teaching in POLBAN. Learning that occurs in a classroom setting, rather than a laboratory or workshop, has a greater impact on graduates' views of the quality of their education. Because POLBAN's teaching buildings are so old and poorly designed, students and faculty alike leave with the perception that the school had little bearing on their education.

The School Facility Conditions

The score obtained for POLBAN varies between 11 to 30 with a score range of 19, standard deviation 3.699, variance 13.686, and an average score of 21.368 or equivalent to 71.23% of preferred score, while the score for POLMAN varies between 13 to 30 with a score range of 17, standard deviation 3.353, variance 11.241, and an average score of 23.736 or equivalent to 79.12% of preferred score. This shows that the graduates' perceptions of learning facilities, in POLBAN and in POLMAN are quite good, although the average score of the learning facilities in POLMAN is better than the average score of learning facilities in POLBAN.

Quality Learning

POLBAN scored 14–38 with a score range of 24, standard deviation of 4.258, variance of 18.129, and an average score of 28.016 or 70.04% of preferred score, while POLMAN scored 18–38 with a score range of 20, standard deviation of 4.131, variance of 17.065, and an average score of 28.813 or 72.03% of preferred score. This reveals that

graduates rate learning quality at POLBAN and POLMAN as good, with POLMAN scoring higher on average.

The study also found that graduated competence is favorably and considerably impacted by education quality, with a structural coefficient of 0.35. The British government's White Paper on the Future of Higher Education (Department for Education and Skills, 2003, p.7) states that "Effective teaching and learning is essential if we are to promote excellence and opportunity in higher education," and educational administration makes human resources and material available and effective for educational goals. Recognizing and rewarding good teaching and sharing effective strategies is crucial. Thus, the quality and effectiveness of learning will affect educational goals to generate competent graduates at the stipulated level of competence.

The structural model coefficients for POLBAN's instructors' professionalism and physical learning environment are 0.44 and 0.21, respectively, indicating that these factors significantly affect student accomplishment. In contrast, the structural coefficient of 0.11 suggests that learning medium does not affect learning quality. POLMAN's educational system emphasizes vocational training, unlike POLBAN's. The phrase "vocational education" has long been associated with internships in the workforce since teachers in this sector focus more on students' direct observation, imitation, and correction of their own work than on classroom and textbook topics. The International Standards for Vocational Education (ISCED) 1997 declare that vocational education emphasizes practical skills, knowledge, and understanding of certain occupations.

This study analyzed classroom instruction and student performance using learning instrument quality. Teachers' classroom performance reflects this. Since school quality strongly affects competency, this circumstance affects graduates' perceptions.

Profile and Level of Graduates Competence

Allen & Ramaecker's (2008:72-78) competency instrument was employed. This instrument measures knowledge, critical thinking, equipment selection, problem solving, administration and management, data analysis, speaking, reading, communication, English, and writing. See Figure 3 for measurement findings.

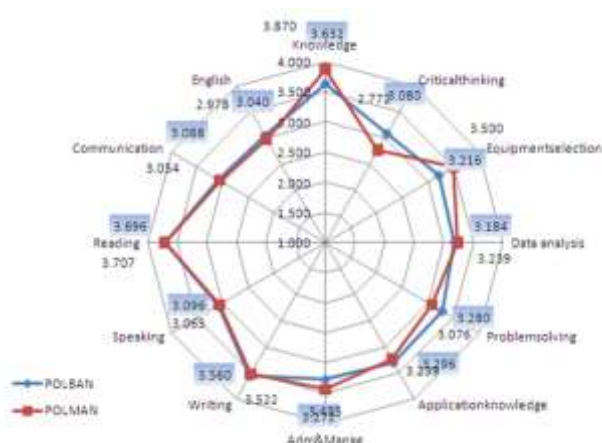


Figure 4. Profile of Diploma III Polytechnic Graduates Competence POLBAN and POLMAN

The study's results showed that three measures had scores higher than 3.5. Reading, writing, and knowing are these variables. The results show that the aforementioned skills are taught well, but the other three variables, which are fluency in English, the ability to think critically, and the ability to communicate effectively, scored very low, almost at three. A lack of critical thinking skills among diploma holders is evident from this outcome, which shows that their level of competence is still below what is needed in the work market. Credentials that are considered "short cycle" according to the Dublin criteria comprise the following five qualities: knowledge, knowledge application, decision-making ability, communication skills, constant learning, and continual learning.

According to the research, Diploma III POLBAN and POLMAN graduates were 82.1% as competent as the Dublin descriptor, which is level 5 of the KKNI, and qualified for the "short cycle" qualification. Researchers concluded from the study that learning facilities are a major component in deciding the quality of vocational students' education, among other things. Figures 5 and 6 show the results of a study conducted by Di Gropello (2011: 23 & 28), which indicate that there is still a dearth of quality education, diploma programs that are relevant to job markets, and learning facilities for diploma programs.

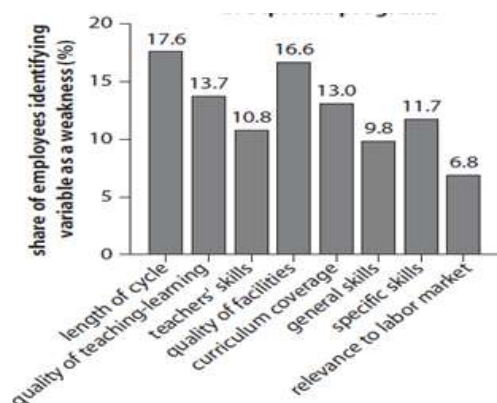


Figure 5: Weakness of the Diploma education in Indonesia

Source: Di Gropello

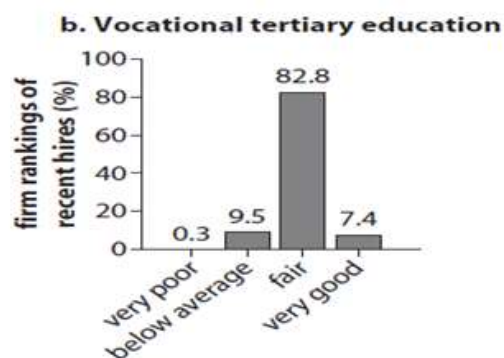


Figure 5. Quality of the Diploma Education in Indonesia

Source: Di Gropello

CONCLUSIONS

A study conducted at Politeknik Manufaktur Negeri Bandung (POLMAN) and Politeknik Negeri Bandung (POLBAN) on the perception of school facilities by graduates found that school facilities significantly and positively impact the quality of learning. There was a t-value of 4.02 and a regression coefficient of 0.35 for POLBAN. The t-value was 4.52, and the regression coefficient was 0.55 in POLMAN.

The average score for the conditions of school facilities in Polban is 71.23% of the ideal circumstances, but the average score for the conditions of school facilities in POLMAN falls at 79.12% of the ideal conditions. The Diploma III POLBAN and POLMAN levels of competence for graduates are the same as the Dublin descriptors' "short cycle" certification, which is level 5 of the KKNI. This amounts to eighty-two percent.

It would be beneficial to do additional research in this field, particularly for the purpose of evaluating the conditions of the educational facilities associated with polytechnic education. Both the graduates of polytechnics and the labor market would benefit from improvements and enhancements that would make them more relevant.

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