

## **The Influence of Student Learning Outcomes and Practical Facilities in Schools on Industrial Work Practice Results**

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**Abstract:** This study aims to determine the effect of student learning outcomes and practical infrastructure on the results of industrial work practices at UPT SMK Negeri 4 Muara Enim. This study uses a quantitative method with an ex post facto approach. The data obtained were analyzed using by SPSS (Statistical Product and Service Solution) version 25.0 for windows. This study shows that there is an effect of learning outcomes on the results of industrial work practices with a t-count of 4.450 and a t-table of 1.9855,. There is an influence of practical infrastructure in schools on the results of industrial work practices with a t-count of 11.888 and a t-table of 1, 9855. There is an effect of student learning outcomes and industrial work practice infrastructure together on the results of industrial work practices with an f-count of 64,284 and f-table of 3,0933. The conclusion of this study is that the results of industrial work practices can get good results if student learning outcomes are good and practical infrastructure is adequate.

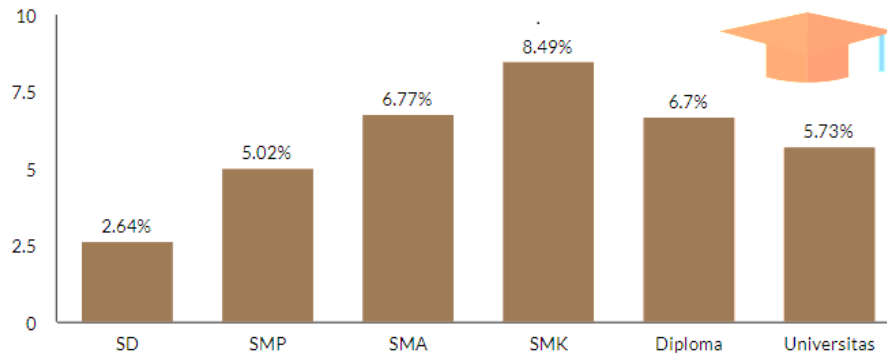
**Keywords:** Industrial Work Practices, Practical Infrastructure Facilities, Student Learning Outcomes

### **A. Introduction**

Data on unemployment released by BPS each year, which places vocational graduates as the biggest contributor to unemployment based on their level of education, became the author's starting point in writing this thesis. The initial thought was why SMK, which incidentally is a school that aims to produce middle-level workers who are skilled and ready to work according to competence, actually scored high unemployment compared to SMA as a comparison.

According to the Central Statistics Agency's (Tempo, 2020) open unemployment rate statistics depending on education level, graduates from Vocational High Schools

(SMK) contribute the most to unemployment with a rate of roughly 8.49 percent, more than the jobless at other levels of education.



**Figure 1. Open Unemployment Rate Statistics Depending on Education Level**

In the industrial age 4.0, as it is now, where technology and science continue to expand in an increasingly sophisticated and contemporary world, the demand for quality human resources with strong competence abilities in accordance with the evolution of the times has emerged. Not to mention the increased competitiveness in the labor market as a result of the introduction of the Asean Economic Community (AEC) or what we often refer to as the MEA, which allows foreign employees from ASEAN member nations to work in Indonesia, which is undoubtedly concerning for us. Taking this into consideration, boosting the quality and quantity of Indonesia's human resources is an absolute necessity for accomplishing development goals and for the process of upgrading human resources (HR), including through the educational process. Education is the most significant weapon with strategic significance for changing the situation, and we all agree that education provides everyone a chance to be better.

This is in keeping with the World Bank's statement (Musfiqon & Ismanto, 2015) which reads give people a handout or a tool, and they will live a bit better, Give them an education and they will change the world. Education is a vital vehicle in the process of producing and developing human resources who are productive, competitive, and have professional ability to engage in carrying out development to meet future difficulties.

The educational sector is today facing difficult issues, particularly in attempts to print and generate great human resources. A country's quality human resources are an important aspect that affects the country's existence, thus attempts to increase the quality and quality of human resources are the most significant item in the context of building a nation.

As an educational institution that works to shape, train, generate, and create competent human resources, Vocational High School (SMK) must be able to respond

to the difficulties of the contemporary period. SMK is a formal educational institution that strives to train students for specific abilities in their areas. This is consistent with Law Number 20 of 2003 Concerning the National Education System, which states that Vocational Schools are a manifestation of the secondary vocational education system with the following goals:

1. Preparing students to become productive human beings, capable of self-sufficiency, and capable of filling employment gaps in the world of business and industry as a middle-level workforce in line with the competences in the program of expertise they select;
2. Prepare students to be able to pick a career, to be tenacious and persistent in competing for jobs, and to create a professional attitude in the subject of knowledge in which they are interested;
3. Can offer pupils with information, technology, and art so that they can develop themselves freely in the future through experience or a higher level of study;
4. Providing provisions to students in the form of competencies that correspond to the specified competence competencies.

A quality education system generated by an educational institution is required to develop competent and competitive human resources. The learning outcomes of pupils are one of the markers of quality education in an educational institution or school. Student learning outcomes are simply a change in behavior as a result of the learning process according to Syahputra (2020), in a larger sense spanning the cognitive, emotional, and psychomotor realms.

According to Bloom's Taxonomy, the learning process can result in behavioral changes through three domains: cognitive domain, emotional domain, and psychomotor domain. As a result, learning outcomes may be defined as talents or skills obtained by students after engaging in the learning process, which includes cognitive, emotional, and psychomotor domains.

Good learning outcomes are the results of a process of interaction between students' learning and teachers' teaching, where these results can last a long time and be used in the lives of students, and learning outcomes obtained by students are internalized and meaningful knowledge that becomes part of the students' personality and attitude.

A quality education system at an educational institution or school may also be observed by the completeness of facilities and infrastructure that can support the continuing process of an education, in addition to high learning results. According to Government Regulation Number 32 of 2013 on National Education Standards, every educational institution must have learning facilities and infrastructure.

Students may be less passionate about engaging in the learning process if an educational institution or school pays little attention to the infrastructure in their school. Educational institutions, particularly SMK, are being encouraged to build facilities and infrastructure that would aid in the learning process. As previously said, SMK are schools where the learning process relies more on practice than theory, therefore educational facilities and infrastructure must be addressed indirectly in the learning process. Fulfillment of learning infrastructure is not simply fulfilled, but it should be mandatory to look at the standards of facilities and infrastructure, which in general have been regulated in Regulation of Minister Education Number 40 of 2008 which explains that "a SMK/MAK must have facilities and infrastructure that can serve a minimum of 3 study groups and a maximum of 48 study groups. "Educational facilities are all the facilities required in a process of teaching and learning activities, both mobile and immovable, to fulfill educational goals in a smooth, easy, orderly, efficient, and effective manner" (Suryosubroto, 2009).

Then, according to (Indrawan, 2015), educational infrastructure is a facility that indirectly supports the course of an educational or teaching activity process, such as yards, gardens or school gardens, roads going to schools, school laws, and so on. The infrastructure employed in the implementation of productive learning activities in this scenario includes school facilities that include classrooms for theoretical learning and practical spaces (workshops or labs) for practical learning. For the fulfillment of infrastructure in schools, it is not only necessary to understand and pay attention to the rules governing the standards of these learning facilities and infrastructure, but it is also necessary to understand and pay attention to the rules governing their management and maintenance.

Infrastructure management standards are outlined in Government Regulation Number 32 of 2013 concerning National Education Standards, which states that management standards are divided into three categories: 1) management standards by education units; 2) management standards by regional governments; and 3) management standards by the central government.

Because of the role or not of these educational infrastructure in an educational process, every learning infrastructure contained in a school education institution requires good governance and gradually and sustainably so that educational infrastructure can be fulfilled according to the standards set by the government. The success of the ongoing educational process should assure this.

The administration of a school's instructional infrastructure should be done efficiently and effectively. This is possible if expert human resources are available. On the other hand, if the human resources in charge of the infrastructure are not qualified, the infrastructure as a suitable medium for supporting educational activities cannot be employed efficiently and effectively. There is a balance between the components

engaged in management who comprehend and grasp the concepts in managing educational infrastructure facilities so that they may meet the goals to be attained from the national education program. Teaching and learning activities in schools or in the classroom should be able to operate smoothly if supported by sufficient and suitable educational infrastructure, therefore the government must constantly endeavor to continually fulfill educational supporting infrastructure for all levels or degrees of education.

The government is enhancing educational infrastructure to assist the success of the learning activities that take place in schools. Many facilities in the form of educational infrastructure are now available to assist the process of teaching and learning activities in schools, but not all educational institutions can handle them appropriately, effectively, and efficiently. The results those educational institutions aspire to attain in the process of teaching and learning activities for students at school can be determined by the management of educational infrastructure.

SMK is a formal education unit that arranges secondary vocational education as a continuation of SMP/MTs or other kinds of equivalent or continuation of learning outcomes that are regarded as equal/equivalent to SMP/MTs. As a secondary vocational education institution, SMK emphasizes the process of developing students' talents and skills to work on specific sorts of job at specific competences. SMK is primarily concerned with training pupils for job and developing a professional mindset. According to its constitution, SMK provides educational programs that are customized to the demands of certain sectors of employment. This is in keeping with Law Number 20 of 2003 article 15 about national education system which specifies that "vocational education is secondary level education that prepares students to work in specified areas of competence".

In order to fulfill the goals, Vocational Schools must be able to develop appropriate educational programs to educate and train students to become competent workforce members, so that they are ready to join the world of work and compete. Most significantly, the labor demands must be met in line with the requirements of the commercial and industrial worlds. As a result, the government, as the educational policy holder, employs the idea of "link and match" between SMKs as educational institutions and the commercial and industrial worlds in implementing vocational education, the fulfillment of which is pursued through the Dual System Education Program.

The Dual System Education Program is an alternate option for executing the learning process in Vocational High Schools as specified by Minister of Education and Culture of the Republic of Indonesia number 323/U/1997. Dual System Education is a concept that combines the process of learning activities in schools, in this case SMK, with industrial practice activities in partner institutions, namely the business world and the

industrial world, in a synchronous and systematic manner, with the goal of supporting, facilitating, and facilitating students in mastering skills competencies and work skills in specific fields, so that students graduate and are prepared to enter the labor force.

Industrial Work Practice is one of the programs in the dual education system that connects the worlds of education and business/industry, which has consequences for students as program implementers to be able to adjust to a new setting that is distinct from the atmosphere at school. Internships at vocational schools are an essential component of educational institutions' efforts to increase graduates who are more adapted to the requirements and demands of the workforce in the commercial and industrial worlds.

The use of internships is expected to provide more motivation for SMK students to understand work culture in the industry such as quality, productivity, efficiency, and good service and to demand a change in mindset, behavior, and attitudes from students who carry out internships that have never been done before. Internships also increase students' hopes of being able to improve competency skills and skills that are in line with the wishes of the business and industrial world, as well as improve work ethic attitudes in the form of work competence, motivation, discipline, and initiative in order to produce good and quality work.

Industrial Work Practices are regarded to be successful if the results meet the program's objectives. There are additional goals to holding industrial work applications, such as (1) being able to familiarize oneself with the real world of work, (2) having a standard level of competence in accordance with what is required by the world of work, (3) becoming a workforce with quality, economic, business insight, entrepreneurial, and productive, and (4) being able to absorb technological reasoning and work culture for self-development purposes.

The component of dependable ability in SMK stems from the success of industrial job applications, and it necessitates the presence of a profile of instructors with appropriate theoretical knowledge since it is strongly tied to the success of a dual system learning. The provision of fundamental skills at school is used as a provision by pupils when executing industrial work applications.

Based on initial observations in the field from August to November 2020, with direct observations at several student internship places, such as PT. Suryabumi Agrolanggeng, where students did internships from three competencies, namely AKL, TKRO, and OTKP, then went to Hendro's workshop, the PALI Regency Government, and several other workshops.

In addition to observations, the authors performed direct interviews with interns and then with multiple field supervisors at the partner institution. There are still a variety of difficulties and challenges that vocational students who perform internships in Muara Enim Regency, particularly at UPT SMK Negeri 4 Muara Enim in Benakat District, face, including:

1. Students' learning results in all majors have not met 100% KKM (Minimum Completeness Criteria)
2. Previously, optimal availability of practice facilities and infrastructure in numerous departments was a result of schools' inability to fulfill practice infrastructure facilities, either new or updated infrastructure.
3. Practical knowledge and abilities acquired in school may not always correspond to the sort of job or competences required in the commercial and industrial environment.
4. Limitations imposed by the school in locating and placing pupils in Industrial Work Practices that are appropriate for their abilities.
5. The work environment in which students conduct internships does not yet provide an overview of where students will work based on their competencies; for example, students from the Accounting and Financial Institutions Competency practice at the sub-district office, despite the fact that the sub-district office is an institution that handles documents rather than a financial institution.
6. Gaps in equipment and application competence, since the equipment and applications encountered in the working world differ from those discovered in school. This requires pupils to master the equipment and apps before they can utilize them.
7. When doing training, some kids do not take it seriously. This is evident in their sluggish demeanor and lack of attention on the area where they work. As a result, these pupils occasionally breach business and industrial world regulations, such as arriving late, departing early, or not entering without permission.
8. Mechanics or workers who function as mentors in the selected profession are not the best people to guide interns. For example, by failing to provide suitable positions for students, there is no development in skill competency once they have completed engaging in industrial work practices.
9. It is frequently discovered that partner universities do not supply students with meaningful work as a requirement for receiving marks. This demonstrates that partner institutions do not completely trust students to run or do tasks in their place.

The author became interested in discovering how the learning outcomes of students who would carry out industrial work practices and the completeness of practical infrastructure in schools impact the results of industrial work practices from students as a consequence of the findings of these pre-observations. The authors do the study about the influence of student learning outcomes and practical facilities in schools on industrial work practice results.

## **B. Methods**

The quantitative research design will be employed, utilizing the Ex Post Facto technique. The goal of quantitative research, according to (Hermawan, 2019), is to develop and apply mathematical models, theories, or hypotheses connected to natural phenomena. According to (Samani & et al, 2020), research using an ex post facto approach is a study conducted to examine a previously occurring event in which the researcher attempts to uncover the relationship between several variables in the event and the condition of variables outside the researcher's control.

Because this study discloses existing facts or occurrences without modifying or influencing the variables or samples analyzed, the ex post facto technique is employed. Ex-post facto study examines events that have already occurred. The application in this study is to use a multiple regression model to regress the two independent variables, Student Learning Outcomes (X1) and Practical Infrastructure (X2), to one dependent variable, Results of Industrial Work Practices (Y) (multiple regression model).

The participants in this study were all class XII students at UPT SMK Negeri 4 Muara Enim in the competence abilities of Light Vehicle Engineering (TKRO), Accounting and Institutional Finance (AK2L), and Office Automation and Management (OTKP). This study's population consisted of all 127 students in class XII from each department at UPT SMK Negeri 4 Muara Enim.

Determining the number of samples is based on the Slovin formula (Firdaus, 2021), namely:

$$n = \frac{N}{1 + Ne^2}$$

Note:        n = number of samples

              N = population size

              e = (*error Tolerance*)

The used error limit is 0.05 (5%). The Slovin formula is used by us since the population in this study is fixed in size. When the population size is known, the Slovin technique is preferable. According to (Nazir, 2011), if the population to be employed is small, the Slovin technique is preferable, however other methods can be used if the population is unlimited. So the following samples were taken from the student population that participated in industrial work activities at UPT SMK Negeri 4 Muara Enim:

$$n = \frac{127}{1+127(0,05)^2}$$
$$n = \frac{127}{1,3175}$$
$$n = 96,395 \text{ (96 respondent)}$$

$n = 96.395$  is rounded up to 96 students based on the formula above.

In this study, questionnaires and documentation studies were used as instruments. The descriptive statistics was used for analyzing data. According to (Yusuf & Daris, 2018), descriptive statistics or deductive statistics are statistics that describe how to summarize a group of facts in a way that is easy and quick to read and comprehend and present information in the form of tables, graphs, or other pictures.

### **C. Results and Discussion**

#### **The Influence of Student Learning Outcomes on Industrial Work Practice Results**

In research, student learning outcomes are changes experienced by students after carrying out and experiencing a learning process consisting of affective, cognitive, and psychomotor domains that are expressed by numbers, symbols, and letters or can be seen in behavioral changes that are reflected in the quality of students' individual abilities.

According to the findings of this investigation,  $H_0$  was rejected while  $H_a$  was accepted. This demonstrates that the variable student learning outcomes has a substantial impact on the outcomes of industrial work practices for class XII students at UPT SMK Negeri 4 Muara Enim. As a result, if student learning outcomes are good, the outcomes of student industrial work practices will be positive as well. According to the findings of the t test calculations, the coefficient of determination R Square in this study is 0.213, which suggests that 21.3% of the results of industrial work practices for class XII students at UPT SMK Negeri 4 Muara Enim are impacted by the students' learning outcomes. Other factors impact 78.7% of the outcomes of industrial work practices.

The findings of this study are consistent with those of Fuad et al (2020). The purpose of this research is to investigate the impact of automotive engineering learning outcomes on the preparedness of industrial work practices in class XI TKR SMK Kesuma Margoyoso Pati. According to the findings of this study, 64.1% of students had high learning outcomes, namely scores in the 80-90 range with a good predictor. Meanwhile, around 46% of students had good grades in the preparation for industrial work practices, with a score range of 75-97. Furthermore, a value of 0.010 is derived from the R Square coefficient of determination obtained from the t test, indicating that automotive engineering learning outcomes have an influence of roughly 10% on the

preparedness of industrial work practices. This suggests that learning outcomes have an impact on the preparedness of industrial work practices, although a minor one (about 10%).

### **The Influence of Infrastructure Practice on the Outcomes of Industrial Work Practices**

In this research, practical infrastructure refers to a collection of equipment that is utilized directly or indirectly to assist the learning process in schools, particularly for practical learning. The computations in this investigation yielded the following results:  $H_0$  is rejected while  $H_a$  is accepted. This suggests that the practical infrastructure variable has a favorable and significant effect on the outcomes of industrial work practices for UPT SMK Negeri 4 Muara Enim class XII students. So, if the infrastructure practices are good in terms of quality and quantity, the results of industrial work practices for class XII students at UPT SMK Negeri 4 Muara Enim would be good, and vice versa. According to the t-test findings, the coefficient of determination R-Square in this study was 0.627, which may suggest that the practicum infrastructure variable had a 62.7% effect contribution on the results of industrial work practices.

The practical infrastructure of UPT SMK Negeri 4 Muara Enim is in good shape. This is based on statistical calculations that reveal the average proportion of all respondents strongly agreeing 31.17% and agreeing 50.79% with the statements from the practical infrastructure questionnaire. It can be stated that students in class XII at UPT SMK Negeri 4 Muara Enim provided positive replies and responses on the availability of practicing facilities at school. Provide space for teaching and learning activities, particularly practical activities in each skill competence.

The findings of this study are consistent with the findings of Kusuma et al (2013), who investigated the impact of school infrastructure and instructor competency on student competence in on-the-job training (industrial work practices). This study discovered that a significant influence was obtained between the two variables for school infrastructure ( $X_1$ ) and student competence in carrying out on-the-job training ( $Y$ ) based on statistical data where  $r\text{-count} > r\text{-table}$  where  $r\text{-count} = 0.544 > r\text{-table} = 0.208$  at the significance level of 5%. The relative contribution is 50.24%, and the effective contribution is 24.53%. There is a significant effect for the school infrastructure variable ( $X_1$ ) and the teacher competency variable ( $X_2$ ) on the student competency variable in carrying out on-the-job training ( $Y$ ), as indicated by the value  $F\text{-count} = 21.466 > F\text{-table} = 3.204$  at a significance level of 5%. We also obtain a linear regression equation  $Y = 12.309 + 0.290X_1 + 0.319X_2$ , implying that student competence in on-the-job training ( $Y$ ) will improve or decrease by 0.290 for each increase or reduction in school infrastructure facilities ( $X_1$ ).

## **The Influence of Student Learning Outcomes and Practice Infrastructure on Industrial Work Practice Results**

In this study, the results of Industrial Work Practices are the results obtained by students as a result of the implementation of a dual system education that systematically integrates and synchronizes education programs in schools and programs for mastering skills obtained through direct work activities in the workplace to increase students' knowledge and experience in a specific field of work.

The outcomes of this investigation showed that  $H_0$  was rejected while  $H_a$  was accepted. This suggests that the variable student learning outcomes and practical infrastructure have a good and substantial impact on the outcomes of industrial work practices at UPT SMK Negeri 4 Muara Enim at the same time. The F test findings suggest that F-count is bigger than F-table with a significance value of less than 0.05. As a consequence, if student learning outcomes and practice infrastructure are excellent and enough, the results of industrial work practices carried out by students at UPT SMK Negeri 4 Muara Enim will be good as well, and vice versa.

The coefficient of determination calculation in this study revealed that student learning outcomes and practical infrastructure affected 60.8% of the results of industrial work practices for class XII students at UPT SMK Negeri 4 Muara Enim, Benakat District. The personality and work ethic indicators had the highest average total score of 398 and an average score of 4.14 on the outcome variable of industrial work practices. The vocational ability indicator has the lowest score on the variable results of industrial work practices, with an average total score of 386 and an average score of 4.02.

The findings are consistent with previous research by Fuad et al (2000) on the effect of learning outcomes on industrial work practices, as well as research by Dany et al (2014) on the effect of infrastructure facilities on student competence in carrying out on-the-job training (industrial work practices).

Furthermore, "the effectiveness of an education program via the teaching and learning process is heavily impacted by numerous aspects, one of which is the provision of suitable educational infrastructure," according to (Sambodo, 2019). Facilities and infrastructure are critical elements in aiding the learning process in schools. To attain this purpose, efficient management of school buildings and infrastructure is required. Industrial work practice is a learning activity that students at partner school institutions participate in. Many elements impact the success or failure of this procedure, including the competence factors exhibited by pupils. The capacity to master student abilities, particularly vocational competencies directly connected to industrial work practice procedures, is achieved through the school learning process.

A good learning process must also be supported by suitable infrastructural facilities, both in terms of quantity and kind relevant to the workplace.

Improving the quality and quantity of infrastructure facilities while considering their relevance to the demands of the workplace would, directly or indirectly, increase students' talents and skills. So that when students participate in industrial work practices, they feel prepared to carry out the program correctly and with guidance.

This is consistent with (Supadi, et. al., 2022), who argue that an educational institution, such as an SMK, should work with DUDI to carry out internship activities in a more organized, planned, and regulated way. In addition to apprenticeships, SMK and industry can collaborate in developing a curriculum that will be implemented in SMK, increasing the relevance of learning processes and outcomes to the needs of the workplace, and ensuring that the curriculum used is truly in accordance with industry needs and standards. The premise is that SMKs must improve in order to react to changes in job demands in the context of the Fourth Industrial Revolution.

#### **D. Conclusion**

Student learning outcomes have a 21.3% effect on the outcomes of industrial work practices at UPT SMK Negeri 4 Muara Enim Benakat District. Practical facilities and infrastructure have a 62.7% effect on the outcomes of industrial work practices at UPT SMK Negeri 4 Muara Enim Benakat District. Student learning outcomes and practical infrastructure have a 60.8% effect on the outcomes of industrial work practices at UPT SMK Negeri 4 Muara Enim, Benakat District.

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