

# Management of Industrial Work Practices (Prakerin) in Automotive Light Vehicle Engineering Competence in Vocational Schools

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## **Abstract**

*This study aims to analyze the implementation, suitability of the productive abilities of students with the demands of the business and industrial world, and the driving factors and obstacles to the implementation of the industrial work practices in SMK Muhammadiyah 1 Sukoharjo. This research method was qualitative descriptive, in which data collection was with in-depth interviews, observation, and documentation. Also, data analysis employed interactive models. The results of the study revealed that (1) the success of industrial work practices was determined by effective and efficient management of the learning process in schools (2) the productive abilities of students with the demands of the business and industry world in implementing industrial work practices were quite relevant to the competencies of students, (3) the driving factors that determined success industrial work practices were a means of adequate school practice infrastructure, good teacher performance, public trust, and a broad network of places of practice. Whereas, the inhibiting factors were the unpreparedness of the place of industrial work practices, as well as students' adaptability to adjust to the work environment.*

**Keywords:** *management of industrial work practices, the suitability of student abilities, vocational education*

## **1. Introduction**

Industrial work practice (prakerin) is one of the learning strategies in vocational education, which is the result of the collaboration between schools and the business and industrial world (DUDI) in order to get closer between learning in schools with actual work practices in the industrial world. Industrial work practice, as in previous studies conducted by [1], said the implications of industrial work practice would improve professional abilities, social abilities, and personal abilities. In addition, students, after following the industrial work practice, can learn effectively and efficiently.

The success of the internship lies in the key to learning readiness that is tailored to the needs of the business and industrial world. As mentioned by [2], the industrial work practice program is inseparable from the implementation of the syllabus into learning, which requires appropriate methods, strategies, and evaluation of implementation. The industrial work practice design, as a part of learning, needs to pay attention to the readiness of the working world of partners in implementing competency-based learning.

This research would examine different things from previous studies. This research is intended to analyze the implementation, the suitability of the productive abilities of students with the demands of the business and industry world, and the driving factors and obstacles to the implementation of the industrial work practice. In accordance with the theoretical study of the implementation of the industrial work practice, it is expected that each student can participate in and understand work activities carried out in the business world and the industrial world in order to achieve and obtain something good and useful

for himself and be able to show his performance optimally. In [3] explained that in the implementation of industrial work practice, there are five steps, namely: 1) Analyzing the work and abilities to be learned, 2) Selecting and training trainers, 3) Preparing training materials, 4) Establishing cooperation with industry, 5) Evaluating and making renewal.

Industrial work practice is carried out with specific procedures for students who aim to have an internship in the workplace, both the business world and the industrial world. At least, students have basic skills in accordance with the field they are in or have obtained provisions from supervisors at school to have the basic sciences to be applied in the business world or the industrial world. Industrial work practice quality will have a distinguishing impact and be related to students' career exploration behavior [4].

Industrial work practice is one of the learning strategies in the implementation of vocational education that is still being developed so that the quality of graduates can be in accordance with the demands of the job market. Learning is actually done by bringing learning closer to the world of work, which is referred to as work-based learning. Work-based learning is an essential aspect of the success of an organization or agency. Work-Based Learning is part of the school to work transition approach, which includes school-based learning and connecting activities in the world of work. A comprehensive model of work-based learning is illustrated by combining explicit and discreet forms of knowing and the theory and practice of learning modes at both individual and collective levels [5].

The objectives of industrial practice according to [6] are: 1) gaining experience working in production lines; 2) understanding work attitudes and discipline through industrial work practices on the production line; 3) obtaining vocational competence in accordance with competency standards demanded by the industrial world; 4) getting social competence, namely: working together in doing work, looking for solutions to difficulties in work. One of the objectives of industrial work practices is to improve the quality of human resources (HR) to be able to become skilled HR in all fields through the internship program, because later, if the performance of the apprentices is potentially good, then it is possible to be recruited as employees [7].

However, the reality in the field as stated by [8] is that the practice of organizing vocational high schools (SMK) in Indonesia currently shows the following weaknesses: holding a single function, namely preparing students to work, becoming employees, and not preparing enough to be entrepreneurs, less responsive to the demands of economic development, weak alignment with the world of work, and no guarantees for decent work. Therefore, to play a broader role, SMK is expected to be able to expand its function from a single function to become a Model Vocational School that runs multiple functions that are in line with the diversity of community needs.

In [9] argues that vocational education cannot be separated from the role of business and industry (DUDI), which functions to bridge DUDI and the community to provide the required competencies. The competency needed is inseparable from the technical competence and personal competence as a provision to improve the economic position in society. Internships or industrial work practices are in order to make students have the ability and skills. Internships, as a challenge in developing skills, reframe opportunities to achieve excellence [10].

Industrial work practices in the program of automotive light vehicle engineering expertise at SMK Muhammadiyah 1 Sukoharjo would illustrate the involvement of students in a real job in accordance with their field of expertise. Besides, students would gain experience to expand their knowledge about the world of work. The implementation of industrial work practices would also indirectly provide knowledge and experience in working. The experience gained while carrying out

industrial practices, in addition to learning how to get a job, also learn how to have jobs in accordance with the talents and interests possessed by these students. After carrying out industrial work practices, students are expected to have work experience. This experience will determine students' readiness to work because, in industry, students are taught to work according to their abilities. Job satisfaction in internships provides work-based social support that is useful for job placement [11].

## **2. Methodology**

This study was intended to obtain an overview of the analysis of the implementation of the industrial work practices in the competence of automotive lightweight vehicle engineering expertise. Descriptive qualitative research methods were employed. In [12] mentions that in qualitative research, the data collected are generally in the form of words, pictures, and not numbers, even if there are numbers that are only as a support. The data referred to included interview transcripts, field notes, photographs, personal documents, notes, and other notes. The research was conducted at SMK Muhammadiyah 1 Sukoharjo in the program of automotive light vehicle engineering expertise. Meanwhile, the informants were school principal, vice-principal, head of expertise programs, productive teachers, industrial workers, students, and DUDI.

Data collection was done through participatory observation, in-depth interviews, and documentation. Data validity utilized internal and external triangulation validity techniques. The internal validity technique was conducted by bringing up the same data from the same person using different techniques, while the external technique was carried out by comparing reports from various informants. Data analysis techniques included data collection, data condensation, data presentation, data verification, and drawing conclusions [13].

## **3. Results and Discussion**

### **3.1. Management of the Implementation of Industrial Work Practices**

Management of industrial work practice can run well if it fulfills an effective management process. In this case, these following are necessary: (1) planning of industrial work practices has been prepared beforehand, (a) the school has entered into a collaboration with the business/industry world, (b) the process of implementing the industrial work practice has been carried out for three periods, (c) debriefing conducted for scheduled internship students, (d) socialization has been carried out for teachers, student guardians, and the business/industry, (e) administration for all industrial work practice participants has been prepared by the school. (2) Organizing industrial work practices was only carried out by working groups (Pokja). (3) The implementation of industrial work practices included the activities of students in the workshop using daily journals, as a whole, the participants of the industrial work practices have made and filled activity journals in the workshop every day after practice, (4) Supervision and evaluation of industrial work practices were carried out using a journal system. Thus, when the supervising teachers did the monitoring, they would immediately find out the level of relevance of the work that has been done with established competency standards [14].

Effective management in the implementation of industrial work practices is needed so that the internship can work well. For the implementation of the industrial work practices in the automotive light vehicle technical expertise program at SMK Muhammadiyah 1 Sukoharjo, it has applied effective management. The process included the planning stage, the organizing stage, the implementing stage, and the evaluation stage.

**Table 1. Management of Implementation of Industrial Work Practices in SMK Muhammadiyah 1 Sukoharjo**

No.	Industrial Work Practices Stage	Description of Activities
1	Planning	a. formulating learning goals for industrial work practices, b. mapping the partner industry and synchronizing the material and competencies taught in schools c. giving debriefing about industrial work practices to students, d. determining the time allocation for industrial work practices, and e. assigning mentor teacher of industrial work practices
2	Organizing	a. arranging the organizational structure for the handling of industrial work practices, b. determining the division of tasks for each section, c. determining the authority and responsibility, d. establishing coordination lines between sections.
3.	Implementing	a. assign the participants of industrial work practices, b. setting the place of industrial work practices, c. handing over the participants of industrial work practices to the internship place, d. carrying out monitoring to the industrial work practices students, e. guiding the preparation of reports on the implementation of industrial work practices.
4.	Evaluating	a. from the business world and industry b. from the school

Table 1 explains that at the planning stage, it includes activities of: a). Formulating learning objectives of industrial work practices. This goal is essential to know by all students who will do industrial work practices so that the direction of students is clear, as well as being the basis of the school in giving directions to industrial work practices activities, b). mapping the partner industry and synchronizing the material and competencies taught in schools. Mapping the industry is very important, considering the limited practice places and the presence of other school competitors who also do industrial work practices. Besides, the synchronization of the material in the school with DUDI is crucial so that what is taught in the school according to what is needed by DUDI, thereby, students are ready to do industrial work practices, c) giving debriefing concerning industrial work practices to students. The briefing is in the form of technical material for the preparation of industrial work practices as well as special material provided for mental readiness in carrying out industrial work practices, d) determining the allocation of industrial work practices time. It refers to the educational calendar that has been prepared, and e) assigning supervisors of industrial work practices. The principal

internship teacher is primarily productive teachers, but if they cannot, it can be other subject teachers.

At this stage, it becomes the basis for the subsequent implementation of industrial work practices. Based on the results of interviews with the school principal and vice-principal in the field of public relations, the industrial work practices planning in SMK Muhammadiyah 1 Sukoharjo could effectively support the implementation of industrial work practices. Industrial work practice planning was written in the industrial work practices manual. It is consistent with the results of research conducted by [15], which showed that the planning aspects of the management of industrial work practices (prakerin) had very effective criteria. Concerning the industrial work practices planning referring to the industrial work practices guidelines, it is supported by the results of [16] that from the analysis of the industrial work practices planning data, it was in accordance with the industrial work practices guidelines.

At the organizing stage, based on the results of interviews with the school principal, it was explained that the organization included activities of a) arranging the organizational structure for the handling of industrial work practices. The organizational structure of the industrial work practices consisted of the principal as the person in charge vice-principal of public relations and vice-principal of the curriculum as the leading sector, and the head of the expertise program assisted by productive teachers and other teachers as the executor. b) Determining the division of tasks for each section. In order for the implementation of the industrial work practices to run smoothly, the tasks were assigned to each according to their expertise. c) Determining the authority and responsibility, in which the tasks given must be followed by the authority and responsibility as a reference in working. d) Establishing a line of coordination between sections. It was intended to facilitate the implementation of tasks and explicit coordination.

At this organizing stage, the concern was to place students in positions in accordance with their expertise, so that the industrial work practices could run smoothly and effectively in achieving its goals. It is in accordance with the opinion of [17], who stated that the organizing activities included a) allocating resources, arranging, and assigning tasks, as well as setting the necessary procedures, b) establishing an organizational structure indicating the existence of lines of authority and responsibility, c) recruiting, selecting, and conducting training and development, d) putting someone in the right position. At the organizing stage carried out at SMK Muhammadiyah 1 Sukoharjo, it is in accordance with existing theories.

At the implementation stage, it included stage of a) assigning participants to industrial work practices, b) assigning industrial work practices places, c) handing over industrial work practices participants to the internship place. It was carried out by two methods, namely, directly handing over to the Working Group team of industrial work practices for participants at an affordable distance. In contrast, for participants who did the industrial work practices outside the city, the handing over process was carried out through communication media via telephone or fax. d). Carrying out monitoring of industrial work practices students in one period of three times included the time of initial handing over, monitoring during the implementation process, and the end of withdrawal, and e). Guiding the preparation of reports on the results of the industrial work practices implementation with the format referring to the industrial work practices manual. This stage is the stage that determined the success of industrial work practices, in which this stage should refer to the planning stage.

The difference in the implementation stage of industrial work practices in SMK Muhammadiyah 1 Sukoharjo with other vocational schools was that before students were deployed in the place of practice, students were given a briefing by the counseling guidance teacher about students' mental readiness at work, as well as material about

growing motivation to work and how to maintain the good name of the school at work. The purpose of this briefing was for students to be psychologically prepared before going to industrial work practices.

Likewise, after the industrial work practices were completed, and before students took part in teaching and learning activities, they should first take the cadets program. This program aimed to restore students' readiness to learn, because, after the industrial work practices, students were more or less affected by unfavorable DUDI conditions. Since not all DUDIs had good effects on students, especially students who got DUDI that were individual businesses and were less professional in their performance. The cadets' program was delivered by the Indonesian Armed Forces selected in *Kopasus*, and the material presented was in the form of discipline and personal responsibility. It was hoped that after carrying out the cadet program, students would again have a high sense of discipline and self-responsibility.

The implementation of the industrial work practices in the automotive light vehicle technical expertise program at SMK Muhammadiyah 1 Sukoharjo is supported by [18], which explains that the flow of implementation of the industrial work practices that can be proposed is as follows 1) Industrial Synchronization Stage, 2) Industrial Feasibility Evaluation Stage, 3) Provisional Industry Determination Stage, 4) Industrial Work Practices Socialization Stage, 5) DU/DI Selection Stage by the Industrial Work Practices Participants, 6) Final Determination of Industry, 7) Stage of Making Cooperation with DU/DI, 8) Industrial Work Practices Procurement Stage, 9) Stage of Industrial Work Practices Implementation, 10) Industrial Work Practices Participant Guidance Stage, 11) Problematic Student Handling Stage, 12) Industrial Work Practices Withdrawal Stage, 13) Industrial Work Practices Participant Evaluation and Certification Stage, and 14) Industrial Work Practices Record Collection and Filing Stage.

At the evaluation stage, based on the results of interviews with the manager of the industrial work practices, the evaluation was carried out by assessing industrial work practices. It was done by supervisors from DUDI and supervisors from schools. It employed the collective value format (NK) from the collective assessment sheet of the students' activities during industrial practice, as well as material for filling out industrial work practice certificates written in numbers and letters. The evaluation criteria were as follows: A (Very Good) for 86-100, B (Good) for 71-85, C (Fair) for 56-70, and D (Less) for 31-55. The total evaluation of industrial work practice students was assessed with parameter values from the industry/industrial work practice certificate (IN) given a weighting of 60%, the value of the industrial work practice journal (JP) was given a weighting of 10%, the oral examination score (UL) was given a weighting of 20%, and the value of the paper/report (LP) was given a weight of 10%. Thus, the final industrial work practice value was:  $0,6 (IN) + 0,1(JP) + 0,2 (LP) +0,1 (LP)$ .

The results of evaluations conducted both from the school and from the DUDI showed that students who were engaged in formal workshops were better than informal workshops managed by the community. It is supported by the results of research by [19] that the entrepreneurial competencies of students who are apprenticed to formal workshops are higher than those of students who work internally at individual workshops. Students who were internally trained at workshops were rated by 110.90, while students who were internally working at workshops were 105.00. The T-test results of the two parties indicated that Sign. (2-tailed) obtained 0.00, which means there were differences in entrepreneurial competence between students who practiced industrial work in official workshops and individual workshops.

### **3.2. The Suitability of Students' Productive Abilities with the Demands of the Business and Industrial World**

The competency of students of the program of automotive light vehicle engineering expertise at SMK Muhammadiyah 1 Sukoharjo, based on the results of interviews with students who carry out an internship, generally was that there was relevance between the theories learned at school and the practice at DUDI. For participants who got practice places in official workshops, such as Toyota, Daihatsu, and Honda, the material obtained at school could already be underlying in practice. However, culturally, working students felt they had to adjust to professional work patterns. Meanwhile, for students who had a place in a workshop managed by the community, in general, students did not experience significant obstacles. From the results of interviews with productive teachers, it can be seen that the teacher has provided basic provisions for students who were ready to do the industrial work practice because the school had the infrastructure of workshop practice with injection cars.

Supporting research was conducted by [20]. The results of the study are that (1) the practice of the students is already relevant to the curriculum listed in the school; (2) for the acquisition of competence in the cognitive aspects, students gain knowledge about the procedures for making boutique clothing, for the affective aspects, work culture attitudes are formed, and for the psychomotor aspects, students are able to complete the work of boutique clothing; (3) how students gain competence by doing: (a) communication; (b) learning techniques (c) practical work methods; (d) work independently; (e) action with responsibility; (f) work ethic; (g) organization and implementation of work properly; (h) work according to the confidence of industry instructors; (i) personal development; and (j) application of competencies from schools; (4) the achievement of the competence of students who were industrial work practice in Goet Poespo and Puspa Rini was at the Beginners level (novices), while at L'Mar boutique was at the specialist level.

The competency of students of SMK Muhammadiyah 1 Sukoharjo in the light vehicle engineering program was in accordance with the 2013 curriculum and was relevant to the assignments given by students in the industrial work practice place.

### **3.3. Supporting and Inhibiting Factors of Industrial Work Practices**

The supporting factors for the implementation of the industrial work practice included 1) the school had an adequate infrastructure of practice because the school had a large practice area, and the car used in practice was of the latest technology. 2) Good teacher performance, where all productive teachers had a background with appropriate qualifications and had a good performance. 3) Trusted by official workshops, such as Daihatsu, Toyota, and Honda. To gain the trust of authorized dealers and workshops was indeed not easy because they chose a school that had a good reputation. 4) Having a broad network of industrial places.

It is consistent with the results of research by [21], which states that vocational students are ready to implement internships supported by the level of student knowledge, socialization carried out by schools, and good basic skills of students. Vocational Schools are ready to carry out industrial work practices. The internship industry is ready to carry out industrial work practices, especially in large and medium-sized industries, while the small-scale industry is only 75%.

The inhibiting factors were that 1) there were still some students who had poor machinery, meaning that they had a place in a workshop that was traditionally managed. 2). Some students were less able to adjust to the work environment. It indicated that students could not adjust to the workplace.

Moreover, it is in accordance with the results of research conducted by [22], which stated that the obstacles in the preparation stage included: (a) students had difficulty finding a place of industrial work practices in accordance with their talents, interests, and

expertise; (b) difficulty in finding temporary accommodation/boarding. Further, obstacles at the implementation stage included: (a) the irrelevance of expertise to the work and assignments that students did in the workplace; (b) low student discipline; (c) the application of K3 that was not in accordance with SOP. Besides, obstacles in the evaluation stage were difficulties in student career planning.

Constraints experienced in research conducted by [23] indicate that in the planning and implementation aspects, there were points that have high gaps, namely: (1) the management of the working group of workers in schools totaling less than four people, (2) the business world and the industrial world (DU/DI) around the school were not always relevant to the expertise program at school, (3) there were still students who were looking for industrial work practices places by themselves, (4) the relevance of the tutor teacher's expertise program with the students being guided was less noticed, (5) the implementation of the training was still often constrained by student discipline, (6) the working group (Pokja) still found that the internship participants who completed the internship activities did not match the time allocation. Meanwhile, the results of [24] mentioned obstacles that arise in the internship are that the cooperation developed between industry and schools is still not good, especially in small-scale industries, while for medium and large-scale industries, it is quite good although still very limited.

#### 4. Conclusion

Management of the implementation of industrial work practices on the competence of automotive light vehicle engineering expertise at SMK Muhammadiyah 1 Sukoharjo covered the stages of planning, organizing, implementing, and evaluating. The management process has been running well, but there have been no breakthroughs further to enhance the success of the industrial work practices program. Student learning through a curriculum that was adapted to the needs of DUDI had implications for the suitability of the productive abilities of students with the demands of the business and industry world in carrying out industrial work practices quite relevant to the competencies of students.

Meanwhile, the driving factors that made the implementation of the industrial work practices smooth were the adequate infrastructure of school practices, good teacher performance, trusted by official workshops, such as Daihatsu, Toyota, Honda, and having an extensive network of industrial work practice sites. The inhibiting factors included that there were still some students who had poor practice places, and there were some students who were less able to adjust to the work environment.

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