

Management of Industrial Work Practices and Competency Development of Vocational High School Graduates



Indra Prasetya

Postgraduate, Universitas Muhammadiyah Sumatera Utara, Jln. Denai No 217 Medan, Indonesia

ABSTRACT: This study aims to analyze the implementation of the management of vocational high school student work practice programs in the industrial world, the suitability of the program for program achievement and increasing the competence of Vocational High School (SMK) students. This research uses a mixed method approach of concurrent embedded type, where qualitative methods as primary methods and quantitative as secondary methods are carried out in one stage of research. The research data were sourced from teachers participating in the Professional Education for Teachers in Position (PPG) of the Institute for Education and Educational Personnel (LPTK) Universitas Muhammadiyah Sumatera Utara, Indonesia. The research findings show that industrial work practice management is carried out by schools through planning stages including needs analysis, mapping, socialization, selection of practice sites and supervising teachers, and debriefing. Practical implementation is carried out by handing over, monitoring, assessing, withdrawing students and reporting performance. Program evaluation is carried out through report assessment and competency tests. By carrying out good management by schools, student field practice programs in the industrial world are able to develop student competence and performance. The level of management achievement for the program planning aspect reached an average of 81% and with an average gap of 19%. The implementation of industrial work practice management reached an average of 83% with an average gap of 17%. The achievement of the evaluation of industrial work practice management in SMK reached an average of 97% with an average gap of 3%.

KEYWORDS: Management, industrial work practice, graduate competence

INTRODUCTION

Vocational High School (SMK) is a formal education unit that organizes vocational education aimed at preparing graduates who are ready to work in certain fields. As one of the efforts to produce quality human resources with specific skills that are needed by the business world and the industrial world, the government implements expertise and skills programs at SMK. SMK started since the implementation of Dual System Education (PSG) in 1999, hereafter referred to as Industrial Work Practices (Prakerin) which is equipped with a number of implementation tools. Therefore, Vocational High Schools (SMK) play a very important role and are one of the institutions that accommodate productive human resources.

Currently, in an effort by the Indonesian government to prepare skilled workers who have the ability to meet the demands of the needs and requirements of the world of work, the Indonesian government through the ministry of education in 2021 has launched an educational program aimed at improving the quality and performance of Vocational High Schools through the SMK Center of Excellence Program (SMK-PK). SMK centers of excellence are present as one way for the Indonesian education world to meet the demands of the world of work and fulfill the quality of skilled human resources. The SMK-PK program was born to answer the current general condition of the challenge of the availability of skilled graduates in the world of work. The birth of SMK PK is expected to improve the quality and suitability of SMK graduates with industry needs. Vocational High School is a school that aims to educate and train students to become graduates who are ready to enter the world of work. In addition to being equipped with knowledge, vocational students are also given training in accordance with their fields of interest (Kurniati, 2015). Vocational High School is a sub-system of national education that prioritizes preparing students to be able to choose careers, enter the workforce, compete, and develop themselves successfully in the workforce (Rizki., et al, 2017).

However, problems that still often arise today are about the preparation of SMK graduates in facing the world of work. The misalignment between the expertise competencies of SMK graduates and the needs of the world of work leads to high rates of open unemployment. The number of unemployed people in Indonesia reached 9.77 million (BPS, 2020). In terms of education level, SMK graduates provide the highest percentage of the open unemployment rate, which is 13.55% (Indahri., et al, 2020). Next in order, there were 9.86% of high school graduates, 8.08% of diploma graduates, 7.35% of university graduates, 6.46% of junior high school graduates, and 3.61% of elementary school graduates. One of the reasons why SMK graduates have not been widely

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absorbed in the industrial world is because SMK graduates do not have competencies that match the needs of the labor market (Fatah., et al, 2022). The open unemployment rate of SMK graduates is due to the gap between the number of graduates and the number of available jobs in accordance with their expertise programs (demand and supply), alignment between expertise competencies and the availability of business and industry (Sudiyono., et al, 2019). In addition, the low quality of SMK graduates is due to the lack of competencies mastered, expertise programs that are not in accordance with industry needs, lack of supporting facilities and infrastructure, lack of skilled productive educators and the absence of good cooperation between schools and business and industry (Riniyani., et al, 2023).

The SMK program as a center of excellence emerged because of the learning crisis that occurred due to Covid-19 (Satriyanto, 2023). The Indonesian government through the Ministry of Education issued a policy in the development of an independent curriculum given to education units as an additional option in the context of learning recovery during 2022-2024 (Prasetyowati., et al, 2023). The learning crisis characterized by low reading literacy is also characterized by wide disparities in learning quality between regions and between socio-economic groups (Ndari., et al, 2023). The recovery of the education system from the learning crisis cannot be realized through curriculum changes alone. It also requires efforts to strengthen the capacity of teachers and principals, assistance for local governments, structuring the evaluation system, and more equitable infrastructure and funding (Sari., et al, 2023).

The birth of the independent curriculum program also had a major impact on teachers in SMK (Aini & Udiyono, 2023). Teachers in vocational schools are becoming more creative to create interesting learning methods for students. The independent curriculum in its implementation is more interactive and relevant to the development of the current era (Lestari., et al, 2023). The center of orientation of learning activities is no longer on a teacher, but on students (Ainia, 2020). Students can be more creative and develop their minds more openly (Maulida, 2022). This is supported by project-based learning and the strengthening of the Pancasila profile in the independent curriculum. The implementation of an independent curriculum in SMK aims to increase the innovation and creative power of students to be ready to face the industrial world (Restu, et al, 2022). Implementation takes place as the learner acquires the intended experiences, knowledge, skills, ideas and attitudes that are aimed at enabling the same learner to function effectively in a society (Roehrig., et al, 2007). Therefore putting the curriculum into operation requires an implementing agent. Stenhouse identifies the teacher as the agent in the curriculum implementation she argues that implementation is the manner in which the teacher selects and mixes the various aspects of knowledge contained in a curriculum document or syllabus into practice (Bediako, 2019). The curriculum is the spearhead in the implementation of education which is implemented in learning, so it is necessary to evaluate and improve continuously. Efforts of students do not feel heavy because of the dichotomy of the lesson, it needs an integrated curriculum (Miswari, 2019).

RESEARCH METHODS

This research is a mixed method design that is concurrent embedded. Concurrent embedded design is a research method that combines the use of quantitative and qualitative research methods simultaneously or together, but the weight of the methods is different (Creswell, 2013). In this research, the primary method is qualitative while the secondary method is quantitative.

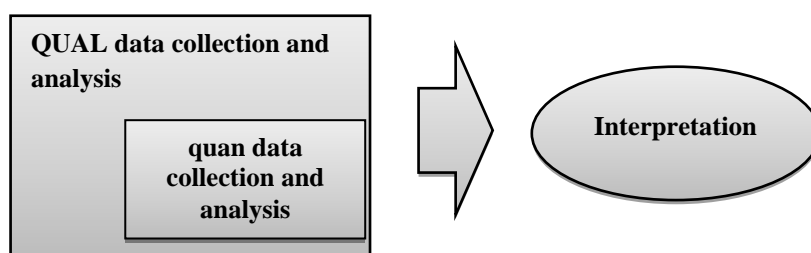


Figure 1. Embedded Concurrent Design Stages (Creswell, 2013)

The research data collection came from participants in the 2022 in-service Teacher Professional Education (PPG) Institute for Education and Educational Personnel (LPTK) at Muhammadiyah University of North Sumatra, Indonesia. The research data collection came from participants in the 2022 in-service Teacher Professional Education (PPG) Institute for Education and Educational Personnel (LPTK) at Universitas Muhammadiyah Sumatera Utara, Indonesia. Teacher Professional Education (PPG) is a professional educator certification program organized by the Indonesian government for 6 months. The selection of the research sample was based on the criteria that (1) the research sample was the driving teacher, (2) the work practice supervisor in their respective schools, (3) the school had implemented an independent learning curriculum. From 68 PPG participants in LPTK UMSU, 16 research samples were selected (N = 16). A total of 10 samples or informants were male and 6 samples were female. Qualitative data collection using in-depth semi-structured interview techniques to describe the management of industrial work practices by schools was analyzed using the steps of data collection, data reduction, data display, and conclusion drawing/verification. This was followed by quantitative data collection from the same sample of 16 people to explain the level of

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performance and the results of the school's industrial work practice achievements which were analyzed using descriptive statistics to corroborate the qualitative data findings.

RESULT AND DISCUSSION

The results of qualitative data collection as primary data and quantitative as secondary data are carried out in one data collection process to explain how schools implement work practice management in the business world or industrial world as well as the performance and competencies that students have achieved. A total of 16 respondents were interviewed to obtain information and data. The results of the qualitative and quantitative data obtained generally explain the importance of planning, implementation and evaluation aspects in implementing work practice programs in business and industry in SMK-PK..

Planning Performance

In planning for industrial work practice at SMK-PK, all respondents explained that to implement the independent curriculum, the school first becomes a driving school, runs an excellence-based curriculum, has received training and guidance from the ministry of education or the relevant education office. This planning activity includes planning in needs analysis, industry mapping, socialization, selection of practice sites, supervising teachers, and debriefing. Here are some qualitative and quantitative data displays related to school planning in industrial work practice activities.

R1 : Curriculum planning is part of the initial activities to develop the concept of an independent curriculum that becomes a program of excellence at school....

R2 : Not only classroom lesson plans, but also field practice plans that will be taught and programmed at school

R3 : Curriculum planning includes general and specialist subjects, extracurricular programs and internships or field practice...

R3 : Pre-workshop preparation activities, namely determining the industry and contacting it, preparing administration or letters for the industry and permission letters for parents of students who will practice industrial work.

R4 : Conduct debriefing to students before going to the field both knowledge, skills, and how to learn in the practice site.

R5 & R 6 : the curriculum is developed by taking into account input according to the competencies expected by the business world and industry

R7, R8 & R11: The school's operational curriculum has been used as a guideline or reference in carrying out the learning process which leads to the realization of Pancasila learners. developed according to the needs and context of the school.

Of the 16 respondents who had been interviewed, most explained that the planning of work practice programs in the industrial world was carried out through a process of analyzing needs, carrying out mapping, socialization, determining places, determining accompanying teachers and carrying out debriefing activities. Schools carry out a review of the practical curriculum based on needs carried out on average 2 times in 1 school year, carrying out practice for 6 months, planning and mapping needs on average 4.2 times, conducting socialization on average 2.8 times / year, schools have cooperation with the industrial world as a place of practice on average 12.6 cooperation, such as the automotive industry, machinery, workshops, offices, telecommunications, hospitality, tourism and banking. The implementation of the work practice program also needs to be managed by human resources, namely the supervising teacher and also as the program implementer. Work practice also requires cooperation between schools and the industrial world in the implementation of vocational education. Figure 2 Industrial work practice planning activity levels and planning performance.

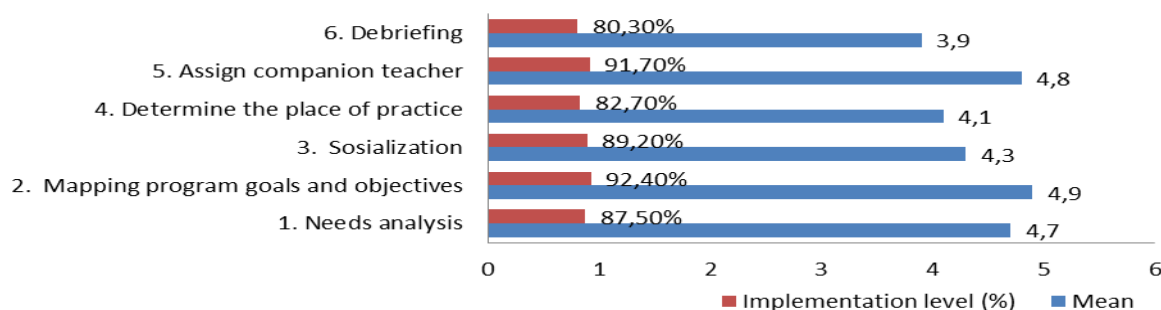


Figure 2. Planning Activities and Performance Outcomes

Based on Figure 2 above, practice planning is carried out by schools through a good planning process. This good planning is done through a needs analysis conducted on each program that will be implemented, which is 4.7 times a year review or 87.5% of all program plans have been evaluated. Carry out mapping of activities and programs on average 4.9 times or 92.4% all program goals and objectives have been mapped. Planning and conducting socialization on average 4.3 times a year, or 89.2% of

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socialization activities have been carried out. The average number of mentor teachers sent was 4.8 teachers, or 91.7% of schools had implemented mentoring and sending teachers.

Implementation Performance

The implementation of work programs in the industrial world in SMK is in accordance with the curriculum implementation standards and process standards. The Interview results have provided a very adequate explanation of the implementation of the curriculum.

R9 & R10: In implementing the curriculum, learning is done through projects to strengthen the achievement of the Pancasila learner profile...developed based on a specific theme...

R11: Projects are directed to achieve specific learning outcome targets, so they are not tied to subject content...

R2: The SMK PK program aims to produce graduates who are absorbed in the world of work or become entrepreneurs through the alignment of vocational education

R3, R4, R5: Handover activities are carried out in accordance with the schedule and the results of the agreement with the industry....Students go to the place of practice based on the recapitulation of the place that has been prepared by the committee....The handover of students to the industry is carried out by the accompanying teacher.

The implementation of good work practices requires a good management process, the success of which is largely determined by the program of handing over students to the field and site visits. The organization of good practice activities through field reviews averaged 4.7 times. Carrying out field monitoring on average reached 3.8 times, carrying out assessments on average reached 4.5 times during practical activities and pick-ups in the form of study groups on average 5 times, and reporting 3.6 times. This finding explains that to achieve the expected practice results, the implementation is carried out in a repetitive manner. Figure 3 Activities and implementation of industrial work practices and their achievements

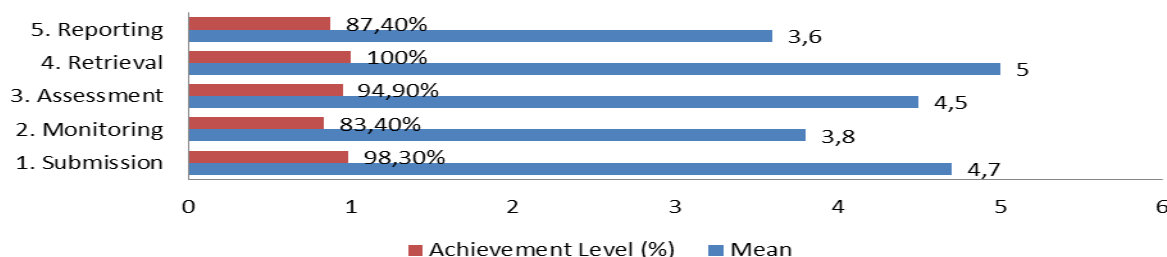


Figure 3, Implementation Activities and Outcomes

In practical activities, monitoring and assessment aspects are carried out to determine the level of conformity of the implementation of practice with the competencies achieved by students during industrial work practice. Monitoring is carried out through visits and monitoring of students by accompanying teachers at the practice site. Assessment is carried out after the practical period will be completed, in this case before the withdrawal schedule arrives. The assessment is carried out by referring to aspects of the attitude and behavior of industrial work practice participants while in the workplace which includes discipline, motivation, alertness, initiative, responsibility, personality, appearance, hospitality, cooperation, and others. Withdrawal activities are carried out in accordance with the withdrawal task letter from the school. Then also in accordance with the submission of the work practice student schedule. The results showed that the higher the level of activity and frequency of implementation of monitoring, assessment and reporting, the impact on improving student performance in the aspects of attitude, knowledge and skills.

Based on Figure 3, in order for the implementation of industrial work practices to be effective, the school through the accompanying teacher handed over students and this process was carried out on average 4.7 times a year and this level of assistance achieved a performance of 98.3%. Monitoring was carried out on average 3.8 times during the implementation of work practices with a monitoring rate of 83.4%. The assessment was carried out 4.5 times with an implementation rate of 94.9% and the retrieval process was carried out with 100% work results and reporting with a performance rate of 87.4%.

Process, Activity and Performance Evaluation

Evaluation is carried out in order to get better input for further industrial work practice activities. This work practice evaluation activity includes assessment of practical reports, exposure to practical results and competency tests. The results of the evaluation of industrial work practice program activities carried out by schools are based on suggestions and considerations from school partners, teachers, students and graduate users. Based on the results of the interview, the final activity of work practice is reporting the results of practice by each student and accompanying teacher. Teachers are required to make a report on activities during industrial work practice.

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R8; R9: The value of students' industrial work practice is determined absolutely by the instructor at the practice site without the intervention of the supervising teacher. The supervising teacher only monitors, directs and assists students during industrial work practice and report writing.

R12; R4 & R16; Final evaluation is carried out to see what problems exist during industrial work practices.... Evaluation takes into account the suggestions of partners and teachers and the work practice committee... obstacles and problems become the main focus of evaluation so that it is hoped that they will not occur again in future industrial work practices.

Figure 4 explains the data on the activity level of the evaluation of the field work practice program. The respondents argued that the higher the level of implementation of evaluation of the implementation of industrial work practices, the higher the level of achievement of student outcomes and performance so as to support the development of graduate competencies in accordance with the needs of the industrial world.

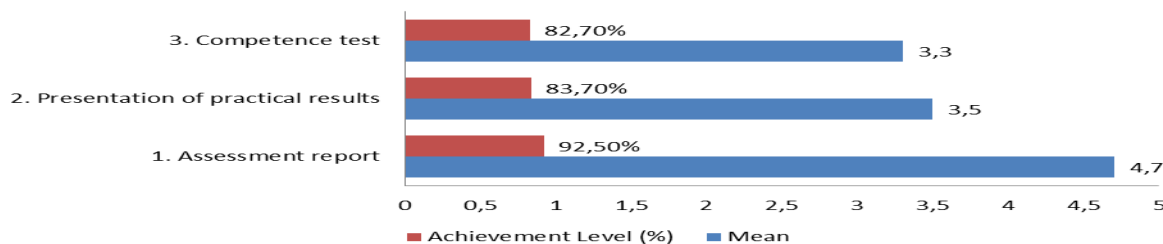


Figure 4. Evaluation and Outcome Activities

An important aspect in the implementation of industrial work practice program evaluation is the suitability between the program and its implementation. This is intended as a basis for the preparation of follow-up programs that must be carried out. Evaluation of work practices can not only improve students' academic performance, but also student participation in extracurricular activities, improvement of students' skills and abilities, and student and teacher satisfaction.

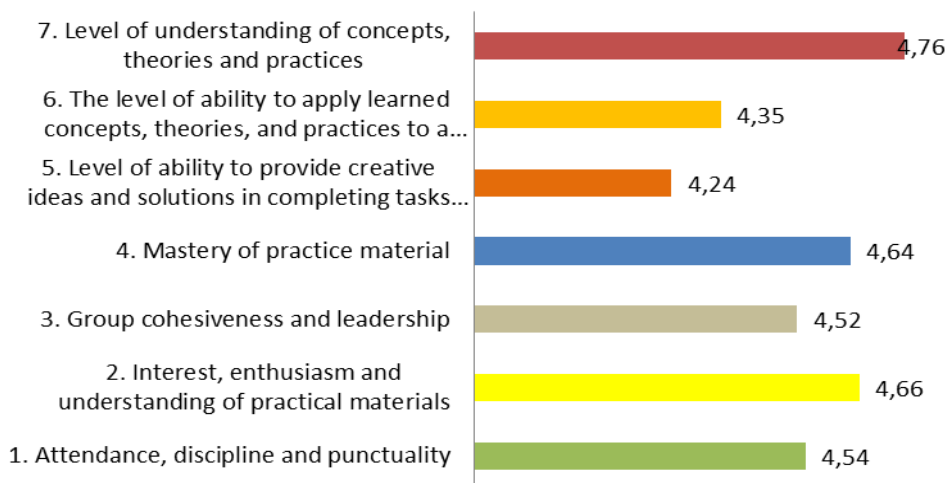


Figure 5. Aspects of Student Competence in Industrial Practice

The research findings as shown in Figure 5 above explain that students' attendance, discipline and punctuality in practical activities are rated very high or an average of 4.54. Students' interest, enthusiasm and understanding of practical materials are very good or an average of 4.66. Group cohesiveness and student leadership were excellent or averaged 4.52. Practical material skills are very high 4.64. The level of ability to provide creative ideas and solutions in completing tasks or projects is high with an average of 4.24. The level of ability to apply concepts, theories and practices that have been learned in projects or tasks is high with an average of 4.35 and the level of understanding of concepts, theories and practices is very high or an average of 4.76.

The next research findings analysis is the school's achievements in the management of industrial work practices, including the components of planning, implementation, and evaluation. The research data on the planning aspect shows that the achievement of industrial work practice planning averages 81% and a gap of 19%. The implementation of industrial work practice management averaged 83% with a gap of 17%. The achievement of industrial work practice evaluation averaged 97% with a gap of 3%. Figure 6 shows the level of achievement of school management in the field work program in the industrial world.

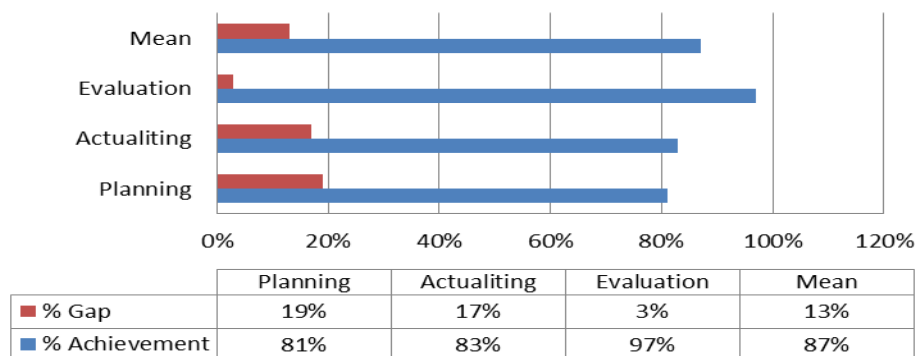


Figure 6. Conformity of Program Planning, Implementation and Evaluation

The findings of this study are in line with the findings of Suherman, et al (2020) explaining the curriculum implemented in Vocational High Schools to ensure student readiness to enter the industrial world. The curriculum is implemented with management, namely planning, organizing, implementing and evaluating according to the principles and management theories of aligning the 2013 SMK curriculum with the world of work. The curriculum is expected to produce qualified and competent graduates according to their field of expertise. Teachers as educators are the most important component for the implementation of the curriculum, because teachers are facilitators (Pak, et al, 2020). With good curriculum management, it can create competent and quality graduates (Penuel., et al, 2007; Harris, 2017; Edgerton & Desimone, 2018). Industrial work practice management is a process of planning, organizing, and evaluating a learning program in schools and in the industrial world, namely through training and learning in order to improve student competencies (Rogan & Grayson, 2010). Industrial work practice management aims to suppress problems that arise in planning, implementing and evaluating industrial work practices so that the expectations that have been set can be realized (Ellahi., et al, 2019). The role of schools, businesses and the industrial world is very influential in realizing good industrial work practice management, this will have an impact on the development of students' abilities, attitudes, knowledge and skills as provisions in the future. Industrial work practice is basically a system that requires management so that it can run in accordance with its objectives (Soenarto., et al, 2020).

CONCLUSIONS

Industrial work practice planning is carried out through needs analysis, industry mapping, socialization, selection of practice sites and supervising teachers, and debriefing. Implementation of industrial work practice is carried out through handover, monitoring, and withdrawal Evaluation of industrial work practice is carried out by reporting the results of student work practice. The evaluation goes according to the agenda, but in the evaluation activities the industry is not involved, this is because the school feels that the responsibility of the industry has been completed after the withdrawal of students from the practice site. The school's achievements in managing industrial work practices include planning, implementation, and evaluation components. Research data on the planning aspect shows that the achievement of industrial work practice planning averages 81% and a gap of 19%. The implementation of industrial work practice management averaged 83% with a gap of 17%. The achievement of industrial work practice evaluation averaged 97% with a gap of 3%.

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