



## Research Article

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# Exploring Management Industrial Class at the Vocational High School in Indonesia

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## Abstract

*This study aimed to describe and analyze the implementation of industrial class terms through the management stages namely planning, organizing, implementing and evaluating. The research design of this study used qualitative research. The data were collected from four Vocational High Schools in Indonesia. The findings showed that the mechanisms and stages of planning, organizing, implementing, and evaluating have been carried out comprehensively and systematically. To obtain the optimal results, the aspect of planning and implementation management needs to be optimized, especially in skills preparation by schools, curriculum synchronization, schedule planning, teacher internship program, and readiness of learning facilities and infrastructure. It is recommended because it needs a review from the implementation of industrial class management in Industrial Vocational High Schools. In addition, it needs improvements in every aspect of management to meet program objectives that have an impact on both parties so that can be a learning strategy based on industrial culture and industrial needs.*

**Keywords:** Management, Industrial Class, Vocational High School

## 1. Introduction

Vocational education requires the concept of maximum development education through innovation that continues to develop according to industry needs. Therefore, it can facilitate students' understanding of work experience. Each student will obtain work skills as a basis for improving workforce skills in accordance with the needs of the world of work and the labor market. In addition, students also obtain skills and competency training so that they can be active and have character as members of society and citizens who have comprehensive work experience (Forster et al., 2017, Cedefop, 2019, Miller, 2020).

Vocational education institutions have a potential role in learning for the development of vocational knowledge not only at a practical level but also can be applied at different levels. The main policy of vocational education in Thailand during the 1992-2014 period, identified three main policy discourses, namely (1) increasing the workforce vocational skills, (2) the role of private vocational providers, and (3) partnerships between vocational providers and industry (Chalapati & Chalapati, 2020, Moodie, 2022). While in Indonesia, Vocational High School is one of the vocational educations at the secondary level that has a link and match program as a form of collaboration between Vocational High School and industry. This is one of the existing policies and developing programs from the Ministry of Education and Culture of the Republic of Indonesia to increase the relevance of Vocational High School in the world of work, especially in business and industry world. The Ministry of Education's efforts to increase the presence of Vocational High School in the field of participation needed and adapted to the potential and needs of the workforce according to what has been done with various programs in several regions (Azman et al., 2020).

The Vocational High School Industrial Class Program is a program that can integrate learning in schools with the industrial world by integrating the education system in schools and the existing system in industry. The implementation of industrial class programs in the field is still far from the government's expectations in realizing industry-based vocational education. It can be seen from the data of the Ministry of Education and Culture 2020, that the industry class data for Vocational High School-Industry collaboration have 111 collaborations, 52 Vocational High School, and 103 industries. This data is very small compared to the number of Vocational High School in Indonesia either public or private. Meanwhile, qualitatively the implementation of industry-class programs still has many obstacles such as school curriculum discrepancy with industry needs, industry/company participation is not maximized, and the learning curriculum models that are not in sync with theory and skills. An effective school-industry partnership model has not been fully developed which result in low recruitment of graduates by companies/industry (Shiming & Ya'nan, 2017). From the explanation above, the purpose of this study is to describe and analyze the implementation of the industrial class in terms of the management stages which consist of planning, organizing, implementing and evaluating.

## 2. Theoretical Frame Work

### 2.1 Management Industrial Class

The Department of Education and Culture of the Republic of Indonesia has a policy of link and match to increase the relevance of Vocational High School to the needs of the world of work, business, and industry. The "link" and "match" principles require that graduates have competitive insight or attitudes such as work ethics, achievement motivation, mastery, competitiveness, money beliefs, and saving attitudes. The "link" and "match" programs require a change in the mindset of all educational implementers, both educational institutions and teaching staff, to be proactive in developing "links" and "matches" with industry and the world of work. The process of implementing the "link" and "match" programs for vocational schools requires collaborative management that understandable in the workflow by both Vocational High Schools and the industry (Sampun Adam, Nastiti Rahayu, n.d., 2017).

Partnership management is a unique process that consists of actions such as planning, organizing, and monitoring that are carried out to regulate a relationship between educational institutions and industry. This partnership is not just a supporting factor, but a partnership in the sense of an equal partnership. In this kind of partnership, the industry is not only a complement in providing advice or consultation on vocational education but also in providing training and sharing the same authority and responsibility in improving the quality of education. The existence of school partnership is expected to increase the effectiveness of achieving vocational education goals through a learning process that involves industry to prepare Vocational High School graduates such as the

development of industrial classes, implementation of teacher apprenticeships (On Job Training), Industrial Work Practices, and the role of Vocational High School as industrial relations for other schools. The implementation of a good and mutually beneficial partnership between Vocational High School and industry is very important to support the achievement of school programs.

"Management is the effective and efficient achievement of organizational goals by the planning, organizing, leading, and managing of organizational resources." This definition contains two key concepts: (1) the four organizational responsibilities of planning, organizing, leading, and controlling, and (2) achieving organizational goals effectively and efficiently (Daft, 2008).

The application of a competency-based vocational curriculum according to industry demands and the design of this curriculum development cannot be separated from the interests of all policymakers towards the curriculum such as the government, social organizations, educational institutions, curriculum planners, students, and vocational teachers and different curriculum models for involvement in curriculum design (Manwaring et al., 2020). This is a challenge for vocational education in considering all stakeholders who have different points of view, especially the curriculum for the world of industry/work that has considerable importance in the vocational education curriculum designed to be prepared for the development of the workforce in the future (Choy et al., 2018).

The purpose of industrial class are 1) Produce superior graduates in accordance with the demands and expectations of the business/industrial world; 2) Improve the quality of learning management in Vocational High School according to the demands of industry standards; 3) Improve the skills, abilities, and professionalism of graduates; 4) Increase the absorption and competitiveness of Vocational High School graduates in the business/industrial world; 5) Organize a learning model designed with industry/association to fulfill the graduates' special competencies demanded by the industry.

The implementation of partnerships with industry are 1) Content Validation, the structure of the learning curriculum in accordance with the needs of the industrial world, so that schools can develop curriculum sets regarding expertise competencies that are open to industry validation, and schools can absorb input from industry to be implemented in the curriculum; 2) Industrial Visits, as a form of activity that can provide insight into the world of work that will be faced by students before participating in the Industrial Work Practice program; 3) Guest Lecturers, aims to provide an overview of industry profiles, assist the implementation of the learning process in schools that are in accordance with industry needs, and provide direct learning materials to students (Sampun Adam, Nastiti Rahayu, n.d., 2017).

## 2.2 Industrial Class Learning

Important efforts in vocational education and skills require independent learning that involves a collaborative process of teachers and students indirectly to create contextually effective learning (Morris, 2018). Industrial class learning prioritizes a competency-based learning process that supports outcomes in the implementation of an independent curriculum based on project learning and becomes part of the reform of vocational education and training curricula around the world (Rauner et al., n.d., 2017). Learning in the industrial class is expected to develop critical thinking skills, creative thinking, communication skills, collaboration skills and self-confidence, as well as the ability to independently solve quality problems to enhance the quality of learning (Made Sudana I et al., 2020). The quality of education can be measured by understanding the practice in schools, implementation in the workplace or industry, and the use of learning technology that can follow the development of access and create lifelong learning for higher quality education (Dehnbostel & Schröder, 2017). Formally, combines institutional-based education (a period of theoretical/practical education pursued in schools, colleges, or training centers) and work-based training (a period of practical work experience in the workplace), whether online or in person. Additionally, it is arranged by an agreement or contract between the employer and the intern, provides compensation for the

apprentice, and leads to national certification (Chankseliani et al., 2017).

An internship is defined as a learning model for a predetermined time period that formally combines institutional-based education (a period of theoretical/practical education pursued in schools, colleges, or training centers) and work-based training (a period of practical work experience in the workplace), whether online or in person. Additionally, it is arranged by an agreement or contract between the employer and the intern, provides compensation for the apprentice, and leads to national certification. Vocational curricula through the implementation of industrial classes can facilitate the integration of learning across contexts at school and in the world of work (Choy et al., 2018). The commitment and participation of teachers play an important role in achieving learning objectives, especially in reforming the education system and vocational training. The Austrian government policy stated that vocational teachers must be able to be an example in being responsible, professional, and can integrate practices and procedures in self-conception professionally (Hautz, 2022). It will increase teacher competence with various teacher improvement programs namely the industrial class program, where the competence of teachers will be increased in accordance with industry demands in a series of industrial class programs.

The implementation of industrial class learning uses a block system by grouping effective study hours in scheduled time units and allows students to follow and receive learning materials to the fullest and become part of the implementation of aligning vocational and industrial learning curricula according to the partnership of each vocational school with aligned industries. Block system learning is the right learning model to be given at the Vocational High School level because this learning is aligned with the same work cycle model as in the business/industry World. Block system learning can benefit the implementation of education in vocational schools, including 1) The targets achieved can be measured within 48 hours per week, so that each student can gain sufficient knowledge for theoretical and vocational/practice subjects. 2) The realization of industrial production/teaching units because there is a job continuity process that produces synergies between departments (Sampun Adam, Nastiti Rahayu, n.d., 2017). Industrial class learning in this study is learning in an industrial class program between Vocational High School and industry which is carried out by both parties in the vocational education. This study describe, analyze and evaluate the management of industrial-class in vocational schools of planning, organizing, implementing, and evaluating.

### 3. Methodology

#### 3.1 Research Design

A qualitative research design was used in this study, because the main participants as the data source provided the information directly. Research data gathered from primary documentation, observations, and interviews. The phenomena that take place in the four sample schools are investigated and analyzed in this study. According to multi-case study, research can be done in a variety of ways, including by interviewing sources for data, making notes about observations, or documenting actions (Creswell, 2017).

#### 3.2 The subject of research

This study focuses on the implementation of industrial class management in four Vocational High Schools in Indonesia that have industrial class programs. The research involved school principals, heads of competency skills, and teacher competency skills.

#### 3.3 Data Analysis Techniques

The data gained from the research have been collected by using the descriptive analysis method. The purpose of this research is to describe and analyze the collected data. The data were classified

according to the research questions obtained from research participants. Although it can be challenging to generalize from qualitative methods, understanding one case can help practitioners form opinions for related contexts and guide future research (Creswell & Poth, 2018).

#### 4. Result and Discussion

##### 4.1 Planning of Industrial Class Vocational High School

The results of the interviews from the four Vocational High School participants in Indonesia were obtained from the results in planning the Vocational High School industry class.

Online and offline registration, document approval followed by the signing of MoU between Vocational High School and industry with the components in the MoU on the industrial class between Vocational High School and industry, including 1) curriculum outline (competency targets); 2) facilities and infrastructure for the learning process; 3) developing the competence of teachers/trainers; 4) the process and technical implementation of the industrial class program; 5) evaluation mechanism; 6) costs (investment and operations); and 7) administration. The partnership between Vocational High School and the industry begins with the online and offline registration process, then the documents are approved, and then the MoU is signed.

##### 4.2 Organizing of Industrial Class Vocational High School

Organizing the industrial class includes the formation of an industrial class team consisting of teacher competency skills and instructors from the industry. Making agreements on the implementation of the Training of Trainers (ToT) implementation of teacher competency competencies and the implementation of industrial class learning. This condition can be different for each Vocational High School according to the agreement of the two parties between the Vocational High School and industry (Result of an interview, document).

##### 4.3 Implementation of Industrial Class Vocational High School

The industrial class implementation stages are mentioned below.

1. The learning process for each school's industrial class is different depending on the industrial partner. From the results of the interviews, it was found that the learning process used the LMS (Learning Management System) provided by the industry and blended learning. The learning activities use a block system, with schedule arrangements according to each school based on the agreement between the school and the industry.
2. Implementation of industrial-class curriculum development process stages on competency skills; The industrial curriculum has been synchronized by the Vocational Directorate; adjustment of learning facilities and infrastructure in industrial class programs. Infrastructure at Vocational High School is adequate and in accordance with industry standards. The steps for standardizing classrooms/practices in industrial-class programs include branding and implementing Occupational Safety in practice rooms. The steps for preparing practicum tools in industrial class programs are structured practical classes that are presentative and comfortable for learning.
3. Preparation of teaching staff from both teachers and instructors from industry in industrial class programs; including the Teachers' Training of Trainers (ToT) with industry and the Directorate of Industrial Partners and The World of Work; the program to increase productive teachers in the industrial class program follows the ToT, Upskilling, and Reskilling carried out by the Directorate of Industrial Partners and The World of Work together with industry.
4. Implementation of industrial class learning in theory learning with a learning system using

the LMS provided by industry and materials can be obtained at the LMS. The implementation of industrial class learning in practical learning in LMS has provided handouts that can be used by students as a guide during practical learning.

5. Learning implementation of industrial class learning on industrial culture soft skill development; students must be disciplined and earnest to be able to take part in learning at industry to graduate and be competent on schedule. Implementation of industrial class program competency test; students carry out tests on each module with a target score of 70%, midterm exam, and the final exam at the end of the school year with a target score of 75%. After students passed, they will get a competency certificate from industry at every level, both fundamentals, foundations, and databases.

#### 4.4 Evaluation of Industrial Class Vocational High School

The industrial class control/evaluation stage includes:

- a. Students will get reports on learning progress, reports after graduation, and a certificate of competence from industry;
- b. In the process of monitoring and evaluating the industrial class program, the progress and competency values of students are monitored in real-time. Students carry out education in schools with guidance from business and industry in semester IV; Students carry out Industrial Work Practice in semester III; Students carry out test preparations and certification tests in semester 5.
- c. The implementation of the curriculum synchronization process; periodic evaluations between schools and industry.

The obstacles that exists in the recruitment process by the industry have not been implemented. The Principal Vocational High School stated that "For the recruitment process so far from the industry there has been no recruitment for alumni. According to the percentage, there are no alumni who have been recruited into the industry. This indicates that there is no graduate recruitment in the industrial class program between our school and industry. Only the ability of graduates of vocational high schools to enter the workforce is guaranteed by industry (Result of an interview, document).

Implementation of partnership management of industrial class between Vocational High School and industry in Indonesia includes the stages in partnership management, namely planning, organizing, implementing, and evaluating. The planning stage for the implementation of industrial class at Vocational High School in Indonesia begins with steps between the two parties for initial coordination that must be prepared by both parties. As the results of the interview with the Principal of Vocational High School in Indonesia in the planning stage, they made an agreement between the two parties with the components in the MoU of the industrial class program between Vocational High School and industry including 1) curriculum outline (competency targets); 2) facilities and infrastructure for the learning process; 3) developing the competence of teachers/teachers; 4) the process and technical implementation of the industrial class program; 5) evaluation mechanism; 6) costs (investment and operations); and 7) administration. The planning stage in the management of the partnership between Vocational High School and industry is a principal thing that must be understood by both parties as to the first step in implementing industrial class.

Based on the results of interviews about the planning stage in the partnership between Vocational High School and industry at Vocational High School di Indonesia, it has been guided by the cooperative management principle in industrial class planning and has maximized the available resources to support the implementation of the industrial class program between Vocational High School and industry for Software Engineering skill competencies. This is in accordance with the stages of management according to "Management is the attainment of organizational goals in an effective and efficient manner through planning, organizing, leading, and controlling organizational resources" (Daft, 2005). Planning in the partnership management between Vocational High School

and industry is the initial key stage in a management process to achieve the goals of a program. Planning, organizing, leading, and controlling organizational resources that allow the effective and efficient achievement of organizational goals. The planning stage includes an agreement on the goals of both parties, namely Vocational High School and industry as well as the steps that will be taken by both parties. In order to increase the effectiveness of achieving the goals of vocational education through school and industry partnerships, each party is responsible for the organizational policies that have been jointly decided upon in the initial planning.

The obstacles faced include the elements of facilities and infrastructure for the learning process that must conform to industry standards and the readiness of teachers as human resources who must have competencies according to industry standards. The condition of industrial-standard learning facilities and facilities at Vocational High School in Indonesia at first did not match the industry standards. This is a separate note for both parties so that the program for aligning facilities and facilities and improving teacher competence according to industry standards is a mandatory program for Vocational High Schools in preparation for opening industrial classes. The alternative solution carried out by Vocational High School in Indonesia is for the completeness of facilities and facilities according to the school's industrial standard, maximizing the budget to support the completeness of facilities and learning tools that are in accordance with industry standards. The standard condition of infrastructure and industrial-standard learning facilities is an obstacle for almost all Vocational High Schools to be able to carry out the industrial class program. So ideally, industry is expected to contribute to the Vocational High School in the provision and fulfillment of learning infrastructure and facilities, so that it can support the implementation of the industrial class program between Vocational High School and industry. It means that the industry is expected to be able to contribute to Vocational High School in fulfilling the completeness of student practice room facilities for the industrial class program.

Evaluation of the partnership management implementation of industrial class Vocational High School in Indonesia with industry partner in the planning stage. Furthermore, in the planning stage, it was only explained that the collaboration between Vocational High School and industry at Vocational High School in Indonesia began with the online and offline registration process, then the document was approved, and then the MoU was signed with 7 (seven) components contained in the MoU. The industry's contribution to Vocational High School has not yet been found in the assistance of complete learning facilities that are in accordance with industry standards.

At the stage of the industrial-class curriculum development process, the industrial curriculum has been synchronized by the Directorate of Vocational Education; and adjustment of learning facilities and infrastructure in industrial class programs. After maximizing the school budget to meet industry standards, infrastructure facilities at vocational high schools are adequate and in accordance with industry standards. Steps to standardize classrooms/practices in industry-class programs include industrial branding and the application of health, safety and work environment in practice spaces. As for the preparation step for practicum tools in the industrial class program, namely the arrangement of student practice that is presentative and comfortable during learning. Overall, the industrial class program planning stage was systematized according to the agreement of both parties.

The stage of organizing industrial class includes organizing an industrial class team formed by the Vocational High School and organizing the implementation of the Training of Trainer (ToT) for teachers and the implementation of industrial class learning. The function of the organizing stage is to coordinate the industrial class implementation team which consists of the Vocational School Team and the industrial team including instructors from school and instructors from industry who will provide training to Vocational High School teachers and instructors as guest teachers.

The results of the interview with the Principal Vocational High School that in the organizing stage, Vocational High School has coordinated with industry which refers to the indicators of partnerships between educational institutions and industry as in (Design and Implementation of Cross-Sector Collaboration 45, n.d.) which includes dimensions 1) initial conditions to enter into partnership; 2) process; 3) structure and governance; 4) contingencies and constraints; 5) results and

accountability; 6) effectiveness; 7) efficiency; 8) expediency; and 9) sustainability. In the stage of organizing based on the third dimension, namely the structure and governance in the implementation of the industrial class program between Vocational High School and industry, it has been carried out optimally. The findings that the researcher obtain in the stage of organizing the job desk division of each function were not maximized and the roles of each part were still not working properly. Meanwhile, based on policy analysis for partnerships between schools and industry as a framework for "*Organizing vocational education and training in schools: A case study of Australian Governments' educational policies*". The success of vocational education and training organizations in schools in realizing the learning process according to industry standards is necessary to promote partnerships between schools and industry in a policy (CUI, 2020).

This promotion may be part of the industrial class organizing stage. Of course, the organizing stage in the partnership management cannot be separated from the condition of the education unit and industry as a partnership member. For this reason, as material for evaluating the organizational stage, both educational and industrial units should make monitoring of the tasks of each section based on information technology and evaluation can be carried out at any time.

The stage of implementing industrial class at Vocational High School and industry, starting with the preparation stage for teaching staff from both teachers and instructors from industry in the industrial class program; including the Teacher Training of Trainers (ToT) with industry and the Directorate of Industrial Partners and The World of Work; productive teacher improvement program in the industrial class program following the ToT and Up Skilling and Reskilling carried out by the Directorate of Industrial Partners and The World of Work with industry. In the implementation of learning using the LMS provided by industry in the industrial class program learning on competencies. From the results of interviews that learning activities have not used a block system, but with an online learning system, students can carry out learning anytime and from anywhere. It is hoped that the implementation of the industrial class can use the block system. This is as stated by (Sampun Adam, Nastiti Rahayu, n.d., 2017) that industrial class learning using the block system learning system has more learning time and this allows students to learn to completion.

In addition, the block system is learning that combines learning hours in each face-to-face subject which was previously done once a week so that it is completed in one full week. The most amount of material possible presented and in accordance with the requirements of the curriculum can be seen as the benchmark for the success of this block system of learning. Block system learning can also get around ineffective circumstances in practical lessons. On the other hand, block system learning is also appropriate for teaching factory-based learning, because this block system can simplify and speed up the production process of partner industries.

The implementation of industrial class learning at Vocational High School on theoretical learning with a learning system using the LMS, blended learning and materials can be obtained in the LMS. The implementation of industrial class learning in practical learning in LMS has provided handouts that students can use as a guide during practical learning. Implementation of industrial class learning on industrial culture soft skill development learning; students must be disciplined and earnest to be able to take part in learning at industry to graduate and be competent on schedule. While the implementation of the industrial class program competency test; students will carry out tests on each module with a target score of 70%, midterm exam, and final exam at the end of the school year with a target score of 75%. After all students passed, they will get a competency certificate from industry at every level, both fundamentals, foundations, and databases. The implementation of industrial class at Vocational High School in the implementation stage has been based on the implementation of a vocational curriculum that can facilitate the integration of learning in all contexts at school and in the world of work. The role of all parties, both instructors from industry and instructors from teachers, is in proportion to both parties. Teacher commitment and participation play an important role in achieving learning objectives. A formal combination of institutional-based education (a period of subsequent theoretical/practical education that was completed in schools in accordance with the agreed schedule) and work-based training (a period of practical work experience



in the workplace) is known as an apprenticeship program (Chankseliani et al., 2017; Choy et al., 2018; Hautz, 2022)

The controlling/evaluation stage for the industrial class includes reports on learning progress/progress, after graduation, you will get a competency certificate from Oracle Academy, implementation of the curriculum synchronization process, and periodic evaluations between schools and industry. At the controlling stage, the implementation of the industrial class at Vocational High School has been carried out according to the stages in the partnership management which includes evaluation of reports on learning progress. At the learning evaluation stage, as conveyed from the results of the interview, that evaluation was carried out during the learning process to determine the ability of students in stages which was carried out by the Vocational High School and industry. All students who have gone through the learning process until they graduate will receive a competency certificate from industry. While the evaluation stage during of the industrial class to evaluate implementation industrial class activities from the curriculum synchronization process to the evaluation stage of learning outcomes. Evaluation of the implementation of the industrial class program is carried out periodically between Vocational High School and the industry.

## 5. Conclusions

Based on the results of the study, it was found that the mechanisms and stages of planning, organizing, implementing, and evaluating have been carried out comprehensively and systematically. Management in planning and implementation aspects needs to be optimized, especially regarding skills preparation by the school, curriculum synchronization, structuring implementation schedules, teacher apprenticeships, and the readiness of learning facilities and infrastructure to produce optimal results. From the results of the study, there needs to be a review in the implementation of management in the industrial class program between Vocational High School and industry, and improvements are needed in every aspect of management industrial class an impact on both parties so that can be a learning strategy in Vocational High School based on industrial culture and industrial needs.

It is recommended that the evaluation of the implementation of partnership management in the industrial class program between Vocational High Schools and industry be carried out on an ongoing basis as data for improvement in the partnership management of industrial class program between Vocational High Schools and industries.

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