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Evaluation of Teaching Factory Program at Industrial Vocational High School of Industrial Education and Training Center Ministry of Industry

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ABSTRACT: Teaching factory program is one of the alternative methods of dual system learning which is expected to realize the creation of link and match between the world of education with the world of work to help to solve the problem of competency gaps and skills among vocational school graduates with the world of work. This research was conducted to evaluate the implementation of Teaching factory program in Industrial Vocational High School at the Ministry of Industry. This research includes the type of program evaluation research with CIPP model (Context, Input, Process, Product) by using qualitative descriptive approach. The data collection instruments used were interview guides, observation guides, document studies, and questionnaires. Data analysis is done through data display, data reduction, conclusion and data verification. The result of research indicates that: (1) evaluation of program needs (component of context) is in "good" category (2) evaluation of program preparation (input part) are in the "right" type (3) the assessment of the program implementation is in the "good" category and (4) the evaluation of the results and benefits of the program (component product) is in a "satisfactory" position. The results and advantages of the Teaching Factory Program are only beneficial for the students but not yet felt by stakeholders the business world and the industrial world.

KEYWORDS: Program evaluation, CIPP model, Teaching factory.

I. INTRODUCTION

Vocational high school is a secondary education that prioritizes the preparation of students to enter employment and develop professional attitudes, thus plays a strategic role in the creation of a competent, skilled workforce. Until now the development of vocational education in Indonesia has not run as intended. This is due to the creation of a link and match between teaching in the school with the needs of the industrial world has not been created yet that in the last two years vocational high school graduates were suspected to be the highest contributor unemployment rate.

To address the case, in 2012 the Government of Indonesia through the Directorate General of Vocational High School Development launched *teaching factory program*- a dual system learning model as an adaptation of the learning system in Germany. This program is a work-based world with an integrated learning approach between production-based learning and learning in the world of work. Thus, teaching factory is a learning activity where students directly perform production activities either in the form of goods or services within the school education environment. Goods or services produced have the quality, so it is worth selling and accepted by the community or consumers [1].

The Ministry of Industry as a technical institution owns and manages 9 (Nine) high school level education units, known as Industrial Vocational High School that spread all over Indonesia and has been established since the 1950s. The initial goal of the establishment of the school is to meet the needs of industrial workers so that the graduates of Industrial Vocational High School in the Ministry of Industry can work in the industry sector. To face the challenges of the provision of workforce required by the national industry and the current ASEAN region, the Ministry of Industry through Regulation of the Secretary General of the Ministry of Industry no. 09 / SJ-IND / PER / 10/2012 has obliged all

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SMK Industries to apply teaching factory learning concept to bridge education with industry need for skilled, competent and ready to work human resources.

Evaluation of Teaching factory program in Industrial SMK is done because the implementation of the program that has been going on since 2012 in the Ministry of Industry has not run as intended and has not established a synergistic partnership with the industry in addition to some operational management requirements that have not been met. This program evaluation research uses the descriptive qualitative approach with formative and summative assessment methods developed by Stufflebeam, i.e. Context, Input, Process, and Product (CIPP) evaluation model.

The objective formulation of the assessment research of the Teaching factory program covers (1) needs assessment, program goals, targets and policies, (2) application preparation including strategy and objectives, work procedures, organizational structure and support of some resources (3) implementation or implementation of the program covering student identification, scheduling of practice, assignment of supervising teacher, organizing lessons, monitoring and evaluation as well as (4) achievement of results and benefits of Teaching factory program implementation at Industrial Vocational High School in Ministry of Industry.

II. LITERATURE REVIEW

Program evaluation is a systemic activity to collect, analyze, and interpret information relevant to a program [2]. Also, program evaluation is an investigation or data collection activity that produces information about the values contained in a program [3]. Such information is beneficial for decision making. Program evaluation becomes a business process involving systematic investigation, assessing benefits, values, or interests, and as an attempt to obtain information for policy makers. The opinion of Subari Musa, that program evaluation is an activity to get a picture of the state of an object done in a planned, systematic with clear directions and objectives. This means that program evaluation is conducted in an attempt to collect, compile, process and analyze facts, data and information that are the most important part of any activity or program so that no action can be performed well without evaluation[4].

From some of the above definitions, it can be synthesized that the definition of program evaluation is an activity that is carried out systematically to collect information, organize, process, analyze, and use that information for decision making by focusing on the effectiveness and progress of a program created by the internal management and anticipate the many changes in order to achieve organizational goals.

Teaching factory is the development of production units in production-based learning (PBP) that has been implemented in vocational schools by fully blending between education and work that are no longer separating between the delivery of material theory and place of production material (practice), with the method of learning is more directed to the process of classroom management and practice space based on procedures and standards of work in the real world [5].

Through teaching factory learning, students learn to develop the necessary strategic skills to readily enter the workforce and live in society through the development of personal qualities (honest, disciplined, independent, creative, achievement motivation and good work ethic), become independent students, interpersonal relationships, cooperation, creative thinking, decision making, and problem-solving.

To date, many evaluation models have been developed, designed, and used in program evaluation. Many types of program evaluation prepared by the most common and often used experts in program evaluation are those that focus on the decision making and assessment of CIPP model programs (Context, Input, Process and Product) fall into this category [6].

CIPP model selection is chosen in the evaluation of the Teaching factory program in the respective schools for the reasons: (1) the model is a management-oriented evaluation model, carried out gradually, comprehensively, and can be applied to evaluate various fields of activity. (2) This evaluation model analyzes the program based on context, input, process and product components that are elements of an activity program process. (3) CIPP evaluation models support the decision-making process by presenting alternative selection and following up on the outcome of a decision.

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III. RESEARCH METHODOLOGY

Evaluation of teaching factory program is implemented in 4 (four) Industrial Vocational High School, Ministry of Industry located in Padang, Bogor and Jogjakarta. This research uses the descriptive qualitative approach with formative and summative evaluation methods developed by Stufflebeam, that is Context, Input, Process and Product (CIPP) evaluation model consisting of:

1. Context component includes, need assessment, objective formulation, target and policy of teaching factory program.
2. Input components include strategies and objectives, work procedures, organizational structures, human resource support, support of facilities and infrastructure, budget / financial aid, monitoring and evaluation, and partnership with stakeholders.
3. Process components include student identification, scheduling of practice, assignment of supervising teacher, the organization of learning, monitoring and evaluation, and assessment of result of learning from teaching factory program.
4. Product components include the results and benefits of the implementation of teaching factory program.

Sampling and informant are done by purposive sampling, that is sampling technique from the data source with particular consideration so that the researcher can easily explore the object / social situation studied [7]. The informants consisted of the principal sources, namely the Head of Industry Training Center of the Ministry of Industry, the Head of Education Development of Vocational Education Center of Industry Ministry of Industry, Head of School and the Head of Program Management Teaching Factory while the supporting informants were the stakeholders and the Advisory Teachers as the triangulation. Data collection to obtain information employ interview techniques, documentation and observation and triangulation to measure the validity and reliability of informants.

IV. RESULTS

Table evaluation results of teaching factory program is presented in the following chart.

Component/Aspect	Evaluation result
Context 1. Need Assessment 2. Formulation of Objectives 3. Goal Setting 4. Policy Determination	<ol style="list-style-type: none"> 1. A learning program in vocational schools that can bridge education in schools with the needs of the business world / industrial world is necessary. From the essence and pattern of dual system learning based on production, the teaching factory program is appropriate and can be implemented. 2. The formulation of objectives has begun with a process of needs assessment in full, taking into account the conditions of learning, needs, advice and input from the business world / industrial world. 3. The setting of targets has been formulated based on the program objectives and refers to the regulation of the Secretary General and the Minister of Industry decree. 4. Found a problem on the policy where the program has not been stated, detailed and accurate according to the objectives and targets of the teaching factory program.

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<p style="text-align: center;">Input</p> <ol style="list-style-type: none"> 1. Strategy and Target 2. Work Procedures 3. Organizational Structure 4. Human Resources Support 5. Support Facilities and Infrastructure 6. Budget / Financial Support 7. Monitoring and Evaluation 8. Partnership with stakeholder/business world / industrial world 	<ol style="list-style-type: none"> 1. Strategies and targets are set based on the program objectives by considering the results of the evaluation and feedback of the previous year's program 2. Each vocational school has a clear and detailed working procedure and refers to the curriculum established by the government and has been socialized to teachers and program managers. 3. The organizational structure is organized according to the needs of the school and set together in the internal class meeting. 4. Human resource support is in sufficient quantity. However, most of the mentors have not had industry experience, and have not received any training related to the teaching factory program. 5. Program facilities and infrastructure are available as required and fully supported by the Industrial Training Center. 6. The budget is available as needed and fully backed by the Training Center. Not yet available legal aspect and legal umbrella that manages finance from the sale of teaching factory product. 7. Monitoring and evaluation have been prepared, scheduled, conducted regularly and continuously, including observation, supervision, evaluation, reporting, and follow-up of surveillance results. 8. Partnership with stakeholders/business world / industrial world has not been planned apparently, realistically and relevant. Obstacles in establishing a synergy cooperation, especially in connection with technology transfer are found.
<p style="text-align: center;">Process</p> <ol style="list-style-type: none"> 1. Student Identification 2. Scheduling Practices 3. Assignment of Teacher Advisor 4. Implementation of Learning 5. Monitoring and Evaluation 6. Assessment of Learning Outcomes 	<ol style="list-style-type: none"> 1. Student identification refers to the Learning Implementation Plan developed from the syllabus according to the program skill package. 2. The practice schedule is done to adjust the availability of the tool to the learning needs performed by the system of scheduling block with rotation system continuously. 3. The assignment of the mentor teacher refers to the Lesson Plans. In the learning process, teachers regularly refer to the development of varied, innovative and precise new methods 4. Education is based on graduate competency standards, content standards, process standards, and assessment standards. Some schools have not integrated the teaching materials in the form of theory in the classroom with practices implemented in the workshop/laboratory 5. Monitoring and evaluation of students are conducted through supervision of academic management and supervision of teacher and mentors are carried out continuously in accordance with operational guidelines. 6. Assessment of learning outcomes is based on regulation of Ministry of Education No.20 / 2007. The learning outcomes are assessed by the mentor teacher and used as the basis for remedial programs, clarification of completeness achievement, and consideration of class or graduation increase.
<p style="text-align: center;">Product</p> <ol style="list-style-type: none"> 1. Results achievement 2. Benefits of program implementation 	<ol style="list-style-type: none"> 1. Approximately 70% of graduates have entered the workforce, and students have the competence to produce goods/services and market the product. However, the resulting product has not met the quality standard and not following market needs. 2. The benefits of program implementation have been perceived by students and schools, but stakeholders/business world / industrial world have not yet benefitted from the implementation of teaching factory program.

Table 1. Evaluation results teaching factory program

In *context components*, there is a problem in determining the teaching factory program policy caused the Industry Training Center has not put the policy clearly and detailed in a guideline that is easy to be understood and implemented

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by every school. The policy is a set of concepts and principles that outline and plan the basis for the implementation of a job, leadership, and ways of acting (on governance, organization and so on); statement of ideals, objectives, principles or intentions as guidelines for management to achieve program goals. For a concept/principle to be easily understood and can be implemented, it should be stipulated in clear and detailed guidelines as a reference for the implementation of activities.

To achieve the objectives, it is advisable to make improvements to the aspects of policy determination by Industry Training Center as the school coach unit to develop technical guidance of teaching factory as a program implementation guidance through the formation of the working group. The professional advice which has been subsequently made shall be the basis for the stipulation to become the regulation of the Minister of Industry.

In *input components*, there are problems with human resource support, budget / financial aid, and partnerships with stakeholders in the implementation of teaching factory programs regarding training and industry experience for mentors, financial, legal aspects and lack of synergy between schools and stakeholders.

To achieve the goal to bridge the learning gap in vocational high schools with the needs of the industrial world of a competent and skilled workforce, it is necessary to make improvements in the above three aspects through the following steps:

- A) Each Industry vocational high school creates internal and external training programs as well as apprenticeship programs in planned industries per the competency areas of each school with funds charged to the Budget Implementation Registration Form. After completion of the training and apprenticeship program, each participant is required to make a report and present the results of the training and learning as sharing knowledge and evidence of responsibility for the activity.
- B) Industry Training Center immediately proposed legal body for the management of non-tax state revenue in the school. Another alternative that can be considered is to apply the financial management system for Public Service Institution at each vocational high school so that the school is given flexibility of financial administration in the form of authority to directly manage the income obtained from the community and cooperation without breaking the rules as a non-profit public organization.
- C) Collaboration and partnership between Industry vocational high schools and stakeholder through the support of cross-ministerial government regulation involving several related ministries, namely Ministry of Education and Culture, Ministry of Industry and Ministry of Manpower and associated industry association.

In the *process component*, there is a problem with the aspects of the implementation of learning as the teaching factory program is not uniform in applying the teaching patterns. In order to achieve the goals with a view to bridge the learning gap in vocational schools with the needs of the industrial world, the Industry Training Center as the coach of education units within the Ministry of Industry immediately publishes technical instruction on teaching factory principles by referring to the Secretary General regulation and other related laws as a reference for the learning process of teaching factory in industry vocational high schools.

In *product components*, there are problems on aspects of achievement of results and benefits of teaching factory program. The implementation is still lack of creativity and innovation of students in producing goods making the benefits have not felt by the stakeholders/business world.

To achieve goals to bridge learning in vocational schools to the needs of the industrial world, it is recommended that schools can explore the potential and develop students' creative thinking skills through the mobilization of imagination and scientific thinking processes. Both of these can be incorporated into an additional subject of entrepreneurship. Students also need to be equipped with knowledge and understanding about the production process of goods and supervising teachers continually up-date knowledge of technology in the industry and conduct comparative studies to industries that produce the same/similar products.

In order for stakeholders/business world feel the benefits of teaching factory learning, it is necessary to build a synergistic partnership between the school with stakeholder/business community through a policy of government regulation made cross-related ministry, the Ministry of Education and Culture, Ministry of Research and Technology and Higher Education, Ministry of Industry and Ministry of Human Power.

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V. CONCLUSION

Referring to the result of evaluation and discussion about the implementation of teaching factory program at Industry Vocational High Schools owned by Ministry of Industry and general assessment on some aspect included in component of context, input, process and product, it is concluded that most aspects of teaching factory program at the schools have been well implemented.

From some areas of the evaluation included in the four components of the CIPP model, some aspects need to be improved through the proposed recommended activities. Based on these conditions, it can be concluded that the implementation of teaching factory program on Industry Vocational High Schools owned by Ministry of Industry can be continued with improvement on seven aspects, namely aspect of goal setting, human resources support, budget/finance support, partnership with stakeholder, and aspects of achievement of results and benefits teaching factory program.

REFERENCES

- [1] Ibnu Siswanto, Wonderful Indonesia, Seminar Nasional, Desember 2011
- [2] Wirawan, Evaluasi: Teori, Model, Standar, Aplikasi, dan Profesi, Jakarta: Rajagrafindo Persada, 2012
- [3] Sharon F. Rallis and Kathleen A. Bolland, "What is Program Evaluation?: Generating Knowledge for Improvement", Archival Science, Spring 2005
- [4] Subari Musa, Evaluasi Program Pembelajaran dan Pemberdayaan Masyarakat Bandung: Y-Pin Indonesia, 2005
- [5] Dadang Hidayat. "Model Pembelajaran Teaching factory untuk Meningkatkan Kompetensi Siswa dalam Mata Pelajaran Produktif" Jurnal Ilmu Pendidikan, 2011
- [6] Djudju Sudjana, Evaluasi program Luar sekolah. Untuk Pendidikan nonformal dan pengembangan Sumber Daya Manusia. (Bandung, Rosdakarya, 2000
- [7] Sugiyono, Metode Penelitian Administrasi, Bandung: Alfabeta, 2003