PARTNERSHIP-BASED TEACHING FACTORY LEARNING

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Abstract

This research aims to describe and analyze the planning, organizing, implementing and monitoring of the partnership-based teaching factory in SMK NU Ma'arif Kudus. This research is a qualitative research using case study approach. The subjects of the research were determined purposively including principal, vice principal, skill program chiefs, chairmen / TEFA Managers, some productive teachers, students and representatives from industry partners. Data collection techniques used in-depth interviews, observations and document studies. Data analysis used Milles & Huberman model that is data collection, data reduction, data display and conclusion. The results of the research are as follows: 1) TEFA planning carried out jointly by SMK and industry (PT.ADMI) through synchronization and integration of curriculum contents with industry needs. 2) Organizing is done collaboratively by providing the role of industry representatives & teachers as consultants, assessors and facilitators. While the students there acted as manager, administration, production and MR. 3) The implementation of TEFA is implemented by the students in their respective roles and positions in accordance with established standard procedures and receiving guidance / consultation from industries and productive/ practices teachers by creating an atmosphere / replica of actual industry work. 4) Supervision is done jointly by the School and industry through administrative and non-administrative approaches to ensure the implementation of activities in accordance with predetermined plans.

Keywords: Learning, *Teaching Factory* (TEFA), partnerships, vocational schools (SMK)

INTRODUCTION

Education that is the spearhead in human resource development should be able to play an active role in improving the quality and quantity. The development effort must be programmed and through the right path so that the results are really qualified and competent and be able to compete in the global world. The importance of the provision of skilled human resources (HR) is manifested through the policy of improving the quality of vocational education that gives attention to Vocational High School (SMK). Vocational schools development are now starting to move out of the local labor market orientation to the labor market of ASEAN to welcome the ASEAN Economic Community (AEC), as well as to prepare graduates with character debriefing of work culture industry and entrepreneurship.

Vocational High School that serves as the producer of skilled and competent workers in their field must be in harmony with the needs of the industrial world to be able to compete. The essence of the purpose of secondary level vocational education (SMK) is to prepare learners primarily to work in a particular field (Depdikbud, 2004: 1). SMK plays an important role in labor supply, because economic institutions require an educated and trained workforce. However, the manpower produced so far has not been able to answer the problems of labor requirements that meet the qualifications required by the world of work. Working opportunities offered by the labor market are still largely unfilled, since existing education graduates are not absorbed by the labor market (Dedi S, 2002: 612).

Therefore, improving human resources should be a top priority in order to improve the quality of its graduates. The low quality of graduates of vocational schools has resulted in the productivity of skilled workers in the industrial world is getting worse. The confidence of industrial world is diminishing so that the graduates being absorbed are also too little. These conditions indirectly result in vocational education institutions are considered not ready in producing quality graduates. To answer the problem SMK should prioritize the development of education system oriented to the improvement of graduates who are truly professional, have a work ethic, discipline and still uphold and are rooted in the nation culture. The most appropriate education to improve such matter is industry-oriented education with an emphasis on learning approaches and supported by an appropriate curriculum.

The industrial world that is the target of the process and the learning outcomes of vocational high school has its own character and nuance. Therefore, vocational education institutions in the learning process should be able to make the appropriate learning approach and in accordance with the demands of the industrial world.

The learning approach is a way in the process of educational activities. Bower and Higrd in the book Theories of Learning (1975) suggests the study related to changes in behavior of a person to a particular situation caused by his experiences over and over - again in that situation, where changes in behavior that can not be explained or basic propensity to respond momentary demeanor, maturity or circumstances of a person. Another theory suggests that learning is a relatively settled change in behavior that occurs as an experience. (Morgan, The Conditions of Learning*;* 1977). The definition of learning approach in this paper is a way of learning through a process of change that is relatively fixed in behavior that occurs as a result of training or experience.

Teaching factory is a concept of learning in the real atmosphere, so as to bridge the gap between the needs of industry competence and knowledge of the school. Innovative learning technology and productive practice is the concept of educational methods oriented to the administration of student management in learning to align with the needs of the industrial world. (IGI Brochure, 2007) .In another sense that production-based learning is a process of learning expertise or skills that are designed and implemented based on the procedures and standards of the actual works *(real job)* to produce goods or services in accordance with the demands of the market or consumers. In other words, the manufactured goods can be in the form of production that can be sold or that can be used by the community, school or consumer. Production-based learning in the old paradigm only prioritizes the quality of the product or service but the result of the production is not used or marketed solely to produce scores in teaching and learning process.

According to Kuswantoro (2014), *teaching factory* becomes the concept of learning in a real situation to bridge the competency gap between the knowledge provided by schools and industrial needs. *Teaching factory* is the development of the production unit which is industrial partner systems implementation in the production units that already exist in the CMS.

The unit of production is the development of the school business field in addition to supplementary school income that can be used in equipment maintenance, human resources improvement, etc. also to provide real-life work experience to the students. Implementation of the production unit itself has a legal basis that is Government Regulation Number 29 of 1990 article 29 paragraph 2 that is "To prepare vocational high school students into labor, production units that operate professionally can be established in vocational high schools."

Learning through *teaching factory* aims to grow and develop character and work ethics (discipline, responsibility, honesty, cooperation, leadership, etc.) needed by DU / DI as well as to improve the quality of learning outcomes than just equip the competences *(*competency based training) to the learning that provide the ability to produce the goods / services (production-based training). Cooperation relationship between SMK with industry in the Teaching Factory learning patterns will have a positive impact on establishing a mechanism of cooperation (partnership) in a systematic and planned way based on the principle of *win-win solution.* Application of Teaching Factory learning patterns is an interface of vocational education with industrial world, resulting in a check and balance to the process on vocational education to keep and maintain alignment (link and match) with the labor market needs.

Related to the partnership variables, Mawhinney (2012: 33) states partnerships are two or more agencies that cooperate together in all stages of the program or service, together in planning, together in implementation, and together in evaluation. Fasli Djalal & Dedi Supriyadi (2001: 193) states that the important thing to be realized in managing partnerships in education is that partnerships should be based on the intention to be mutually beneficial and driven by the willingness and readiness to serve the community.

Karen Mundy & Caroline Monion (2008) concluded that in the event of inaction support from the Ministry of Education to develop education, then external partnerships with NGOs often play a key role in supporting the development of education in Canada. NGOs play a role in providing

material support (funding), curriculum development trainings, training of teachers and administrative staff human resources development and assisting schools in developing access or networking to other external agencies. The conclusion was made after Karen & Caroline conducted an assessment of a systematic and comprehensive partnership between government, schools and NGOs (Non-Governmental Organizations) in the development of global education in Canada.

Corroborating the conclusions of research results by Karen Mundy & Caroline Monion, through the results of his research Gonsalves (2003) recommends that it is time in the modern era today, that the school established a partnership with external agencies to keep up with technological developments, provide practical experience to learners and enrich Educational services for the learners.

1. RESEARCH METHODS

This research used qualitative research approach. This approach was chosen because of the characteristics of the issues being raised were holistic, complex and dynamic, and in identifying and delving deeply into a case of *teaching factory* management that are implemented by way of a partnership. According to Sutama (2012: 61) qualitative research is a research that emphasizes the efforts of investigators to examine naturally (natural) phenomena that are happening in the overall complexity. Qualitative research is a scientific research that aims to understand a phenomenon in the social context naturally by prioritizing the process of deep communication interaction between researchers with the phenomenon being studied. (Herdiansyah, 2010: 9).

The study design uses ethnography, which means describing and interpreting cultures, social groups or systems (Miles, BM & Huberman, AM, 1994). The researcher wanted to describe in details everything that happened in the management of teaching factory based on partnership at SMK NU Ma'arif Kudus. The location of the research was conducted at Vocational High School (SMK) NU Ma'arif Kudus, Jl. Jepara, Prambatan lor village No. 679 Kaliwungu sub-district Kudus Regency Central Java that have developed *teaching factory* for Lightweight Vehicle Engineering (TKR) competency skills in the partnership with PT. Astra Daihatsu Motor Indonesia (ADMI).

The types of data extracted during the study are the planning, organizing, implementation and monitoring of the partnership-based Teaching factory in SMK NU Ma'arif Kudus. The subjects of the research is determined purposively and data sources were taken from people who are considered most knowledgeable about teaching factory in namely SMK NU Ma'arif Kudus 1) Principal, 2) Vice principal, 3) Head of Skill Competency, 4) Head of Teaching Factory, 5) Manager of teaching factory, 6) Treasurer, 7) Productive teachers of TKR, 8) Consultant of PT ADMI, 9) most of the school staffs, and 10) most of the students as well as other sources that can provide information on teaching factory in SMK NU Ma'arif Kudus .

Data collection technique was conducted in the natural setting which is the actual condition of the primary data source and data collection techniques were more on participant observation, in-depth interviews and document studies (Sugiono, 2013: 309).

Data analysis techniques being used in this study used interactive models according to Miles and Huberman consisting of four stages that must be done. The four stages are data collection, data reduction, data display and conclusion (Herdiansyah, 2010: 164)

Data validity test in this study used the credibility or trust test towards data the results of research that were conducted through triangulation. Triangulation in credibility testing is defined as checking data from various sources in various ways and at various times (Sugiono, 2013: 372).

2. RESULTS AND DISCUSSION

SMK NU Ma'arif Kudus which was established on July 17, 1991, currently has 7 (seven) competences of expertise which are: Computer Engineering and Networks (TKJ), Industrial Automation Engineering, Welding Engineering, Machining Engineering, Electricity Utilization Installation Engineering, Lightweight Vehicle Engineering, and Motorcycle Engineering. The accreditation rating is "A" (excellent) and it is ISO 9001: 2008 certified. In the Year 2016/2017 the number of students is 1640 with 102 lecturers. SMK NU Ma'arif Kudus is one of the schools that organizes teaching factory which is based on industry partnership specifically for engineering Light vehicles competences. Implementation of this teaching

factory cooperates with PT. Astra Daihatsu Motor Indonesia (ADMI) which is a leading car company in Indonesia. With the implementation of *the Teaching Factory* it is expected to produce students who have competence in accordance with the standards required by the company / industry.

The strategy of SMK NU Ma'arif Kudus in this cooperation with the industry is the right step to achieve the goal of vocational education. In accordance with the results of research conducted by Qiong Yang1 & Bo Li1 (2012) states Cooperation between industry and education is a need to keep up with the times and in accordance with market needs. The school develops a standard in a flagship program that involves the participation of school residents, the community and the industrial world. Cooperation of SMK NU Ma'arif Kudus with PT. Astra Daihatsu Motor in organizing *teaching factory* is in line with the above concept.

The results of this study describe about partnership-based *teaching factory* management seen from the TEFA aspects of planning, organizing, implementation and supervision.

1. Planning

In partnership-based TEFA planning at SMK NU Ma'arif Kudus conducted in 2014 with partnership between PT. ADMI and School. PT. ADMI is represented by experts who are called industry consultants while the school was represented by the school development team consisting of principal, head of skills program and teachers of light vehicle engineering skills programs. The industry consultant prepares the activity plan, the plan for the needed human resources, the time, the cost, the infrastructure, the curriculum to be taught as well as the competencies to be achieved in the learning through the TEFA. On the other hand, the curriculum development team also arranges an activity plan, human resource plan that will be involved, time, costs, infrastructure and curriculum plan along with its competency standard. Then the consultant and the development team discuss and synchronize and integrate the plans to be used in the implementation of the lessons being learned in TEFA.

2. Organizing

In terms of organizing partnership-based teaching factory in SMK NU Ma'arif Kudus was done with structural and functional approach. Structural approach was done by way of grouping human resources according to their tasks and responsibilities on the TEFA project activities. The teachers in this approach concept act as consultants and assessors as well as facilitators. Consultant in the position here acts a technical expert, assessor (assessor) and also the order maker/ service user. The facilitator is tasked with providing facilities or services to the needs of TEFA. Students are grouped and positioned as managers responsible for coordinating the management of the administration, marketing, production planning and Maintenance and Repair (MR). While the students who occupy administrative positions, the marketing department, the production department and also maintenance and repair (MR) work to manage in accordance with procedures established by the manager through work approved by the consultant and directly responsible to the manager.

While in the functional approach that is by grouping practice / project activities in TEFA in accordance with the type of work, the level of work difficulty, and time completion target.

3. Implementation

Partnership-based TEFA in SMK NU Ma'arif Kudus that has been planned and organized was then implemented through the partnership between the school and the industry partner (Pt. ADMI). The implementation process begins with the provision of training and reinforcement for the practical / productive teachers of light vehicle engineering by the industry partner. This activity is held before the formal TEFA learning process begins and before the teacher actively starts teaching. The role the school plays is to provide time and assign teachers to follow the training and enforcing them. This suggests that the school and industry partners pay attention and prepare the quality of educators before the activities begin.

The division of roles between schools with partner industry consultants shows that in preparing productive teachers before they are assigned to TEFA in line with the complementary partnership model as stated by Brisard, Menter & Smith (2005: 14). In this partnership model each partnering party has a different and separate role, yet fills each other and when combined will provide a complete experience for the teacher. In this partnership PT. ADMI plays a role in

providing technical assistance, tools and equipment, needed for the work in the TEFA.

Implementation of learning through TEFA begins with preparations that include preparation of administration, preparation of materials, tools and materials, and RPP. Preparatory activities were carried out by inviting students to change the mindset of learning in school to the mindset of working in the industry. Teachers and students in accordance with the tasks that have been entrusted have a discussion with various arguments to agree on the model and work target to be implemented.

Furthermore, in the implementation of work in the TEFA is done through three main stages of the preliminary stage, core stage and evaluation / closure stage. The introductory stage includes; Students act as workers receive orders by communicating properly, analyzing orders, paying attention to the readiness of materials and tools, and then using good/proper communication students express readiness to work on orders. At the core stage the students work on the order by work steps according to SOP, applying work safety, assessing work result, calculate the working time, and consult the consultant. Included in the core stage that is with good communication students submit the work to the order-giver, ask for an order's response to the work result, and to say thank you. While at the evaluation stage of the teacher as a consultant, the assessor and the program caretaker to observe, evaluate the work program, the process and the work done by the students.

Teachers and consultants also direct students to learn directly to work on TEFA orders like working in real industry. The learning pattern is very much in line with the working principles of vocational education described by Finch & Crunkilton (2009) which mentions that vocational education will be effective and efficient if the environment in which learners are trained is an environment replica where the learners will work. And it will be effective if the training tasks are done in the same way, the same tools and machines as defined in the workplace and are able to train learners in the habit of thinking and working as required in real work.

4. Supervision

TEFA supervisory activities are conducted to ensure that targets are achieved and job/ work can be completed as appropriate. Supervision is also conducted to monitor and assess the actual performance of TEFA implementation and compare with the parameters and SOP being outlined. This supervision also serves to determine the effectiveness of TEFA as one of the learning approaches in SMK to improve students' competence. There are two types of supervision conducted at the TEFA SMK NU Ma'arif Kudus, which is administrative supervision using administrative instruments that have been prepared by the school and non-administrative supervision by participant observation of learning activities at TEFA.

Supervision is carried out by the productive teachers assigned to TEFA and the industry consultants. Teachers supervise since it is their main task and function, while the industry consultant to evaluate and supervise because it is one of the main tasks contained in the contract cooperation. A form of partnership in supervision between schools and industry consultants is to work together to ensure that the learning activities in TEFA are in line with the plans. Although those two have separate and distinct supervision role but the supervisory partnership is in accordance with the "complementary" partnership model as stated by Brisard, Menter & Smith (2005: 14)

CONCLUSIONS AND SUGGESTIONS

Based on data analysis and discussion of research results, it can be formulated some conclusions about partnership-based TEFA management in SMK NU Ma'arif Kudus as one of the learning approaches, as follows:

1. TEFA Planning conducted through collaborative work between SMK NU Ma'arif Kudus with PT. ADMI by integrating and synchronizing towards the program plans, curriculum, preparation of human resources, equipment / materials, work procedures and learning target and competency to be achieved.
2. Organizing partnership-based TEFA conducted jointly by SMK NU Ma'arif Kudus and PT. ADMI using structural and functional approach. In the organizing grouping and distributing teachers and students in positions such as managers, administration, production, maintenance and repair (MR). Teachers act asconsultants, assessors and facilitators. While

industry representatives serve as industry consultants.

3. TEFA implementation is done with collaborative work between productive / practices teachers, students and industry consultants. Each work in accordance with the role that has been planned that teachers act as a consultant, assessor and facilitator in the working process on TEFA, students play a role carry out as workers in accordance with the given position, while industrial partners contribute by giving technical assistance, training, and tools / Materials needed in the implementation of learning through TEFA.
4. TEFA surveillance is conducted jointly by the school and the industry to ensure the implementation of activities in accordance with the predetermined plan. Supervision can be done in the form of administrative and non administrative.

Implementation of TEFA in SMK NU Ma'arif Kudus in order to run as expected, it should be given suggestions as follows:

1. The TEFA program plan needs to be regularly and continuously disseminated to the school community and all stakeholders so that the program plan gets good support.
2. Need more intensive cooperation with the World business / other industries in order to be a comparison material and perfector towards the implementation of the TEFA. In organizing it is advisable to keep the nuance of the industry organization in the class according to the organizational structure that has been established with the students at the time in TEFA.
3. Practices teachers and industry consultants are suggested to maintain good cooperation and communication with the student as the employment situation in TEFA.
4. Discipline, work culture and employment targets, quality of products / services, which have been implemented in the TEFA is suggested to be neatly arranged in writing as standard operating procedures (SOP), which is well documented and become an important part in the administration of TEFA.

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