Work based learning in vocational education

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Abstract. This research conducted to analyse the application of work-based learning models that are being carried out in vocational school (SMK). The scope of this research relates to the framework used, weaknesses, strengths and characteristics of industrial involvement in the education process. This research was conducted by survey method, namely by directly observing the work-based learning process, with data obtained from the results of observations, interviews and literature studies from the program implementation manual. The object of his research is a school that carries out a work-based learning model in West Java, among others, Bandung Vocational High School with the name Toyota Technician Education Program (T-TEP) and ASTRA Motor Guidance, 2 Subang Vocational School with the name Teaching Factory program, and Lemah Abang Vocational High School under the name of the Yamaha Fostered Class Program. From the results of this research, it was found that the three schools that applied work-based learning models had their respective characteristics, and had their respective weaknesses and strengths, but from the three schools there was one similarity, namely using framework synchronization, namely the curriculum arranged based on synchronization between compulsory competencies in school with industry competencies.

1. Introduction
The TVET Characteristics of national skills development vary among other countries. The status and role of TVET are shaped by history, culture, economy and social factors that influence the developing TVET system [1-4]. For this reason, it is important to solve TVET-related problems that oppose implementation and effectiveness [5]. Changes in the global market, the dynamics of the type of work and technological developments have caused entrepreneurs in the potential labour market to demand complex skills [3]. Related, countries must begin the development of their education systems to keep up with market development and recovery by supporting education systems to meet social and economic development needs [6]. TVET adjusts itself to new competencies that emerge faster than general education, so TVET is directly responsible for equipping individuals who can adjust to the demands of the world of work [7].

In meeting these principles, learning innovations are needed that must involve all components of institutional management, including stakeholders. A culture of innovation in the management of vocational education institutions will encourage the birth of new ideas in the implementation of vocational education which ultimately can produce competitive graduates. In addition to the innovations needed, the development of good partnerships with related institutions or with the business / industrial world (DU / DI) must always be done as a barometer of the competencies developed, this collaboration is a character of vocational education.
One of the innovations in the development of learning in vocational education is Work-Based Learning, this learning model has long been applied especially in developed countries such as England, Scotland, Ireland, Australia, and America which were implemented in higher education starting in the early 20th century. Government policy regarding WBL is a significant element in professional development and lifelong learning [8].

Some definitions explain that work-based learning as all forms of learning through the workplace, whether tangible work experience (work experience) or work in guidance (work shadowing) at a certain time. Another definition states that WBL is all learning that occurs as a result of activity in the workplace [9]. WBL is experience-based learning [10]. WBL is a planned and supervised relationship of classroom experience with expectations and reality of work. Work-based learning experiences provide opportunities for all students to develop and apply knowledge, skills and work attitudes and behaviours that lead to better career choices and productive work (Knowledge, n.d.). Many references to WBL but definitions and implementations vary greatly from one place to another. WBL is used as terminology in various countries for programs at schools or colleges to gain experience from the world of work (Work-based learning guide 2002). And for adolescents to be ready in the transition from school to the world of work to learn the reality of the world of work/work and be ready to make the right choice in work [11]. Work-based learning is any training that relates directly to the requirements of the job on offer in your organization [12].

Based on the notion of understanding expressed by WBL, learning approaches can be defined that utilize the workplace to structure the experience of experience gained in the workplace, which ultimately contributes to the social, academic, and career development of learners to be a driver of learning activities. With WBL, learners develop attitudes, knowledge, skills, enlightenment, behaviours, habits, and associations from experiences in both places and make it possible learning related to real-life work activities [13].

WBL research and evaluation show a correlation between outputs and impacts (outcomes) of graduates with the structure of learning provided by schools and industry as experienced in the workplace. When program objectives, workplace-based curriculum and experience are designed and applied along with adequate staff support and properly evaluated, the program will have a positive impact [13].

2. Research methods

The scope of this research relates to the framework used, weaknesses, strengths and characteristics of industrial involvement in the education process. This research was conducted by survey method, namely by directly observing the work-based learning process, with data obtained from the results of observations, interviews and literature studies from the program implementation manual. The object of his research is a school that carries out a work-based learning model in West Java, among others, Bandung Vocational High School with the name Toyota Technician Education Program (T-TEP) and ASTRA Motor Guidance, 2 Subang Vocational School with the name Teaching Factory program, and Lemah Abang Vocational High School under the name of the Yamaha Fostered Class Program.

The steps of the research procedure are described as follows:
3. Results

3.1. Name of program: T-TEP (Toyota – Technician Education Program) SMKN 6 Bandung West Java

3.1.1. Frame work
- KTSP
- Industry synchronization with school

3.1.2. Advantage
- The industry was directly involved in the learning process including estimated support.
- Certified qualification aligned with the industrial standards of partnering institutions.
- Intensive and integrative of learning in school and learning within the industry.
- Duration of On Job Training (OJT) was longer. Hence, providing participants with a better opportunity to sharpen their skills.
- Immediate certification to work within the industry.

3.1.3. Disadvantage
- Limited capacity as the quota was limited to only one class per year.
- Strict recruitment system which would not allow every student to partake in the program.
- Not all schools would have the opportunity to apply to this system.

3.1.4. Characteristics of industry experience
- On Job Training one-year class XII

3.2. Name of program: Teaching factory (Tefa) SMKN 2 Subang West Java

3.2.1. Frame work
- KTSP
- Industry synchronization with school
3.2.2. Advantage
- Fosters a relationship which benefits both the school and industry.
- The school received funding from the industry which enables its students to participate for free. As well as, the ability to expand school facilities and improve student’s welfare.
- Students could integrate their skills by applying the skills directly to produce a product or through acts of service.
- A place for direct training and production-based practice for market-oriented students
- Provides a space for training and practice based on direct production for students who are orientated towards the market.

3.2.3. Disadvantages
- Students considered as a cheap labourer by industries as they are only sought to reach a certain production or service target.
- Young students who have not filled the requirements to work are distracted from their studies.
- It cannot be applied in all Expertise Competencies as it would be more suitable for the manufacturing sector which produces products.

3.2.4. Characteristics of industry experience
- Block System

3.3. Name of program: Binaan Yamaha SMK MUHAMADIYAH Lemah Abang Cirebon West Java

3.3.1. Frame Work
- KTSP
- Industry synchronization with school

3.3.2. Advantage
- Industry was directly involved in the learning process including estimated support.
- Certified qualification aligned with the industrial standards of partnering institutions.
- Intensive and integrative of learning in school and learning within the industry.
- Standard of practical learning in school is the same as in the industry.

3.3.3. Disadvantage
- Limited capacity as the quota was limited to only one class per year.
- Strict recruitment system which would not allow every student to partake in the program.
- Not all schools would have the opportunity to apply this system.
- Extra costs by the school are covered by the student’s parents

3.3.4. Characteristics of industry experience
- Block System

3.4. Name of program: Binaan Yamaha SMK MUHAMADIYAH Lemah Abang Cirebon West Java

3.4.1. Frame Work
- KTSP
- Industry synchronization with school
3.4.2. Advantage

- Industry was directly involved in the learning process including estimated support.
- Certified qualification aligned with the industrial standards of partnering institutions.
- Intensive and integrative of learning in school and learning within the industry.
- Duration of On Job Training (OJT) was longer. Hence, providing participants a better opportunity to sharpen their skills.
- Immediate certification to work within the industry.

3.4.3. Disadvantage

- Limited capacity as the quota was limited to only one class per year.
- Strict recruitment system which would not allow every student to partake in the program.
- Not all schools would have the opportunity to apply this system.

3.4.4. Characteristics of industry experience

- Week Realize (Class of XI, One week of learning in school, one week on job training in the industry).

4. Conclusions

Referring to the findings and discussions in the previous chapter, several conclusions can be accepted. The conclusions are as follows:

From the results of this research, it was found that the three schools that applied work-based learning models had their respective characteristics, and had their respective weaknesses and strengths, but from the three schools there was one similarity, namely using framework synchronization, namely the curriculum arranged based on synchronization between compulsory competencies in school with industry competencies.

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