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INTEGRATED WORK-BASED LEARNING (I-WBL) MODEL DEVELOPMENT IN LIGHT VEHICLE ENGINEERING COMPETENCY OF VOCATIONAL HIGH SCHOOL

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Abstract

This research is to (1) analyze the implementation of new field project; (2) develop conceptual model of WBL integrated to industry; (3) test the validity of WBL integrated; (4) test the effectiveness of integrated WBL. This is educational and development research using randomized pretest-posttest and controlled group design. The population was all vocational school students. The research was conducted from March to December 2016. Data were collected by listing, using observation sheet, interviewing guidline and documenting. Validating was done by some experts. The data were analyzed in descriptive and multivariate Analysis of Variance by SPSS.17. The result shows that (1) the implementation field project has some weaknesses; (a) the schools are less prepared to plan the program, place and MoU; (b) schools never formally invite outside; (c) not all schools have a guidance to do a field project and schools only measure student's skill aspect after doing field project; (2) developing model through philosophical level, theoritical level, methodological level, dan classroom practice; (3) after validation of the guidance book by 12 experts, it shows the average score up to 4; (4) The group using WBL is more effective than that using field project in increasing the student'.

Keywords: *development, model, Work-Based Learning (WBL), integration*

INTRODUCTION

The improvement of a nation is influenced by the quality of its education. An education with a quality will change the people of the nation's mindset. Then, this change within the people's mindset will certainly lead to a change in many aspects of human life. Those aspects include social, cultural, economic, and political aspects. If any of the four aspects mentioned undergoes a decrease in quality, it shows the imperfect of the quality of the nation's education.

Meanwhile, the Indonesian National Education aims to improve the whole human quality, which includes a human with a noble character, advanced personality, firm, intelligent, creative, ingenious, discipline, professional work ethics, responsibility, productive, and physically and mentally healthy. To reach the goal, the quality of the learning process needs to be adjusted to knowledge and improvement as what is needed through educational innovation.

Teachers/ instructors/ educators had a strategic role in the formal education. The improvement of the education quality should be improved in accordance with the improvement of the teacher quality. (Wiyanto, Samani, & Sugiyono, 2017, p. 350).

Education is supposed to be able to invest knowledge, skills, and values that will be able to improve human ability in living (Ghozali, 2010, p. 5). The philosophy of vocational within essentialism believes that vocational education must relate to other systems such as economy, employment, social, and many others (Djojonegoro, 1998, p. 41). When attributed to economy, the vocational education is hoped to improve the quality. When attributed to employment, it is hoped to provide jobs in the business and industrial worlds. When attributed to social, it is hoped to create a prosperous society.

According to Joyce, Weil, & Calhoun, (2009, p. 7) , the application method of certain learning will affect the students' ability in educating themselves. As stated by Hansen (Billet, 2011, p. 59) "...vocational does not imply a one-way subordination of the person to the practice. Vocation describes work that is fulfilling and meaningful to the individual, such that it helps to provide a sense of self, of personal identify". Moreover, vocational education, according to Kuswana (2013, p. 157), is an education held by an education institution (secondary, engineering college secondary post) which is managed by the government or the industrial society.

The low number of unemployed citizens in Indonesia is caused by the incompatibility between the education limit and the work field needed by employers. This phenomenon requires the Indonesian governments' efforts in changing the education paradigm so that the educated work forces own the competence to work. Pavlova, (2009, p. 7) stated that vocational education is an education that studies specific training that can be applied at work. The concept of Investment in Human Capital (Becker, 1975, p. 45) stated that education, training, or other forms of human investment provides knowledge, values, and skills that are beneficial for human beings so that they can enhance their learning and productivity capacity. The enhancement will allow human to pursue a higher level of education. Vocational education mostly learns the preparations of working. The learning includes cognitive, affective, and psychomotor learning (Suyitno, 2016, p. 101).

The deal on the presence of natural person principle (the allowance of employing foreign employers) is one of the challenges that need to be faced in the MEA era. Therefore, to face it, employers should be provided with technological capabilities as the management of technologies used in the production processes. During the MEA era, employers would be able to hire employees based on their level from around the world. For example is professional staffs would be given to those with an international experience, or unskilled labourers taken from developing countries. Hence, with the presence of globalization, human movement will become easier and freer. On the other hand, the small amount of employees needed is the cause of the increase in unemployed citizens in Indonesia. Unemployment in Indonesia is mostly caused by the imbalance number between job seekers and job vacancies, the imbalance of work field structure, the imbalance of work forces provision and utilization in regions, and the job seekers' competence which does not correspond to the on needed by the employers.

When studied in depth, such as the double system education concept, it is found

that through industrial work practices are not only about conducting the school curriculum obligations, but they are also able to provide more knowledge on work ethics, able to train their mindset for work, and prepare the students before they graduate and take part in the real life. The industrial learning does not only aim to complete the curriculum, but also to teach students on how to interact with their employers, co-workers, and clients in order to train the soft skills that should be possessed by every student.

Witnessing the weaknesses of industrial work practices, both from schools and implementation processes, there needs to be a development within the work-based learning which is able to refer to the improvement of competence and industrial work practices instructional implementations which is provided in the integrated model. The word integrated refers to the connection between school and industrial learning, and to the planned industrial work practices. The plan should include place selection, competency agreement between schools and industries, learning the industrial work practice preparations in schools, learning the industrial work practice in industries, and school and industry evaluations. By applying the Integrated Work-Based Learning (I-WBL), it is predicted that the industrial work practices will be enhanced. Hence, the application a reference for SMK, especially the ones that are focused on light vehicle engineering competency, to apply industrial work practices based on WBL that will be done.

METHOD

This research is a form of education research and development. The population of the research includes every student that is conducting the industrial work practices in SMK Daerah Istimewa Yogyakarta. The research is conducted in Daerah Istimewa Yogyakarta's SMK and Industrial World. It is conducted since March until December 2016. Moreover, the data is collected through inventory, observation paper, in depth interview, and documentation. The Validation Analysis of content is done using the expert judgement. Data analysis technique includes the model development data analysis and experimental data analysis. The model development data analysis is done through qualitative descriptive and quantitative descriptive analysis. The analysis is conducted by analyzing the model effectiveness with experiments that include descriptive and inferential (hypothesis testing) analysis by first conducting the analysis requirement test.

RESULTS AND DISCUSSION

Model Development

After the test is done, it is found that the model should be revised, which is from the hypothetical model into I-WBL empirical model. I-WBL itself was made by the WBL concept (Boud, 2001) that explains that WBL is created in order to provide challenges in fulfil the students' and the companies' needs in the future. Education institutions also take part in making decisions for the program by appreciating the agreed standards and levels.

The inputs received from the test are: (1) theoretical study in the forms of philosophical, theoretical, methodological, and classroom practice is input, (2) empirical study within the model that is prakerin weaknesses and form of activities is input. Moreover, within the limited test, the following I-WBL application inputs are obtained: (1) the industry and school should work towards an agreement/ contract on the preparation of I-WBL application in schools, (2) students should make I-WBL application journal matrix. The following picture is the result of model revision made after conducting the limited test.

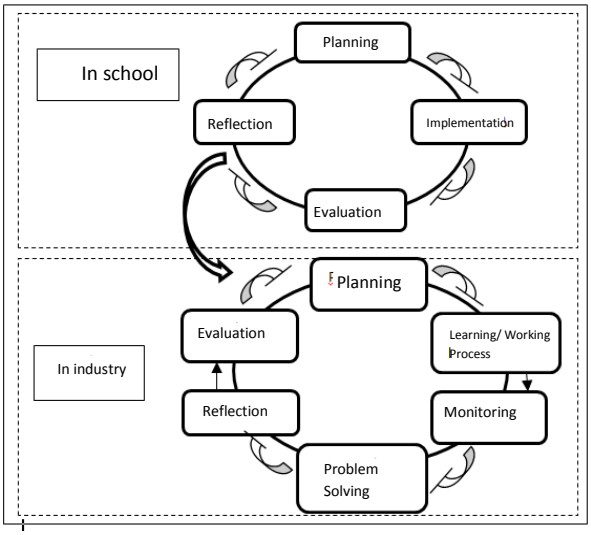

Figure 1. I-WBL Model

Validity result on I-WBL Model Guidebook

The model guide consists of: model guidebooks, guides for supervisor teachers, guides for instructors, and guides for students. Overall, the model guides after being validated by experts from both DUDI and university academics are as shown by Table 1.

Tabel 1. Validity result of I-WBL model

No	Description	AMT
1	Implementation Basic are stated clearly	51
2	Model component are stated clearly	52
3	Content trained are stated clearly	50
4	Learning steps/ syntaxes are stated clearly	53
5	Content within report format clarifies the book	52
6	Using language that is in accordance to Indonesian language rules	51
7	Communicative problem formulation	50
8	Using sentences and words that are easily understood	49
9	Does not use ambiguous (double meaning) vocabularies	47
10	General assessment on guidebook for learners in implementing I-WBL TKR SMK	53
	Total	508
	Average	4.23
	Chriteria	

After conducting the properness validation test by 12 experts on the model guidebook, most of the results show a number above 4. There are 9 experts who gave an average score of 4 (good) and wrote B (may be used with a little revision). From the 9 experts, it is proven that the model guidebook is proper to be used within the I-WBL learning. Moreover, there were 3 experts who gave an average score of 5 (very good) and wrote A (may be used without revision). The evaluation of the 3 experts has proven that the model guidebook is very proper to be used within the I-WBL learning of Light Vehicle Engineering competency in SMK.

The product generated from this research is Integrated Work-Based Learning (I-WBL) model for students of Light Vehicle Engineering (TKR) of Vocational Junior High (SMK). The concept that was built based on I-WBL begins from theoretical and empirical foundation that has been done. The theoretical study was begun based on philosophical, theoretical, methodological, and classroom practice studies. On the other hand, theoretical base always develops based on the field context which always undergoes development. The result of data description shows that the participated students generally do not find difficulties in conducting I-WBL activities. Competencies achieved by every aspect, including knowledge, behaviour, and skill, experience a significant increase. Based on the result average and multivariate analysis, the increase in competency is sequentially started from skill, behaviour, and knowledge aspects.

The model test has shown that the I-WBL model is effective and efficient to be conducted. The effectiveness is seen from the aim of the model that is reached. Moreover, the efficiency refers to the vocation purpose of the students of Light Vehicle Engineering in gaining experience within the industry that is reached. According to the several studies done, the characteristics of I-WBL model are (1) a strong base on theoretical and empirical foundations, and the ability to be accounted for; (2) Equipped with a validity tested guidance model; (3) Equipped with a validated Lesson Plan; (4) Able to minimize the deficiency of industrial practices which has been done by the SMK; (5) The interaction between the students and the industry is pictured clearly, such as the result of observing students' interaction with the industry; (6) The result of the effectiveness test which stated that I-WBL is better than Industrial Practices that have been done so far; (7) Requires commitment and solidarity from every unsure that takes part in it so that I-WBL will have the opportunity to run as expected.

Privilege of I-WBL

There are several privileges of I-WBL, which are (1) I-WBL model is made with strong bases that include philosophical, theoretical, methodological, and classroom practice foundations, also field observation that is taken from real events; (2) I-WBL model has a model device that includes model guide, lesson plan, and instruments that have been validated by experts of its own field; (3) The effectiveness has been tested, and it is found that the I-WBL model is better than the industrial practice model that has been

applied; (4) This model is comprehensively better seen from the knowledge, behaviour, and skill aspects; (5) In applying I-WBL, a visit to the industry is no longer needed, because people from the industry shall be invited to schools in order to align its perception and interaction with students; (6) This model does not only measure skills, but also behaviour and knowledge.

Weakness of I-WBL

The weakness of I-WBL is that the difference between ATPM (Agen Tunggal Pemegang Merk – Single Agent Brand Holder) and common workshop has not been measured. Moreover, the various types of workshop characteristics more or less influence the applied model.

I-WBL Process Observation Result

The industrial learning process is marked with the school's preparation process and direct interactions with the industry. There are three indicators which become the reference for industry based learning, that include: (1) interactions with instructors; (2) self adjustment to the environment; (3) works based on the work procedures.

Interactions with Instructors

The interactions with instructors become the main principal in conducting the industrial learning. There was an increase within the first four weeks of the interactions with instructors, but upon entering the fifth week, there was a decrease. This is due to the fact that students began to take part in the industry during the fifth week.

This interaction with instructors is in accordance to Brite's (2013, p. 3) idea on WBL development Considerations in the implementation level that includes: (1) supports a diverse delivery system, (2) is accountable with evaluation based on program effectiveness in supporting students' achievement.

As seen from the following picture, there is, indeed, a downfall. Yet it does not reach the zero point. This means that there are still interactions that go on. Particularly, interaction processes take place due to consistent customs and accompaniment.

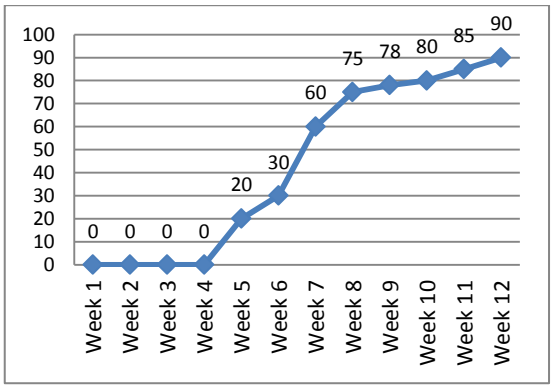

Figure 2. Interactions with Instructors

Self Adjustment to the Environment

The industrial world has a slightly different rules and environment compare to other environments. This environment should be followed in order to be comfortable and accepted by the work place. This self adjustment includes work equipments, work place, employees, friends, and workshop's customers. The data result of self adjustment to the environment observation is taken for two weeks in the school and 10 weeks in the industry. Within the first 2 weeks, there is an adjustment because students are still in their school within that first 2 weeks.

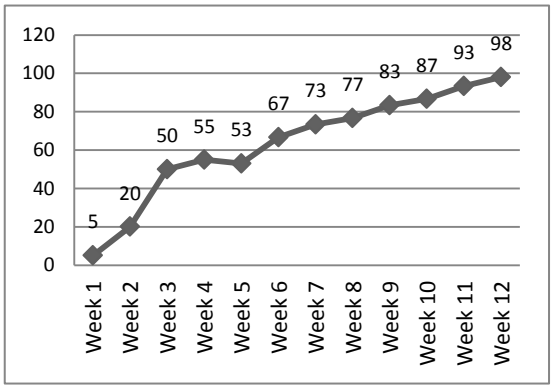

Figure 3. Self Adjustment to the Environment

After the fourth week, the self adjustment experienced uplift until the 16th week that reached 97% of adjustment to the work environment.

Works Based on the Work Procedure

Industries have set the Standard Operational Procedure (SOP). Therefore students are required to be trained based on the agreed SOP. Within the following diagram, there has always been an increase starting from the 1st

to the 16th week. The increase of the 1st week is 10% and the 12th week is 97%. This proves that in the I-WBL process, there is an increase of work based on the work procedure.

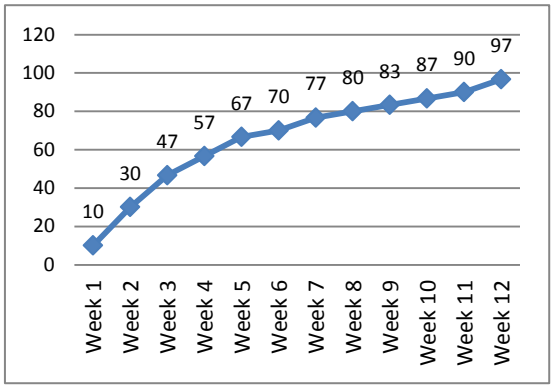

Figure 4. Works Based on the Work Procedure

Response of Students

The students' responses are collected by using questionnaire made to reveal the indicators of (1) motivated by the I-WBL model, (2) agree to the I-WBL model. 11 questions are then made based on this indicator. The result is as shown by Table 2.

Tabel 2. Response of Students

No	Statement	Avrg
I	May be Motivated by I-WBL model	
	Sub average	4.39
II	Agree to I-WBL model	
	Sub average	4.22

Based on the result of the questionnaire, it is seen that within indicator (1) can be motivated by the I-WBL model with the average score of 4.39 which means that the respondents agree that I-WBL is able to motivate students in learning. Moreover, from indicator (2) there is a 4.22 average score for agreement of I-WBL model that shows how many students agree in applying I-WBL to Vocational High School, especially Light Vehicle Engineering competency.

This research accommodates the students' response in their work place. According to Murphy & McCormick (2008, p. 48), "these education and training responses may be seen as a move to generalize aspects of workplace knowledge, to select out from work that knowledge which is commonly needed. At the same time, the move leaves intact other knowledge that is seen as work place specific." This opinion is align with the test result that states the knowledge of work place should be studied in order to prepare the students to be ready in facing the real work world.

Primary Hypothesis Test

Multivariate test aims to acknowledge the effects of using learning model in knowledge, behaviour, and skill generally/ completely, or in other words used to test the primary hypothesis.

There is one primary hypothesis within this experimental research. In order to be able to be tested, the primary hypothesis is formulated as: zero hypothesis (Ho) and alternative hypothesis (Ha).

Ho: There is no difference in students' competency between the I-WBL model and the PI of SMK's Civil Engineering Expertise Program.

Ha: There is a difference in students' competency between the I-WBL model and the PI SMK's Civil Engineering Expertise Program.

The competency mentioned within the hypothesis has three variables, which are: knowledge, behaviour, and skill aspects competency. The three variables are interval or continued data type of dependent variables, while the independent variable is categorical type of learning model. Therefore it requires multivariate analysis if all variables were to be arranged in one analysis model. The multivariate analysis model refers to Multivariate Analysis of Variants (MANOVA).

After the sample is declared to come from a normal distributed population, has a homogenise variants between groups, and has the same co-variants matrix, MANOVA may be applied. This experimental research requires two testing which is collected in MANOVA that includes: Multivariate Test and Test of Between-Subject Effect). The primary hypothesis, particularly, is used for multivariate test, while test of between-subject effect is used for secondary hypothesis which will be explained after this discussion.

There are four statistical methods of multivariate test that includes: Pillai's Trace, Wilk's Lambda, Hotelling's trace, and Roy's Largest Root. The four methods are disembogued on the usage of F test statistic, and the chance for a tolerated mistake (alpha, α), often

called as the level of significance, is 0.05 (5%) or in other words has a level of confidence of 95%. The criteria for decision making related to the hypothesis is: If Sig > 0.05, accepts Ho which means opposes Ha. Conversely, if Sig. ≤ 0.05 opposes Ho which means accepts Ha.

The four statistic methods to gain the value of F are not accumulated manually, but by using the SPSS program package. Table 3 is a summary of SPSS output for Multivariate Test.

Tabel 3. Multivariate Test

Methods	Value	Sig.
Pillai's Trace	0,835	0,000
Wilks' Lambda	0,165	0,000
Hotelling's Trace	5,066	0,000
Roy's Largest Root	5,066	0,000

As seen within Table 3, Multivariate effect test has a value of F = 56,000 (Sig = 0.000 ≤ 0.05) and turns out to be the same for each statistic method (Pillai's Trace, Wilk's Lambda, Hotelling's Trace, and Roy's Largest Root), in which the decision that can be made is opposing Ho and accepting Ha. This means that within the level of confidence at 95%, there is a significant difference of students' competency between the I-WBL model and the PI SMK's Civil Engineering Expertise Program. Keeping in mind that the I-WBL group generally experiences a bigger average score increase of 24.41 compared to PI of only 11.44. Therefore it may be concluded that the I-WBL model is more effective than PI in enhancing the students' competency of SMK's Civil Engineering Expertise Program.

Yet, this result is still not able to prove whether the I-WBL model is really more effective than PI, especially in increasing each variable that includes the competency of knowledge, behaviour, and skill aspects. Therefore it should be followed with a secondary hypothesis test to prove it.

Secondary Hypothesis Test

There are three secondary hypothesis of this research; each of them consisted of zero hypothesis (Ho) and alternative hypothesis (Ha), in order for the hypothesis to be tested. More than one Ha may be written as H_1, H_2, H_3, etc. Moreover, the secondary hypothesis is formulated as follows.

Ho: There is no difference in competency of students' behavioural aspect between the I-WBL model and the PI SMK's Civil Engineering Expertise Program.

H_1: There is a difference in competency of students' knowledge aspect between the I-WBL model and PI SMK's Civil Engineering Expertise program.

Ho: There is no difference in competency of students' behavioural aspect between the I-WBL model and the PI SMK's Civil Engineering Expertise Program.

H_2: There is a difference in competency of students' behavioural aspect between the I-WBL model and the PI SMK's Civil Engineering Expertise Program.

Ho: There is no difference in competency of students' skill aspect between the I-WBL model and the PI SMK's Civil Engineering Expertise Program.

H_3: There is a difference in competency of students' skill aspect between the I-WBL model and the PI SMK's Civil Engineering Expertise Program.

The three hypotheses are then tested with Test of Between-Subject Effect which is a series of multivariate variant analysis. The statistic test that is used is F which is gained by dividing the Mean Square (MS) of differences in the score increase of each learning model applications by its Error. Mean Square (MS) is acquired by dividing the Sum of Square (SS) by the Degree of Freedom (DF). The F value that is obtained has a probability (p) or F significance (Sig.).

The calculation to obtain the value of F is not done manually, but by using the SPSS program package. Table 4 is a summary of SPSS output for Test of Between-Subject Effect.

Tabel 4. Test of between Subject Effect

Source	Dependent Variable	F	Sig.
Learning Model	Knowledge Gain	22,853	0,000
	Behavior Gain	69,708	0,000
	Skill Gain	100,377	0,000
Error	Knowledge Gain		
	Behavior Gain		
	Skill Gain		
Corrected Total	Knowledge Gain		
	Behavior Gain		
	Skill Gain		

The Difference of Knowledge Aspect Competency between I-WBL Model and PI

The variable of knowledge aspect is valued as F = 22.853 (Sig. = 0.000 ≤ 0.005). Therefore, it may be concluded that it opposes Ho, so that it may accept H_1. This shows that there is a 95% significant difference of students'knowledge competency between I-WBL model and PI SMK's Civil Engineering Expertise Program. Keeping in mind that the I-WBL group possesses higher score increase average, which is 23.33, compared to PI, which is 11.08, it is found that the I-WBL model is more effective than PI in increasing students' knowledge aspect competency. Here are the differences of behaviour aspects in each variable:

Tabel 5. The average difference of behaviour indicator

Code	Behavior Indicator	Learning Model	Average	Average Difference
A	Motivation in working	I-WBL	21,40	9,43
		PI	11,97	
B	Responsibility	I-WBL	24,73	12,80
		PI	11,93	
C	Cooperation ability	I-WBL	19,60	8,77
		PI	10,83	
D	Disciplinary	I-WBL	22,97	13,93
		PI	9,03	
E	Initiative	I-WBL	23,13	9,93
		PI	13,20	
F	Creativity	I-WBL	24,83	12,87
		PI	11,97	
G	Individual independence	I-WBL	21,77	13,40
		PI	8,37	
H	Problem solving ability	I-WBL	25,17	15,20
		PI	9,97	

According to Table 5, the increase in motivation indicator in working is acquired from a I-WBL average score of 21.40 and PI 11.97, I-WBL responsibility indicator for 24.73 and PI for 11.93, I-WBL cooperation ability for 19.60 and PI for 10.83, I-WBL disciplinary for 22.97 and PI for 9.03, I-WBL initiative for 23.13 and PI for 13.20, I-WBL creativity for 24.83 and PI for 11.97, I-WBL individual independence for 21.77 and PI for 8.73, and I-WBL problem solving ability for 25.17 and PI for 9.97.

The Difference of Behaviour Aspect Competency between I-WBL Model and PI

Based on the hypothesis test, the variable of behaviour aspect scores F = 69.708 (Sig. = 0.000 ≤ 0.05), and the decision that may be made is to oppose Ho in order to be able to accept H_2. This means that within 95% level of confidence, there is a significant difference of students' behaviour aspect competency between I-WBL model and PI SMK's Civil Engineering Expertise Program. Keeping in mind that the I-WBL group owns higher average score increase for 24.41 compared to PI with an average increase for 11.44. Therefore it is found that I-WBL model is more effective than PI in enhancing students of SMK's Civil Engineering Expertise Program's behaviour competency.

The Difference of Skill Aspect Competency between I-WBL Model and PI

The skill variable scores F = 22.853 (Sig. = 0.000 ≤ 0.05), and the decision that is taken is to oppose Ho in order to accept H_3. This means that at within 95% level of confidence, there is a significant difference of students' skill competency between the I-WBL model and PI SMK's Civil Engineering Expertise Program. Keeping in mind that the I-WBL group owns higher average score increase for 26.95 compared to PI fro 12.32, it is found that the I-WBL model is more effective than the PI in enhancing students of SMK's Civil Engineering Expertise Program's skill competency.

Generally, the I-WBL model is more effective than PI in enhancing the competencies of students of SMK's Civil Engineering Expertise Program. Specifically, the I-WBL model is also more effective than PI in enhancing the knowledge, behaviour, and skill competencies of students of SMK's Civil Engineering Expertise Program. According to Dittrich (2009, p. 17), teachers are expected to become a social worker, psychologist, mediator, communicator, team worker, knowledge networker, and an expert. Yet it is obvious that teachers need to be supported by the students with motivation and learning model fidelity that is delivered in classes. I-WBL has become one of the models that are able to facilitate teachers and instructors within fulfilling the expectance. Moreover, Wibawa (2005,

p. 265) believes that Competency is a basic characteristic consists of knowledge, behaviour, skill, and other personality attributes that may differentiate one's performance from others in conducting tasks within certain work field. With the research on I-WBL development, students may be considered to be competent for mastering competencies that include behaviour, knowledge, and skill aspects.

The result of the primary hypothesis test shows that there is a difference between I-WBL model and PI in enhancing SMK students of Civil Engineering Expertise Program's competency. The difference refers to the possession of better quality seen from the average result of knowledge, behaviour, and skill aspects compared to PI. The knowledge aspect is seen from 11 indicators, which is in understanding the whole material of light vehicle engineering, and behaviour aspect is seen from eight indicators proposed by the industry and school.

The second secondary hypothesis stated that there is a difference in I-WBL model and PI in enhancing SMK students of Civil Engineering Expertise Program. Within the average data increase and the difference of skill aspect competency, the gain average increase is better than the knowledge and behaviour aspects. This is the indicator that the learning in the industry is mainly acquired from the students' skill aspect.

The industry's response on applying the I-WBL is considered high. This shows how much I-WBL model is accepted in the industry and gaining a positive response. The school's response is also positive, which is shown through their interest in the I-WBL model. The school appreciates the application of I-WBL by always communicating with the people from the industry. The students' response is also considered high. They are enthusiast in applying the I-WBL because interactions with the industry are indeed always preserved and monitored by the school and industry.

With the integration of inviting people from the industry to the school, the quality of I-WBL learning becomes so much better. For 2 weeks, students are accompanied by instructors and teachers at school, and they were accompanied individually and in group more intensively at the industry for 10 weeks. Hence, the students experience many interactions with the instructors who become their mentor in the industry. This is also align with the research result that states "partnership model of vocational education with the business sector in civil engineering expertise program of vocational secondary schools in Bali involves several components, such as key stakeholders, the underlying principle of partnership, orientation/common goal, the management of educational resources (teachers and facilities), curriculum development, implementation of learning/ training and work practices, competency test of graduates, distribution of learning outcomes/ output, as well as monitoring, evaluation and feedback of partnership program" (Sandika, Slamet, & Usman, 2017, p. 247.

The learning experience provided in this model is highly structured; starting from the learning at school which is accompanied by teachers and industry instructors for one month, then the learning that takes place in the industry which is accompanied by instructors, until various experiences with mechanics in the industry. Besides being acquainted to Light Vehicle Engineering, students are also acquainted to the industry's environment such as the employees, managers, and the situation within the industry.

In conducting the wide scale test, the school asked for more students to be included in the research than only including the already pointed students. However, the request was declined due to the lack of staff and time. This shows that the school's interest on I-WBL is quite good. Hence, this becomes the researcher's suggestion; in which this research needs to be continued in a larger sample amount. Moreover, it should also be applied to other expertise competencies, such as motorcycle, heavy appliances, body paint, and muscular engineering.

The questionnaire result of the students' response on the I-WBL model is that they agree that I-WBL does motivate them in studying. The guide that is always related to the industry motivates the students that the I-WBL processes describe the jobs that may be done after graduation. The students also believe that the competency may be enhanced within the I-WBL processes based on what is needed by the industry that includes knowledge, behaviour, and skill aspects of the students. The students also agree if the I-WBL

model is to be applied to Vocational High School, especially Light Vehicle Engineering competency.

The questionnaire result of the model usage states that the model is easy and clear to be applied. Indeed, the industry has been seeking a model that will provide benefits for both the school and the industry itself. As seen from the beginning, I-WBL model has invited the people from the industry to align their perception on what should be learned until the students' dream may help the industry's activity processes in the workshop. The next one is the cooperation between the school and industry in which both agree that by applying I-WBL model, the relationship between the school and industry will be maintained. Therefore it is hoped that the industry will continue be willing to allow the next practices from the school. Overall, the industry agrees in applying the I-WBL model to the Vocational School, especially Light Vehicle Engineering. In other words, the I-WBL model may be used in SMK of TKR competency.

CONCLUSION

Based on the research result, it may be concluded that (1) the implementation of current learning model of industrial work practice have several weaknesses, as follows (a) the school's lack of preparation for industrial work practice from the program, place, competency, and competency agreement with the industry, (b) the school has never invited people from the industry to school in order to align their competency with things that will be learned in the industry, (c) not all schools are equipped with structured industrial work practice. The school only measures competency from the skill aspect in return from the industry, (2) conceptual model development through philosophical level, theoretical level, methodological level, and classroom practice, (3) after conducting a validation test by 12 experts on guidebook model, it is shown that the average number is above 4, which means that the guidebook model is valid to be used in I-WBL learning for SMK's Light Vehicle Engineering competency, (4) the effectiveness of Integrated Work Based Learning (Work Based Learning-Terintegrasi), when compared to PI (Industrial Practice) costs $F = 56.000$ ($Sig. = 0.000 \leq 0.05$) that can only mean that of 95% confidence level, there is a significant difference in enhancing students of Civil Engineering Expertise Program of SMK's competency. The I-WBL group is more effective than PI in enhancing the competency of students of SMK's Civil Engineering Expertise.

The suggestions that may be provided for this research are as follow: (1) the I-WBL products that are gained may be made as the alternative of industrial work practice development in SMK to enhance students' competency from the students' knowledge, behaviour, and skill aspects, (2) for teachers and instructors from the industry, the research product in the form of guidance may be used as the basic and reference in providing guidance for the students during their industrial work practice program in school, (3) the basic and development concepts of the model may be used for a further research on work based learning.

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