

## The Implementation of Competency Certification Test for Vocational Students of Light Vehicle Engineering Program by LSP-P3 in Banyumas

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### Abstract

The aim of this study was to implement the competency certification test for vocational students of light vehicle engineering program by LSP-P3 in Banyumas, which covers aspects of context, input, process, product and thoroughly. This research was conducted in four vocational schools in Banyumas. The population was 16 assessors. All member of the population was used as the sample of this research. The instrument used a questionnaire. The validity test with the content validity of the CVR (content validity ratio), the validity of items with a limited test and product moment analysis was performed. Cronbach alpa was used as the reliability test of this research. The data analysis techniques used a descriptive analysis. The description of the data used a level category approach. The results showed that the implementation of competency certification test for vocational students of light vehicle engineering program by LSP-P3 in Banyumas evaluated from the aspects of: (1) context included in the excellent category with a quality achievement score of 41.63 or (86.7%) ; (2) input included in the excellent category with a quality achievement score of 55.18 or (86.23%); (3) process included in the excellent category with a quality achievement score of 37.50 or (85.23%); (4) product included in the excellent category with a quality achievement score of 27.44 or (85.74%); and (5) as a whole included in the excellent category with a value of achievement quality results of 161.75 or (86.04%). The implementation of competency certification test for vocational students of light vehicle engineering by the LSP-P3 in Banyumas needs to be improved optimally although it has been going very well. This implies that the implementation of the competency certification test must consider the competency of the assessor. The implementation of competency certification test should use equipment that is in line with current technological developments. The competency certification test should be carried out in stages to complete the whole scheme so that graduates get a level 2 SKKNI competency certificate.

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## INTRODUCTION

Vocational High School (SMK) is one of the school institutions that prepare students to be able to engage directly in the workforce after graduate. Vocational Schools are prepared to produce skilled workers who are ready to work with various competencies and able to follow the development of science and technology. According to the explanation of article 15 of the 2003 National Education System Law, vocational education is secondary education that prepares students, especially to work in certain fields. The statement is in line with Clarke & Winch (2012: 9), which defines "*Vocational education is confined to preparing young people and adults for working life, a process often regarded as of rather technical and practical nature*". Other statements about vocational education stated by Murniati and Nasir (2009: 2); Vocational education is education that provides a variety of knowledge, skills, and experience to students so that they are able to do certain jobs that are needed, both for themselves, for the working world, and for nation building. According to Rupert Evans (in Hadi Januar: 2013) stated that vocational education aims to: (1) Meet the community's need for labor; (2) Increasing educational choices for each individual; (3) Encourage motivation to learn more. But until now these goals have not been achieved. As a result, there are many Vocational High School (SMK) graduates who do not get appropriate jobs with their expertise, and it cause unemployment.

According to Gangani (2006,p.136) the competition that needed by DU/DI divide into three categories, namely : (1) Fundamental competencies is the competency should be possessed by all workers for occupations. (2) Functional competencies is the competency which able to deliver a worker who carry out his duties effectively, (3) Personal competencies is competency which support achievement of higher or future work. According to Mulyasa (2004), Competency is consist of knowledge, skill, and attitude that reflected in the habit of thinking and acting. In line of, Finch dan Crunkilton (in Mulyasa 2004) define competency as mastery of a task, skills, attitudes and appreciation that must be possessed by students to carry out the tasks learned in school with the abilities needed to be success. Lefranclis (in Asmani, 2009:37) stated that "competency is the capacity to doing something that produce from learning proses". Wina Sanjaya (2012:70) stated that competency as the purpose has several aspects, such as : (1) Knowledge is the ability of cognitive aspect such as elementary school teacher knowing the techniques to identifying students needed (2) Understanding), is the depth of knowledge by each individual. (3) Skill, is the ability of individuals to carry out the tasks or jobs in practice that given to them. (4) Value is the norms that are good by each individual. (5) Attitude, is individual's view of something. (6) Interest is individual tendency to do something.

Student competency test is an evaluation process through relevant verification to determine whether someone is competent or not in a certain qualification. The Expertise Competency Test is an Award for Competence related to qualifications of 2 (two) or 3 (three) levels at KKNi conducted at the end of the study period by a Professional Certification Institute or accredited education unit working partners of the business / industrial world with consideration of passport skills and / or portfolio . In the BNSP guidelines (304.2008) competency test is the process of evaluating someone competent or incompetent in a particular competency or qualification unit related to technical or non-technical processes by completing evidence relevant to the competent unit or its qualifications.

The results of observations on the implementation of competency certification tests found that several things related to the implementation of competency certification tests were not in line with expectations. Vocational School graduates have not yet fully received work competency recognition from DU / DI by bringing certificates issued by institutions authorized. Considering the importance of recognizing the competence of Vocational School graduates, it is necessary to conduct an evaluation study of the implementation of the competency certification test.

According to Stufflebeam in Ansyar (1989) the evaluation is the process of obtaining and presenting information that is useful for considering alternative decision making. Furthermore, the *joint*

*committee on Standards For Educational Evaluation* (1994), defines evaluation as a systematic investigation of the objective success. According to Djaali, Mulyono and Ramli (2000) define Evaluation as the process of assessing based on objective standards that has been set then the decisions are made on the object being evaluated. Meanwhile according to Wirawan (2006) Evaluation is the process of collecting and presenting information about the object of evaluation, by using evaluation standard and the results are used to make decisions about the object of evaluation.

The Implementation of competency certification test for vocational students of light vehicle engineering program LSP-P3 in Banyumas was conducted in several schools. The third Person Professional Certification Institute (LSP-P3) which conducts the professional certification test is LSP TOP Indonesia. The implementation of competency certification test for vocational students needs to be evaluated to see the description and effectiveness of the program. The evaluation includes aspects of context, input, process and product. According to Patton in Robinson (2002, p.1) CIPP is Programme evaluation is the systematic collection of information about the activities, characteristics, and outcome of programmes for use by specific people to reduce uncertainties, improve effectiveness, and make decisions with regard to what those programmes are doing and affecting.

CIPP is a systematic collection of information about program activities, characteristics, and results to be used by certain people to reduce uncertainty, increase effectiveness, and make decisions regarding what is done and influences these programs. The stages of the CIPP evaluation model proposed by Kaufman and Thomas (2009, pp. 116-117) are as follows: (a) Context Evaluation is the initial phase in program development which includes the identification of needs and program design; (b) Input Evaluation is input evaluation used to identify what is really needed to determine the definition of the purpose of the evaluation being carried out; (c) Process Evaluation is a process evaluation specifically used to detect, identify the strengths and weaknesses of a program that occurs during the implementation of a program; and (d) Product Evaluation, Product evaluation occurs when a program has already taken place with an emphasis on gathering information needed for a decision made regarding a program.

The purpose of this study is to determine the implementation of the competency certification test for light vehicle engineering expertise in Banyumas in terms of *Context, Input, Process, Product* and whole aspects.

## **RESEARCH METHOD**

This research was an evaluative study developed by Stufflebeam using the CIPP (*Context, Input, Process, Product*) approach. The evaluation was focused on context evaluation, input evaluation, process evaluation, and product evaluation. This research was focused on the implementation of competency certification test for vocational students of Light Vehicle Engineering Program by LSP-P3 in Banyumas.

This research was conducted in 4 (four) Vocational Schools in Banyumas who had competency in light vehicle engineering program and conducted competency certification test in light vehicle engineering program in Vocational Schools in Banyumas include: Giripuro Sumpiuh Vocational School, Ma'arif NU 1 Sumpiuh Vocational School, Mother Satria Wangon Vocational School and Muhammadiyah 2 Vocational School Ajibarang. The population in this study was the assessor implementing the competency test of light vehicle engineering program in Banyumas. The research samples used saturated samples or total samples, because the sample was all population of this research. The population sample was 16 people..

The research data collection was carried out by distributing questionnaires. The questionnaire in this study included in the type of closed questionnaire because the answers have been provided so the respondents only choose one alternative answer. The questionnaire in this study was divided into four aspects namely context, input, process, and product aspects.

Two types of validity are needed to obtain a proof of validity, namely content validity and construct validity. The validity used in this study was CVR (Content Validity Ratio). To obtain the evidence of content validity on the research instrument was by asking professional judgment of a experts group to determine the validation of the content items both in terms of material, question construction and in terms of language clarity that was compiled. The content validity of the instrument in the form of a questionnaire was carried out by ten (10) experts. So with 10 assessors the items that will be declared are items with a minimum score  $> 0.62$ . Based on the results of instrument analysis, the items wick less than 0.62 from the context aspect were items 4, 11 and 15; input aspects, items 4, 9,10 and 19; from the process aspects items 5, 10 and 15. All items whose in average was less than 0.62 are invalid so that item was not used in the data collection instrument. The validity of the items used a limited test on the research instrument. Furthermore, this research instrument was analyzed by point, that was by correlating a formula "Product Moment" from Pearson. According to Sugiyono (2011, p.188), the minimum score to be considered the validity requirements is if  $r \geq 0.30$ . The correlation price of items with a total score of less than 0.30 then the items in the instrument were invalid and vice versa if the price of the correlation items with a total score of more than equal to 0.30 then the items in the instrument valid. The calculation of the instrument validity analysis used SPSS statistical software version 20.0.

The instrument was conducted at vocational school in Banyumas which had light vehicle engineering program competencies and implement the competency certification tests for students of light vehicle engineering programs by LSP-P3 was Giripuro Sumpiuh Vocational School, SMK Ma'arif NU 1 Sumpiuh, Vocational School of Mother Satria Wangon and Muhibadiyah 2 Vocational School Ajibarang. The total number of trial respondents was 16 people, consist of light vehicle engineering assessors. Based on the results of the instrument trial analysis, less than 0.30 from the process aspects were item number 3, and product aspects were items number 5 and 10. All items from each aspect whose correlation price was less than 0.30 declared invalid and these items were not used in data collection instruments because of invalid items from each aspect there were still valid items that can represent the indicator being measured.

The reliability of the competency test evaluation instrument in terms of context, input, process, and product in this study was calculated by using Cronbach Alpha formula because the instruments used questionnaires and multilevel scale. The calculation of reliability used SPSS version 20 statistical software.

Based on the results of the instrument test, the questionnaire reliability instrument from the context aspect was 0.892 (very high), the input aspect is 0.913 (very high), the process aspect was 0.883 (very high) and the product aspect was 0.909 (very high).

The data data description of this study used Categorical Level approach using total score as a reference. According to Syaifuddin Azwar (2012: 148) divided into five categories:

**Table 1.** The data data description of Syaifuddin Azwar

Category	Respondent Score
Excellent	$X > M + 1,5 SD$
Very good	$M + 1,5 SD > X \geq M + 0,5 SD$
Good	$M + 0,5 SD > X \geq M - 0,5 SD$
Fair	$M - 0,5 SD > X \geq M - 1,5 SD$
Poor	$: X \leq M - 1,5 SD$

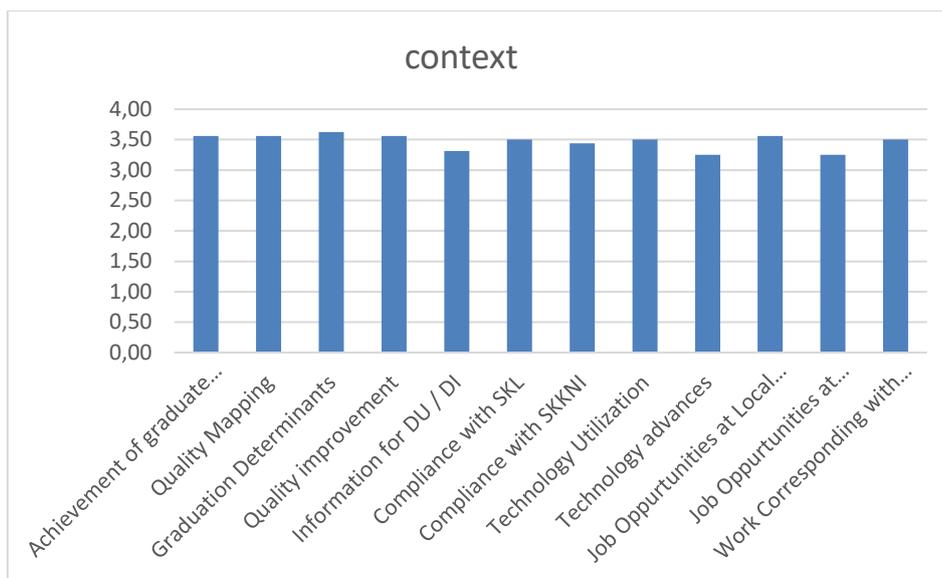
The percentage of achievement calculated by the formula:

$$\text{Achievment Level} = \frac{\text{Real Score}}{\text{Ideal Score}} \times 100\%$$

## RESULTS AND DISCUSSION

### The basis and purpose of competency testing, The suitability of competency tests with the needs of DU / DI and opportunities for light vehicle engineering graduates in the business and industrial world, and The suitability of competency tests with technological advances in the field of light vehicle engineering (Context Aspect)

The results of the study showed that the implementation of the competency certification test for vocational students of light vehicle engineering skills program by LSP-P3 in Banyumas was evaluated from the aspect of being included in the excellent category with a quality achievement score of 41.63 or (86.7%).



**Figure 1.** Achievement quality graphic of the context Aspect Points

Based on graph 27, the points on the indicator bases and objectives of the competency test that had the lowest value were 3.30 that the implementation of the competency test as information for stakeholders (DU / DI) on the competencies possessed by vocational school graduates. The highest value was 3.69 that the implementation of the competency test was an effort to improve the quality of education. In the suitability indicator of competency tests with technological advances in the field of light vehicle engineering, the value of items obtained was 3.50 that the implementation of competency tests made use of technological advances and 3.25 that the implementation of competency tests was carried out in accordance with technological developments.

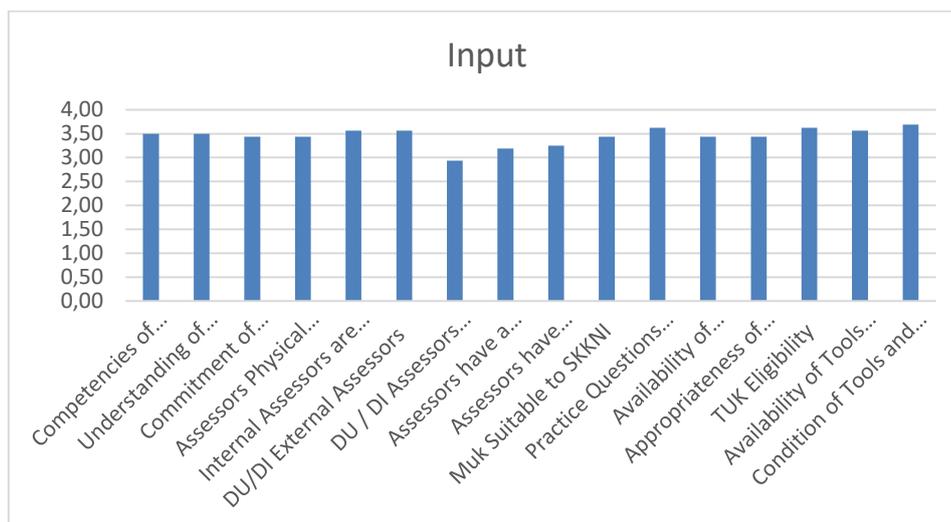
In the indicator of the suitability of competency test with the needs of DU / DI and opportunities for graduates of light vehicle engineering in the business world and in the grain industry which had the lowest quality grades, the employment opportunities for light vehicle engineering graduates in international industries were still very low at 3.25. According to respondents the implementation of the competency test had not been able to reflect the competency of students to work in an international scale industry, employment opportunities for light vehicle engineering graduates still only work in local scale industries, even on a national scale are still relatively low.

Based on the description above, in terms of context that the implementation of student competency tests is an effort to improve the quality of education. Vocational school student competency tests are absolutely carried out to measure the achievement of student competencies at a certain level according to the competency of the skills taken during the learning period at the Vocational School. Competency test is developed based on the graduate competency calendar with reference to SKKNI and the development of the business / industrial world. Expertise competency test results from students

will be indicators of achievement of graduate competency standards, while for stakeholders will be used as information on the competencies of prospective workers.

**Assessors, Competency test kits, Place of competency test, and Facilities and infrastructure (Input Aspect)**

The results of the study showed that the implementation of the competency certification test for vocational students of the light vehicle engineering program by LSP-P3 in Banyumas was evaluated from the input aspect included in the excellent category with a quality achievement score of 55.18 or (86.23%).



**Figure 2.** Achievement quality graphic of the input Aspect Points

Based on the graph in Figure 28, it showed that the indicator criteria for assessors who had the lowest value quality was in the DU / DI assessor item, understanding the characteristics of vocational students with a quality score of 2.94. According to respondents, in carrying out the DU / DI competency test it functions as an external assessor who must had competence in accordance with the field being tested and meet predetermined criteria. External assessors must also understand the characteristics of vocational students. The items that had the highest quality value on the assessors indicator of 3.56; that was, internal assessors from productive teachers and external DU / DI assessors from partner institutions that were relevant to the competencies tested.

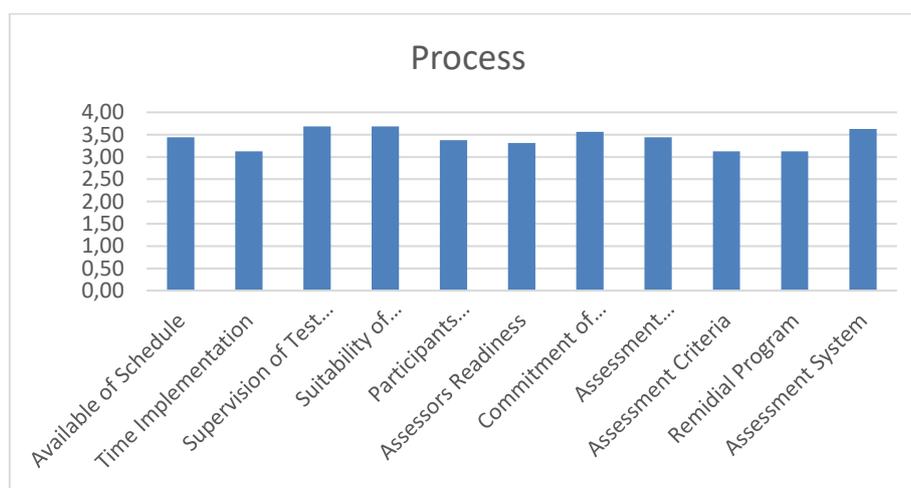
The productive teacher assessors had a minimum of 5 years teaching experience and productive teacher assessors had relatively low work experience or industrial internship at 3.20. Teaching and work experience or internships were very important to improve the quality of assessors in conducting competency tests. The assessor competency indicator had a quality value of 3.50; the respondent agrees that the competency assessor must have technical competence according to the field or unit being tested, in addition to that an assessor must also had a competency test methodology competency (workplace assessment).

Indicator assessors had a commitment in carrying out the test had a quality value of 3.44. In the competency test indicator, the achievement value of quality items concerning the availability of MUK in accordance with SKKNI in light vehicle engineering was 3.44; suitability of the practice test questions with a grating of 3.63; the availability of assessment guidelines was 3.44 and the value of the assessment sheet components was 3.44. This means that judging from the competency test set was very good, in the competency test set there were MUK that accordance with the SKKNI, the assessment sheet and assessment guidelines were well available. In the competency test place indicators, facilities and infrastructure, indicators regarding the eligibility requirements for competency test places had a quality value of 3.63; indicator of the adequacy of the number of tools and materials had a quality value

of 3.56 and an indicator of the condition of tools and test materials had a quality value of 3.69. This means that in the implementation of competency tests of light vehicle engineering program in Banyumas by LSP-P3 from the indicators of the competency test place, the number and condition of tools and materials were considered to be very feasible. According to respondents there needs to be an increase in the indicators of the number and quality of competency test tools and materials.

**Time for conducting Competency Test, Competency Test Procedure, Supervision of competency tests, and Scoring system (Process Aspect)**

The results of the study showed that the implementation of the competency certification test for vocational students of light vehicle engineering program by LSP-P3 in Banyumas was evaluated from the aspect of the process included in the excellent category with a quality achievement score of 37.50 or (85.23%).



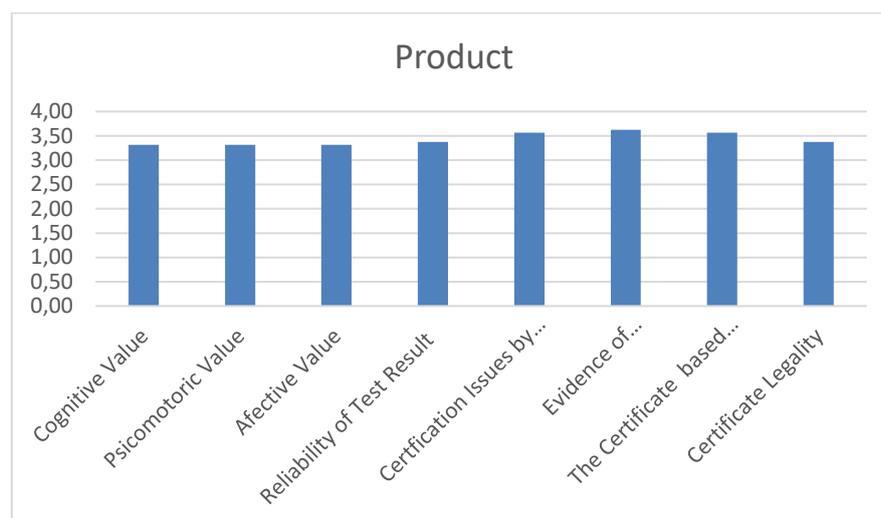
**Figure 3.** Achievement quality graphic of the process Aspect Points.

Based on the graph in Figure 29, the item in the time indicator for implementing the competency test that has the lowest value in the time allocation indicator for competency test with an internal quality of 3.13. It was intended that the implementation of time allocation that given to participants was not in accordance with the characteristics of vocational students. The allocation time was too short so that many participants could not complete the task. The availability indicator of a well arranged test schedule it has a quality value of 3.44; this means that the competency test was well.

The indicator of expertise competency control supervision showed that the the lowest value was the readiness of the assessor in carrying out the test of 3.31. This showed that the assessors were not really ready to supervise the competency tests. The suitability of the assessor with the competency being tested and the independence of the participants got the highest score of 3.69. This showed that the competency test assessor was in accordance with the competency being tested. The assessment system indicator showed that the assessors set the evaluation criteria and the remedial in the lowest score of 3.13. According to the respondent's criteria, the assessment was not determined by an examiner, but at the time the MUK was made. Respondents also agreed that remedial competency testing was needed.

**Competency Test Results, Product Competency Test, and Certificate of competence (Product Aspect)**

The results of the study showed that the implementation of the competency certification test for vocational students of light vehicle engineering program by LSP-P3 in Banyumas was evaluated from the aspect of product included in the excellent category with a quality achievement score of 27.44 or (85.74%).



**Figure 4.** Achievement quality graphic of the product Aspect Points.

Based on the graph in Figure 30, the items on the competency test results each indicators have the same quality value of 3.31, such as the cognitive aspect value, the psychomotor aspect value and the affective aspect value were appropriate with the qualifications of graduates. Indicators of product competency test items about reliability of competency test results had a quality value of 3.38. The items of the competency certificate indicators that had the lowest value quality were 3.38; according to the respondents the competency certificate was signed by the LSP while the format and competency certificate issuing was BNSP. The highest value of 3.63 means that the respondents strongly agree with the competency certificate as proof of student competency mastery and recognition of certificates by the business and industrial world.

### **The Entire Aspect**

The implementation of the competency certification test for vocational students of light vehicle engineering program by LSP-P3 in Banyumas in terms of the entire aspects (context, input, process, and product) was accumulatively included in the excellent category with a value of achieving quality results of 161.75 or (86.04%). The things that need to be considered and improved from the context aspect were the use of technology needs to be improved because the technology used was not suitable with existing technology in the industry, the absorption of graduates in the industrial world, especially the international scale industry was still very low. In terms of input aspects, the thing that needs to be considered was the quality of the assessors in the implementation of the competency test. Understanding of assessors of the characteristics of vocational students and the number and quality of materials and tools used for competency tests. Things that need to be considered from the aspect of the process were the time allocation given to the test participants, the readiness of the assessors during the test implementation and the assessors assigned during the implementation of the ji are the subject teachers who were being tested. While the things that need to be considered in terms of product aspects, namely the reliability of the product, the competency test results need to be improved by following current technological developments.

### **CONCLUSION**

From the results of the problem, research objectives, analysis and discussion results, it can be concluded that the implementation of the competency certification test for vocational students of light vehicle engineering skills program by LSP-P3 in Banyumas from the context aspects included in the excellent category with a quality achievement value of 41 , 63 or (86.7%). The indicators contained in

this instrument were: (1). The basis and purpose of competency testing, (2). The suitability of competency tests with the needs of DU / DI and opportunities for light vehicle engineering graduates in the business and industrial world, (3). The suitability of competency tests with technological advances in the field of light vehicle engineering. Input aspects were included in the excellent category with a quality achievement score of 55.18 or (86.23%). The indicators contained in this instrument were: (1). Assessors, (2). Competency test kits, (3). Place of competency test, (4). Facilities and infrastructure. Process aspects which included in the excellent category with a quality achievement score of 37.50 or (85.23%). The indicators contained in this instrument were: (1). Time for conducting Competency Test, (2). Competency Test Procedure, (3). Supervision of competency tests, (4). Scoring system. Product aspects were included in the excellent category with a quality achievement score of 27.44 or (85.74%). The indicators contained in this instrument were: (1). Competency Test Results, (2). Product Competency Test, (3). Certificate of competence. All aspects included in the excellent category with a score of achieving quality results of 161.75 or (86.04%). The implementation of competency certification test for vocational students of light vehicle engineering by the LSP-P3 in Banyumas needs to be improved optimally although it has been going very well. This implies that the implementation of the competency certification test must consider the competency of the assessor. The implementation of competency certification test should use equipment that is in line with current technological developments. The competency certification test should be carried out in stages to complete the whole scheme so that graduates get a level 2 SKKNI competency certificate.

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## REFERENCES

- BNSP. (2008). *Pedoman BNSP 304 : Pelaksanaan uji kopetensi oleh panitia teknis*. Jakarta.
- Clarke, L., & Winch, C. (2012). *Vocational education: International approaches, developments and systems*: Routledge.
- Depdiknas. (2003). *Undang-Undang RI No.20, Tahun 2003, tentang Sistem Pendidikan Nasional*.
- Evans, R. N., & Herr, E. L. (1971). *Foundations of vocational education*: CE Merrill Publishing Company.
- Fathurrochim, M. R., & Solikin, M. (2017). Pelaksanaan uji kompetensi di TUK TKR LSP-P1 SMK SE-KOTA Yogyakarta. *E-Jurnal Pendidikan Teknik Otomotif-S1*, 19(2).
- Finch, C. dan Crunkilton, JR, 1999. *Curriculum Development in Vocational and Technical Education*.
- Kaufman, R. & Thomas, S. (2009). *Evaluation without fear*. New York: New Viewpoint
- Irwanti, Y. D., & Sudira, P. (2014). Evaluasi uji kompetensi siswa keahlian multimedia di SMK se-Kota Yogyakarta. *Jurnal Pendidikan Vokasi*, 4(3).
- Moleong, L. J. (2011). Metodologi Penelitian Kualitatif, cetakan XXIX. Bandung: PT. Remaja, Rosdakarya.
- Mulyasa, E. (2004). Implementasi Kurikulum 2004 panduan pembelajaran KBK. Bandung: Remaja Rosdakarya.
- Murniati dan Usman, Nasir. 2009. *Implementasi Manajemen Strategik Dalam Pemberdayaan Sekolah Kejuruan*. Bandung: CV. Perdana Mulya Sarana.
- Robinson, B. 2002. *CIPP to approach evaluation*. COLLIT Project.
- Sanjaya, W. (2012). Media komunikasi pembelajaran: Jakarta: Kencana Prenada Media Group.
- Sugiyono. (2011). *Metode penelitian kuantitatif, kualitatif dan R&D*. Bandung: CV. Alfabeta.
- Stufflebeam, D.L., Madamand, C.F., & Kel-laghan, T. (2000). *Evaluation models*. Boston: Kluwer Academic Publishers.