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CURRICULUM RELEVANCE STUDY BETWEEN EXPERTISE COMPETENCE AND THE WORLD'S INDUSTRY NEEDS WHILE STUDENTS IMPLEMENT INTERNSIP PROGRAM ON MAJORING OF LIGHT VEHICLE ENGINEERING OF SMKN 5 SURAKARTA

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KEYWORDS

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ABSTRACT

The purpose of this study was to find out: (1) Competency of expertise discussed in Light Vehicle Engineering Expertise Competence of SMKN 5 Surakarta; (2) Competency of expertise obtained by students of Light Vehicle Engineering Skills Competency of SMKN 5 Surakarta prior to the implementation of internship; (3) Competency of expertise needed by the industrial world from students when implementing internship; (4) Relevance of the Curriculum for Light Vehicle Engineering Competence of SMKN 5 Surakarta with the needs of the relevant industrial world from the implementation of internship. This type of research is a qualitative descriptive study. The results of this study indicate that the competencies discussed in the learning skills at KKTKR SMK 5 Surakarta provide the latest 13 revised curriculums in 2017. The industry also emphasizes the work relations of students who are good as supporters of implementing internship. The results of the study can be seen from two sides. Formally, the relevance level is more than 90%. While the implementation, there are findings where the level of understanding of students is still lacking including the basic automotive competencies that should have mastered.

INTRODUCTION

The times have made the world of education also change. Education today is not only focused on knowledge but also skills, so that currently vocational-based education is increasingly popular. According to the explanation of Law Number 20 Year 2003 Article 13, vocational education is secondary education that prepares students, especially to work in certain fields. One of the vocational educations is Vocational High School (SMK).

In accordance with its objectives, the learning process at SMK is slightly different than general education. This is because learning in SMK is not only general knowledge, but also involves learning productive skills or expertise. One other difference from SMK is the presence of industrial training (industrial work practices). Internship is an activity to practice the knowledge and skills that have been acquired in the world of work. For this reason, the implementation of internship is strongly influenced by the cooperation of SMKs with industry (Maskan, et al., 2014).

While useful, the implementation of the internship is also prone to problems. According to the research of Sujarwo and Supriyati (2014), sub-optimal on the job training planning such as curriculum validation and industry mapping can lead to competency gaps when on the job training. Head of Majoring in light vehicle engineering of National Vocational High School 5 Surakarta (SMKN 5 Surakarta), Daryanto said that problems of competency or the type of work of students who are not yet suitable are still frequently found.

This imbalance of competence will interfere with the successful implementation of the internship. According to Yulianto (2010) in his research found that there is a positive relationship between automotive theory and practice with the readiness of internship, meaning that it is clear that vocational competence will be one of the foundations

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in students' readiness to implement internship. The successful implementation of the internship will affect students 'competencies in terms of knowledge, attitudes, and skills which can ultimately affect students' readiness to work.

Competencies taught in vocational schools are regulated in the curriculum. According to Government Regulation Number 19 of 2005 concerning National Education Standards, the curriculum is defined as a set of plans and arrangements regarding the objectives, content and learning materials as well as the methods used to guide learning activities.

In order to keep abreast of changing times, the curriculum must continue to develop. One of the principles of curriculum development is relevance (Hernawan, et al., 2002). The relevance of the curriculum has two meanings, namely internally relevant to components in the curriculum and relevant externally to developments in society.

Competencies according to Light Vehicle Engineering major are included in the group of technology and engineering expertise. SMKN 5 Surakarta is one of the best vocational high school in Surakarta, accredited A, being one of the pilot schools which has good education quality.

Internship or industrial work practice is a pattern of organizing education and training that is jointly managed by SMKs and industry (Dikmenjur, 2008). In addition to being beneficial to students and schools, the apprenticeship is also beneficial to the industry, including the industry getting additional workers who can help jobs and as a means of finding potential employees (Suhartana, 2016).

Industry is an economic activity that manages raw materials, raw materials, semi-finished goods, and or finished goods to become goods with a higher value for their use including construction design and industrial engineering activities (Industrial Law No. 5 of 1984). An connection near with the competencies needed by Light Vehicle Engineering major is industries which as a place to industrial practice with workroom. According to Kusuma, et al. (2018), workroom are classified into dealer, general workroom, special service workroom, and mobile workroom.

RESEARCH METHODS

The study was conducted at the Surakarta 5 Vocational School (SMKN 5 Surakarta) and the industries as a place for students to become apprenticed. The study was conducted with a qualitative approach and case study method. Purposive sampling technique is used because it facilitates research by sorting out the participants who are considered to best understand the data needed for research purposes. Participants involved in this study were the head of study programs, productive teachers, and heads of industrial workshops. The data obtained are the results of interviews supported by questionnaires, curriculum documents, and related literature.

Data collection was carried out through interviews with participants in a semi-structured manner. Observations were made to confirm findings in industry-related interviews. Archive analysis is carried out to support the results of the interview, especially with regard to the curriculum. Miles and Huberman's (1992) data analysis technique were used to validate the results of the study. The procedure includes data reduction, data presentation, and drawing conclusions.

RESULTS AND DISCUSSION

The Light Vehicle Engineering Skills Competency Curriculum

The Light Vehicle Engineering Skills Competency Curriculum at Vocational High School 5 Surakarta is the latest revised K13 curriculum in 2017. According to the k13 curriculum, several things must be considered primarily in productive subjects. First, grade 1 or grade 10 students receive basic material for vocational competence. The basis of vocational competence is the same in expertise programs that are in one area of expertise. Light Vehicle Engineering Skills Competencies are in the Technology and Engineering Expertise Group, so there are three compulsory subjects in class 10, namely Automotive Engineering Drawings, Automotive Basic Technology, and Basic Automotive Works. All these subjects must be taught to 10th grade students for odd and even semester. Second, the competencies taught in grades 11 and 12 are divided into four subjects, namely the Maintenance of Light Vehicle Engine, Maintenance of Chassis and Light Vehicle Power Transfer, Maintenance of Light Vehicle Electrical, and Creative and Entrepreneurship Products. Based on Permendikbud (Minister of Education and Culture Regulations) number 24 of 2016 concerning core competencies and the latest basic competencies, requires teachers to analyze the contents of basic competencies with textbooks in school. The mapping of the curriculum in SMKN 5 Surakarta according to the results of the interviews was carried out with a number of steps or processes. First, at the beginning of the semester at the beginning of the school year a departmental meeting is held to determine which basic competencies (KD) will be taught taking into account the school's agenda including the internship. Secondly, the selection process is based on the preparation for competency testing in accordance with the material to be tested in the competency test in which SMKN 5 Surakarta is one of the schools that has become a Professional Certification Institute (LSP). Through interviews with productive teachers of SMKN 5 Surakarta, it is

known what competencies are taught before students take internship. These competencies can be seen through table 1.

Table 1. Competencies taught in grade 11 semester 3

Subjects	Competences / Skills
A. Light Vehicle Engine Maintenance	1. 1. Periodically maintain the main engine system and valve mechanism 2. Maintain periodic lubrication system 3. Periodically maintain the cooling system 4. Periodically maintain a conventional gasoline / carburetor fuel system 5. Periodically maintain the In-Line injection pump diesel fuel system 6. Periodically maintain the rotary injection pump diesel fuel system 7. Improve the cylinder head mechanism and its completeness 8. Improve cylinder block mechanism and accessories 9. Improve the lubrication system 10. Improve the cooling system 11. Improve conventional gasoline / carburetor fuel systems
B. Maintenance of Chassis and Light Vehicle Power Transfers	1. Maintain periodic clutches 2. Maintain periodic manual transmission 3. Maintain periodic Differential 4. Periodically maintain the conventional brake system
C. Maintenance of Electric Vehicle Light	1. Maintain regular electrical systems 2. Install Additional Electrical Equipment (Accessories) 3. Periodically maintain the starter system 4. Regularly maintain conventional ignition systems 5. Periodically maintain the lighting system and instrument panel 6. Repair the starter system 7. Improve conventional ignition systems 8. Improve the lighting system and instrument panel

Internship at SMKN 5 Surakarta

On the job training at SMKN 5 Surakarta, as stated by the head of study program aims to make students able to get material or skills that are more practical that have not been obtained at school or that have been obtained but not too deep, so that students deepen all the knowledge they get in the industry. In addition, the implementation of internship was also carried out in order to introduce students to industrial culture, from the atmosphere of work in the industry, work patterns in the industry, to the performance in the industry so that they would be ready at work. The industry also considers the importance of industrial internship for vocational students to help students, especially in skills and attitudes in the industrial world. In addition, the industry views the existence of internship students as additional workers in their daily work. Some industries even view the implementation of the internship as a means of finding prospective workers or in this case mechanics who have the potential to be recruited when he has graduated.

Internship at SMK 5 Surakarta in general follows the procedures and provisions of the government, from when the internship starts until how long the internship is carried out. Only in its implementation, the apprenticeship was adjusted to the schedule that had been prepared at SMKN 5 Surakarta. Internship procedures consist of licensing to industry, the process of submitting, monitoring, and tailoring students. Only slightly different is the licensing process. In the implementation of apprenticeship in Vocational High School 5 Surakarta, students have obtained a

list of industries or in this case workshops that have collaborated with Vocational High School 5 Surakarta in order to facilitate the implementation of students' internship and also guarantee the quality of internship. But even so, internship still accepts that students submit workshops outside the existing list with provisions as long as the workshops given by students are included in the corridor of school regulations. From several workshops that collaborate and are used as student workshops, the researchers chose nine workshops that represented the three workshop criteria mentioned. The workshops can be seen through table 2.

Table 2. List of Industries as Research Sites

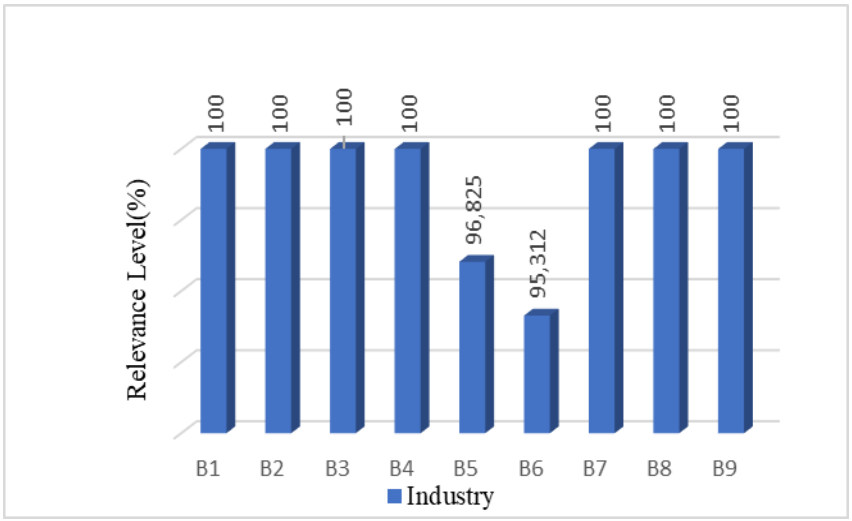
Workshop Criteria	Workshop Name
A. Authorized dealer repair shop	1. PT Bintang Putra Mobilindo 2. PT Astra Internasional Daihatsu Tbk 3. PT Sun Star Motor
B. General authorized repair shop	1. RPM Auto Clinic 2. Montecarlo Solo 3. Iwan Motor
C. Ordinary general repair shop	1. Bengkel Lima Sekawan 2. Bengkel Tawakkal 3. Bengkel Setia Prima

The implementation of apprenticeship at SMKN 5 Surakarta itself starting in the 2017/2018 school year is carried out in the 4th semester or at the beginning of the even semester for students who are in grade 11 according to demand and the current curriculum structure. The internship at SMKN 5 Surakarta itself was held for 2 months. But starting in the 2018/2019 school year there will be another change, namely to become 6 months, in which the implementation at SMKN 5 Surakarta will be carried out in 2 periods.

The relevance of the curriculum to the needs of the industrial world

The research procedure in the workshop is carried out in two ways. The first is to bring a list of competencies that have been taught by the teacher and accepted by students before students carry out the internship. This is done to determine the relevance of competence to the industry or workshop. The indication of the relevance that you want to know is whether the competencies obtained by students are sufficient for students to be said to be ready to carry out internship in industry. The second is by conducting interviews with the head of the workshop or other parties in the industry that are directly related to the implementation of apprenticeship. Interviews in industry were conducted to confirm the relevant findings, as well as to explore other information related to the implementation of internship that can support research.

From the results of research into industry, it can be seen about the relevance of the competency curriculum in KKTKR SMKN 5 Surakarta with the needs of the industrial world when students carry out internship. The relevance is shown in Figure 4.



Gambar 1. Relevance of Curriculum with the world's Industry needs.

Where: B1=PT Bintang Putra Mobilindo
B2=PT Astra Internasional Daihatsu Tbk
B3=PT Sun Star Motor
B4=RPM Auto Clinic
B5=Montecarlo Solo
B6=Iwan Motor
B7=Bengkel Lima Sekawan
B8=Bengkel Tawakkal
B9=Bengkel Setia Prima

From the graph in Figure 1 it can be seen that the relevance of the curriculum to the needs of the industry when students carry out internship is very high, even reaching 90% more. The relevance in 7 industries even reaches 100%, which means that the competencies that have been taught to students before internship are in accordance with industry needs. This means that students are ready to carry out the internship when viewed from the competencies that have been taught. In addition, in the other 2 workshops the level of relevance, although it did not reach 100%, it was also very high, namely 96.825% in Montecarlo Solo and 95.312% at Iwan Motor.

The implementation of further research as already explained is to bring the results of research in schools in the form of a list of competencies that have been taught by the school to students prior to the implementation of internship in industry. From this, the percentage of the relevance of curriculum competencies to the needs of the industry will be obtained when students carry out internship. In addition, interviews were conducted with industry parties to confirm the level of relevance and explore something from the implementation of internship.

The level of relevance of the KKTKR curriculum at SMKN 5 Surakarta to the needs of the industrial world can be seen from two sides, namely documents and implementation. It means that in this research, the level of relevance will be discussed in addition to the instrument to see the percentage of relevance, it will also discuss several findings in the implementation of internship, especially regarding the relevance of the curriculum to industrial needs.

First, when viewed from the curriculum document, the percentage of relevance is very high because of the total number of workshops it reaches more than 90%, even 7 workshops get a perfect score of 100%. This belongs to the very relevant category. This shows that the curriculum used and the competency mapping carried out by the study program is quite successful because its relevance to the needs of the industrial world is almost perfect.

This means that if all the competencies in the curriculum are taught and understood by students who want to carry out internship, it is felt that the industry is sufficient in implementing internship. One of them is because most industries do not expect anything excessively from internship students, especially students at the SMK level. This does not depend on the type of industry, meaning that ordinary workshops, authorized workshops, and authorized dealer workshops have the same understanding.

Industry or workshops see that a minimum internship student is only expected to have basic knowledge and skills of engineering, most of which have been taught in the first three semesters of vocational school students. Most of the competencies that the industry expects are students' knowledge of Engineering tools, knowledge of job safety, and general knowledge of motorized vehicles regarding components and functions.

Then students are also expected to have knowledge and skills about light jobs, such as basic knowledge about car maintenance. One of them is knowledge about periodic maintenance which is often and will always be found in workshops, especially official workshops. In addition, internship students are expected to have knowledge of conventional brake work which is also often found in workshops. Another reason why the workshops do not expect much from the competence of internship students is that some workshops place more emphasis on the attitude of the internship participants. One of them was explained by Mr. Sukirman as the head of the Setia Prima workshop:

From the data above, it can also be seen that there are workshops that provide input on competencies that must be mastered or must have been taught to students as an internship provision. Most of the input relates to the competencies required in a particular workshop related to specializations or types of work that are found in that workshop. From the research results, there are two workshops that suggest additional teaching competencies for students who want to implement internship.

The first is the Montecarlo Solo workshop. Input on competencies that need to be understood by internship students in relation to the implementation of internships at Montecarlo is to improve spooring and improve wheel / tire balance. The addition of the recommended competence from Montecarlo is related to the specialty of this workshop which is indeed working on the legs of the vehicle and indeed this type of work is often found in this workshop. From the interview, Mr. Endro also said that another reason for this input was because the work on the legs of motorized vehicles, especially four-wheeled vehicles and above, is very necessary and definitely needed.

This also underlies this input. Even so, Mr. Endro also did not urge the internship participants to fully master it but only wanted them to be taught the basics of spooring and balancing. This is so that when doing apprenticeship in the Montecarlo workshop, you are not too surprised and understand a little about the work that must be done.

Second is Iwan Motor. From the interview with the mechanic of Iwan Motor, Mr. Waluyo, there were three competencies that were suggested to students as a provision for industrial internships. These competencies are periodically maintaining the fuel injection fuel system (Electronic Fuel Injection / EFI), periodically maintaining the Engine Management System (EMS), and periodically maintaining the Common Rail diesel fuel system.

The input given is more about adjusting competencies based on improving motorized vehicle technology. This is also intended because developments in workshops also require students who carry out internship to understand or understand a little. In addition, the large number of jobs related to injection which is supported by the fact that the increasing number of injection cars requires students to understand the basic concepts of injection before carrying out internship. In addition, the teaching of EMS is also said to be related to the work of cars at Iwan Motor, most of which are already electronic cars. Meanwhile, the addition of the command rail diesel fuel system was said by Mr. Waluyo because diesel cars that are currently being worked on in workshops already use this technology. In fact, he wants to remove the teaching about the in-line diesel fuel system because it is no longer relevant to the technology used today.

If administratively the level of relevance of the curriculum to the needs of the industrial world is very relevant, but if the level of relevance of the curriculum to the needs of the industrial world is seen more deeply in its implementation, several things will be found. Through this research, problems were found at the level of understanding of the internship students of the material or competencies that were obtained or had been taught by the teacher. This means that competencies or skills that should have been taught to students according to the curriculum and have been mastered by students, in reality, the workshops have not yet fully emerged. In short, the research found findings from the workshop that there were students who according to their admission had not mastered certain competencies that the students should have gotten.

Some of the findings include the level of understanding of internship students who are less about basic vocational skills. This problem was discovered during an interview with the head of a workshop for five friends, Joko Paryono. Furthermore, almost the same thing is found in the prime loyal repair shop. Through an interview with the head of the workshop, Sukirman, it was revealed that in the last internship at the prima loyal workshop, there were students who had not mastered work tools, especially keys. In addition, students who carry out the apprenticeship in the prima loyal workshop are also not able to carry out light work such as dismantling tires and brakes.

Similar findings were also found in the iwan motorbike repair shop. In the implementation of internship, it was found that students did not know the use of simple measuring instruments such as AVO. Understanding of vocational theories such as the names of machine components and their accessories as well as the knowledge and expertise in using technical tools both work tools and measuring instruments should have been mastered by students. This is because this knowledge has been obtained by students as a vocational basis, namely in grade 10. Apart from the number of findings that are not too massive, some of the findings above are certainly a warning. This is of course because the value of relevance is so high maybe only on paper and in its implementation there are several obstacles.

Finally, there are several things that can be considered in addressing some of the research results and findings related to the relevance of the curriculum when implementing internship. This is of course related to a high level of relevance but there are still some additional suggestions from the workshop, as well as some findings related to the implementation of internship which found students who have not mastered the competencies they should have obtained.

First, in relation to several additional competencies suggested by the two workshops, it is necessary to consider the repositioning of competencies. Of course, repositioning of this competency is not something easy but it is also possible to do so. Looking at the research results, maybe only two of the nine workshops stated the need for a shift in competence that students needed to master. In addition, the competencies submitted for repositioning were not too many, so the relevance number of the two workshops was still high. But citing an interview with mechanic Iwan Motor, Waluyo, the competencies that are suggested to be taught first are those that have to be mastered or at least known by internship students. One example is the mastery of competencies related to EFI and the diesel fuel system. According to Pak Waluyo, these competencies must be known by students in relation to the number of cars being worked on that are relatively new and are already electronic. Therefore, the repositioning of the repair shop is directly related to technological developments in the automotive world. Besides that, another consideration

from the two workshops is that the type of daily work requires mastery of the competencies concerned by internship students.

Actually, any repositioning must also consider the productive teacher concerned. Through interviews with productive teachers, Ary Prasetyono, the implementation of learning has experienced several problems. In odd semesters, the number of competencies that will be taught to students is quite a lot so that learning is quite tight. Whereas in the even semester, learning will be quite disturbed by the number of activities including the implementation of internship and grade 12 examinations. This results in the implementation of competency repositioning to accommodate students who want to carry out internship, it is necessary to make adjustments so that they are not too much to reduce the quality of learning.

Seeing some of the considerations above, it is necessary to coordinate various parties if the repositioning is carried out. But even so, the repositioning of competencies still needs to be considered so that what is learned in schools can be in line with what students will learn in the industrial world during the implementation of internship.

Second, seeing the findings regarding students who have not mastered the competencies they should have obtained, it is necessary to look at the implementation of learning more carefully. This condition found raises questions about the transfer of knowledge received by students, whether it has been well received or just catching up with school hours. This is because in this study, what was found was that there were students who had not mastered basic automotive skills such as the use of working tools and measuring tools.

The condition of students who have not mastered basic automotive competencies can actually be overcome if the learning is done properly. Good learning here is meant when learning is carried out in an organized system so that the knowledge that has been obtained can be accumulated during learning. If this condition applies, the knowledge and skills that students have received can be remembered.

If students find basic competencies that have not been fully mastered during the internship, it will certainly interfere with the implementation of the internship itself. Besides having to repeat studying a competency it will also disrupt the work process in the workshop because in essence the type of work in the workshop is work based on customer service.

This second problem actually refers to the teacher's ability to better master the learning process. Either using any available methods, a teacher is required to efficiently transfer knowledge to students.

From some of the discussions above, it can actually be seen that in general, if the formulated competencies can be conveyed and taught by the teacher in question and are properly accepted and understood by students, then all these competencies are sufficiently used as provisions for students in carry out internship and it can be concluded that the relevance of the competency curriculum for light vehicle engineering expertise to the needs of the industry when students carry out internship is very relevant.

CONCLUTION

Based on the results of research and discussion, it is known that the implementation of learning in the light vehicle technical expertise competency of SMKN 5 Surakarta is based on the latest curriculum from the government. Furthermore, the provision of competence in learning is used by students in implementing internship. The results of the study show several answers to the formulation of the problems that have been compiled:

1. The competencies taught in skills learning in the light vehicle engineering expertise competencies of SMKN 5 Surakarta are based on the latest 13 revised curriculum in 2017.
2. Competencies obtained as provisions for students to carry out internship are the competencies they get from productive subjects in semesters 1 to 3. These competencies include the competence of productive subjects that must be taught in class X, namely Automotive Engineering Pictures, Basic Automotive Technology, and Work Automotive Basics. Plus the competence from the subjects of Light Vehicle Engine Maintenance, Chassis Maintenance and Light Vehicle Power Transfer, and Light Vehicle Electrical Maintenance taught in class XI semester 3.
3. Competencies needed by industry to be mastered by internship students are the basics of automotive, such as engineering tools such as hand tools and measuring instruments, general knowledge of vehicles, safety in workshops. The industry also attaches importance to good student work attitudes and behavior as a support in implementing internship.
4. The results of research on the relevance of the curriculum to the needs of the industrial world when students carry out internship can be seen from two sides. Viewed from the curriculum document, the level of relevance is high because all workshops reach a percentage of> 90%. Meanwhile, when viewed from the implementation side, there are several findings where the level of understanding of internship students is still lacking, including the basic automotive competencies that students should have mastered.

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