An Analysis of the Teaching Ability of Dual Expertise Teachers in the Automotive Field to Improve Students' Capabilities

Gede Widayana[1], Kadek Rihendra Dantes[2], I Gede Wiratmaja[3] , Nyoman Arya Wigraha[4], Edi Elisa[5], Edy Agus Juny Artha[6]

{gede.widayana@undiksha.ac.id[1]}

Universitas Pendidikan Ganesha[1,2,3,4,5,6]

Abstract. Vocational education is an effort to improve the capability of human life to achieve balance and create a quality community life. The problem is that there is an increase in vocational teachers that is not proportional to the increase in the quality of teachers who are competent in teaching. In addition, many teachers understand normative and adaptive learning better than productive learning. The solution could be empowering teachers through dual expertise programs to develop their potential. The purpose of this study is to analyze the teaching ability of dual automotive skills teachers to improve students' capabilities. The research method used was survey-quantitative. Data retrieval using incidental sampling, selecting samples based on respondents who met the criteria. Data analysis techniques in this study used descriptive analysis. The results of data analysis based on the description of each indicator variable, the indicator that obtained the highest average value was the analysis of the implementation of PKG teaching in the automotive sector to increase student learning in SMK by 46.18%. Meanwhile, the average value of the lowest indicator was the analysis of the teaching evaluation of PKG teachers in the automotive sector to increase student learning in SMK by 26.10%. The results of this study can be used as material for academic studies for further in-depth research.

Keywords: Analysis, teaching ability, dual skill teacher, student capability.

1 Introduction

Teachers with diverse creativity and expertise who can improve students' capabilities in facing global competition are currently very much needed worldwide [1]. The teacher influences the formation of human resources in terms of cognitive, affective, and skills. The results of teacher learning in carrying out their duties professionally are based on the educational process towards ideal and useful conditions for the quality of students and society in general [2]. Therefore, teachers must be professional in providing education to produce optimal quality education [3].

As a developing country, Indonesia is also trying to improve the quality of its education by improving teachers' teaching ability. Based on the research results, Indonesia will become a strong country in all sectors by 2045. It is supported by Indonesia's economic growth, which is

now the 16th largest economy globally. So that, Indonesia has the potential to become the 7th largest in 2030. This can happen if the human resources become more qualified [4]. To improve this quality, teachers must always improve and develop themselves in building the world of education [5].

The development of the teaching profession will have a major impact on improving the quality and capability of education in Indonesia as well as providing the right direction for students to participate with the community in building the nation [6]. The development in question is a development based on independence and marketing. With independence, it will grow a teacher's confidence in his abilities and role in building the nation, and marketing is intended, so that teachers are able to offer their ideas to be accepted in the eyes of students [7]. The development of the teaching profession can be said to be successful if the impact can foster an innovative attitude. This innovative attitude will strengthen the professionalism of teachers.

The problem is that there is an increase in vocational school teachers, which is not proportional to the increase in the quality of competent teachers. SMK or vocational school teachers tend to understand more about normative and adaptive learning than productive learning. This causes a lack of teachers having the competence to teach according to their area of expertise [8].

The solution taken by the government in increasing the capability of students in Indonesia is to utilize vocational school teachers to develop their potential so that they can be more productive in carrying out classroom learning. The revitalization program carried out is a more careful, more persistent, and more responsible effort to realize the goals of national education development. Through the Directorate of Vocational Development, five areas need to be addressed in the revitalization of Vocational High Schools, one of which is about teachers and education personnel. With the revitalization of dual skills, it is hoped that teachers will be able to carry out more creative and productive learning to increase students' capabilities.

1.1. Theoretical Background

Theoretically, the step to meet the needs of productive teachers in Vocational Schools is to carry out a certification program for skills and educator certification for vocational teachers called the Dual Skills Program (PKG). PKG is a program to increase teaching authority for teachers who teach normative and adaptive subjects to become productive subject teachers in Vocational High Schools in certain skill competencies. It is expected that normative and adaptive teachers will be able to fill the gap in productive teachers in vocational schools due to training to add adaptive teaching authority to productive teaching authority. Normative and adaptive teachers receive training and education through an on-in-on-in pattern and end with expertise certification and educator certification. With PKG, it is hoped that the quality of SMK teachers can be fulfilled. Furthermore, the structure of the IN-1 program is shown in Table 1.

Table 1. Program structure IN-1.

No	Material	Lesson hours
A.	**General**	
1	Teacher Career Guidance and Development Policy Continuing	4
2	Professional Development Program	4
B.	**Core**	
3	Reflection and deepening 3 modules *ON-1*	30

4	4th Module (Material Deepening)	94
5	5th Module (Material Deepening)	94
6	6th Module (Material Deepening	94
7	7th Module (Composition)	94
8	Learning Device (ON-2)	35
9	Industrial Visit	20
C.	**SUPPORT**	
10	ON-1 Evaluation (Modules 1 to 3)	3
11	IN-1 Evaluation (Modules 4 to 7)	4
	TOTAL	476

Table 2 describes the structure of the IN-2 program.

Table 2. Program structure IN-2.

No	Material	Lesson hours
A.		**Core**
1	Reflection and deepening of 2 modules ON-2 .	20
2	10th Module Material Deepening	94
3	Strengthening Skills Competence	90
4	Expert Competency Certification	30
B.		**Support**
5	Evaluation ON-2 (8th and 9th module)	2
6	Evaluation IN-1 (10th module)	1
7	Comprehensive Assessment	1
	TOTAL	**238**

1.2. Problem statement and research question

The purpose of the dual skill revitalization is to perfect and align the SMK curriculum following the competence needs of graduate users (link and match). "Link" and "match" suggest that graduates have competitive capabilities, insights, or attitudes, such as work ethics, motivational achievement, mastery, and competitive attitude [5].

Teachers who have been provided with dual skills education in revitalizing vocational education are a solution to develop the ability to carry out learning well. Therefore, this research is considered necessary to determine teachers' ability to teach dual expertise in the automotive field to improve students' capabilities. The question to be solved in this research was how the ability of the dual expertise teacher in the automotive field teaching improves students' capabilities at SMKN 3 Tabanan?

2 Method

The technique used in this research was a quantitative survei to determine the indicators that have the highest and lowest influence on the analysis of the teaching abilities of PKG teachers in the automotive sector on improving student learning in SMK. The population in this study was SMKN 3 Tabanan in the automotive sector expertise competency. The sampling technique used in this study was incidental sampling, namely determining the sample based on

respondents who met the criteria. The number of samples of students used the accidental sampling technique.

The research instrument used was a closed questionnaire with a Likert rating scale. There were a number of statements or questions by providing complete answer choices so that respondents only need to mark the chosen answer. The data analysis technique in this study used descriptive analysis. Descriptive analysis aims to describe in general the characteristics of research respondents.

3 Result

The questionnaire data on the analysis of the teaching ability of PKG teachers in the automotive sector on improving student learning in SMK consisted of three indicators and eleven question items. Based on the descriptive analysis of the variable readiness of dual skill program education teachers in SMK in facing the industrial revolution 4.0 era, the average value = 40.09, median = 40.50, highest value = 44, lowest value = 32, standard deviation = 2,772. The distribution of the frequency of respondents' responses to the variable analysis of the teaching ability of PKG teachers in the automotive sector on improving student learning in SMK as a whole was described in Table 3.

Table 3. Frequency distribution of teaching ability analysis of PKG teachers in the automotive sector on increasing student learning in vocational high schools.

No	Interval	Kategori	Frekuensi	Persentase (%)
1	36 - 44	very good	77	93.9
2	28 – 35	good	5	6.1
3	20 – 27	Not good	-	-
4	11 – 19	Not very good	-	-
	Total		**82**	**100**

Table 3. shows the results of the questionnaire analysis of the teaching ability of PKG teachers in the automotive sector to improve student learning in SMK. There are 6.1%, or five respondents were included in the good criteria, and 93.9% or 77 respondents were included in the very good category. Thus, the overall analysis of the teaching ability of PKG teachers in the automotive sector towards improving student learning in SMK can be said to be very good.

The form of the diagram in **Figure 1** illustrates the frequency distribution of the analysis variable of the teaching ability of PKG teachers in the automotive sector towards improving student learning in SMK seen from each indicator. This result was obtained from the average of the answers to the questionnaire filled out by students.
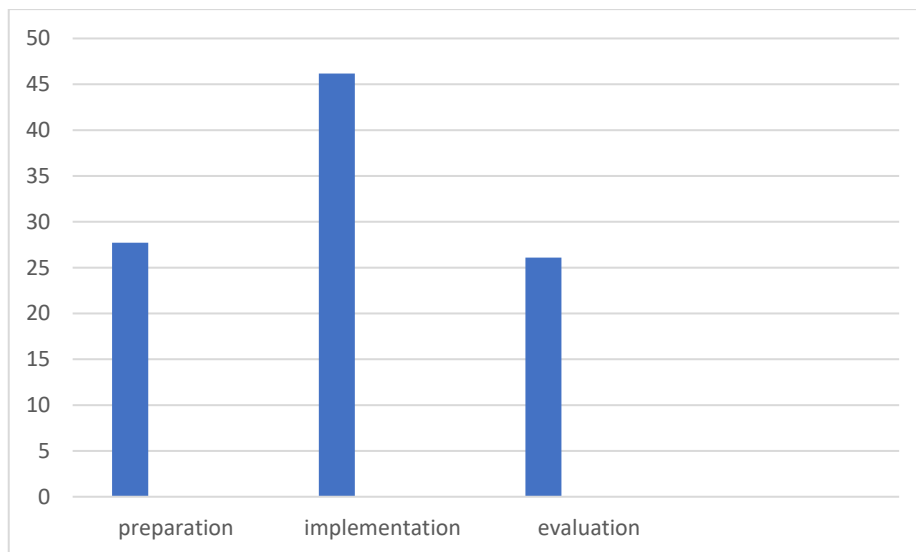
Fig. 1. Frequency Distribution Diagram Indicators of the analysis of the teaching ability of PKG teachers in the automotive sector towards improving student learning in SMK.

Based on **Figure 1**, the average value of each indicator in the variable analysis of the teaching ability of PKG teachers in the automotive sector was described to improve student learning in SMK. The aim was to find out which indicators in the variable analysis of the teaching ability of PKG teachers in the automotive sector towards improving student learning in SMK have the highest and lowest averages. According to the descriptions of each variable indicator, the indicator with the highest average value was found in indicator number two, namely the analysis of the implementation of teaching PKG teachers in the automotive sector to increase student learning in SMK by 46.18%. In comparison, the average value of the lowest indicator was in indicator number three, namely the analysis of the evaluation of teaching PKG teachers in the automotive sector to increase student learning in SMK by 26.10%.

3.1 Analysis of Teaching Preparation for PKG Teachers in the Automotive Sector on Improving Student Learning in Vocational High Schools

Based on the results of filling in the indicator items for the analysis of teaching preparation for PKG teachers in the automotive sector on improving student learning in Vocational High Schools, there was an extreme statement item score because respondents chose a score of four on the item. Respondents who chose the items with the highest score of four were found in items that explained the teacher mastering the learning material well. Extreme item scores occurred because students assumed that the teacher mastered the learning material well, which made it easy for students to understand the material taught by the teacher.

Teaching readiness is a point of maturity or a condition needed to carry out an activity to organize an environment that establishes the teacher as a facilitator to help students learn optimally [9]. Student understanding is the level of ability that expects students to understand the meaning, concepts, situations, and facts they know [10]. Teachers who are well-prepared to teach will be able to instill a sense of enthusiasm in their students' desire to learn, thus increasing the students' knowledge of the content being taught. This reinforced that teachers' readiness in

understanding learning affected students' learning process, so that students can obtain optimal understanding. Teachers who have good teaching readiness and skills could create a more interesting learning process to improve students' understanding. The understanding that students have in their learning will make it easier to accept the material taught by the teacher, which impacts their learning outcomes.

3.2 Analysis of the Teaching Implementation of PKG Teachers in the Automotive Sector to Improving Student Learning in Vocational High Schools

Based on the results of filling out the indicator points for the analysis of the implementation of teaching for PKG teachers in the automotive sector towards improving student learning in SMK, there was an extreme score for the statement item because the respondents chose a score of four on the item. Respondents who chose the items with the highest score of four were found in items that explained about the teacher providing opportunities for students to ask questions. Extreme item scores occurred because many students understood the learning material taught by the teacher. As soon as the teacher invited students to ask questions, many students did so, indicating that they wanted to go deeper into the material they had already learned about. The implementation of learning is a process arranged in such a way according to certain steps so that the implementation achieves the expected results [11]. A question and answer session present a lesson in the form of questions that must be answered, especially from the teacher to students. Using this method properly and appropriately might stimulate students' interest and motivation in learning [12]. Research findings by [2] stated that the question and answer process during learning could improve students' understanding because students directly asked questions related to something they had not understood. This is reinforced by the opinion [13], who said that two indicators that could be used as a benchmark for the success of the learning process are student absorption of lessons and changes in student behavior. The higher the students' absorption of the learning material, the more students' understanding will increase. In line with the opinion [14], which stated that the question and answer session given by the teacher in the learning process could provide opportunities for students to clarify material that has not been understood so that students can understand more learning material.

3.3 Evaluation Analysis of Teaching PKG Teachers in the Automotive Sector To Improve Student Learning in Vocational High Schools

Based on the results of filling in the indicator points for the implementation of teaching PKG teachers in the automotive sector towards improving student learning in SMK, there was an extreme statement item score because respondents chose a score of four on the item. Respondents who chose the items with the highest score of four were found in items explaining the teacher repeating learning that the students did not understand. Extreme item scores occurred because the teacher, at the end of the explanation of the learning material, always asks about the content that has not been comprehended by students, causing students who had not previously grasped the material to gain a better understanding of the material taught by the teacher.

Learning evaluation systematically determines the level of achievement of predetermined learning objectives [15]. Learning evaluation aims to collect information that forms the basis for measuring the level of progress, development, and learning achievement of students and the effectiveness of educators in teaching [16]. Learning evaluation is a systematic collection of facts in determining whether there is a change in reality in a student. It can also be a process of describing, obtaining, and presenting information and evaluating decision alternatives. Research findings [17] stated that to increase students' understanding of learning materials, teachers must

re-explain learning materials that students have not understood or re-explain learning at a difficult level. It is reinforced by the opinion [2], who stated that the teacher's repetition of the explanation of the learning material could increase students' understanding of the learning material, so that the learning conveyed by the teacher can be absorbed maximally by the students. The opinion of [18] support the importance of learning evaluation, stating that good learning is learning that conducts a review at the end of learning, such as asking for material that has not been understood, where this process could improve student understanding.

4 Conclusion

Basically, education is a planned effort that enables students to learn in a good atmosphere and process where all their potential can develop properly. The existing problem was the disproportion between the increased number of vocational teachers and teachers' teaching competence. On the other hand, many teachers still better understand normative and adaptive learning than productive learning.

The solution can be done by empowering teachers through dual expertise programs to develop their potential. The purpose of this study is to analyze the teaching ability of dual expertise teachers in the automotive field to improve students' capabilities. The research method used was survey-quantitative. The results of data analysis based on the description of each variable indicator, the indicator that obtained the highest average value was the analysis of the implementation of teaching PKG teachers in the automotive sector to increase student learning in SMK by 46.18%. Meanwhile, the average value of the lowest indicator was the analysis of the teaching evaluation of PKG teachers in the automotive sector to increase student learning in SMK by 26.10%. Suggestions for further research are that the results of this study can be used as material for academic studies for more in-depth research.

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