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THE COMPETENCY OF LECTURERS AS SUPERVISORS OF THE FINAL PAPER IN THE OFFICE ADMINISTRATION STUDY PROGRAM OF UNIVERSITAS INDONESIA

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Abstract

This study aims to explain the competence of lecturers as a supervisor for the final paper in the Office Administration Study Program of Universitas Indonesia (UI). This research approach used is a quantitative method, which focuses on the use of numbers, tables, and graphs to display the results of the data obtained. To obtain data, the authors distribute questionnaires with several questions to the object of research. This research population is the class student 2016 of the office administration study program who worked on the final paper (tugas karya akhir or TKA). Four aspects of competency were tested in this study: Pedagogical Competency, Professional Competency, Social Competency, and Personality Competency. Based on the results of the study, it can be concluded that the lecturers of the Office Administration Study Program in UI as supervisor the final paper is categorized as competent.

Keywords*: office administration, supervisor, lecturer competency*

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INTRODUCTION

After completing secondary education (*sekolah menengah atas/kejuruan* or SMA/K) some people will continue their education to a higher level (universities, high schools, etc.). It is hoped that continuing to university will produce human resources that have academic and professional abilities in the fields of technology, art, and science (Hariyani, 2017). Either form of supporting the national development of educational institutions is to produce quality human resource output (graduates). The success of an education plan in a country depends on the teacher/lecturer who must be equipped with scientific competence abilities and professional skills (Ilanlou & Zand, 2011).

Besides, in the implementation of tertiary education, lecturers with good performance are needed. To find out whether the lecturer is performing well or not can be seen from how competent the lecturer is and the attitude of professionalism possessed (Permanasari et al., 2016). In contrast to teachers who are only focused on having the role of educators. In general, lecturers must be able to handle two roles at once, namely; professional educator and role as a scientist. In the position of a scientist, a lecturer is obliged to spread his knowledge and do community development.

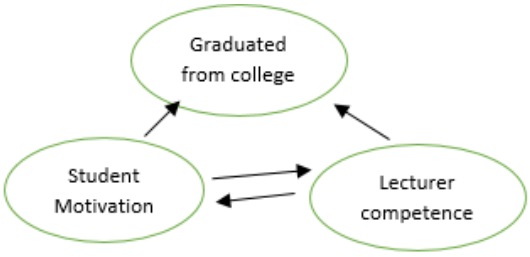

Figure 1. Success Factors for Graduation

Based on Figure 1 and existing research, two factors supporting the success of student learning (graduation) are student motivation and lecturer competence. Learning motivation becomes a factor of learning success in higher education because students have very strong freedom without parental control. Success in completing the final paper (*tugas karya akhir* or TKA) is influenced by the motivation that students want to achieve. If the motivation that is built is correct, it will accelerate the graduation of these students (Hatip et al., 2018). Moreover, in the activities of preparing the final paper (TKA), students must have strong mental endurance. During the preparation of foreign workers, it is very possible to cause boredom, boredom and so on.

Motivation in students can come from two directions; external and internal. An external source of student motivation is their perception of lecturer competence. Based on a research by Muntashofi and Kurjono (2015), positive student motivation is positively influenced by lecturer competence by 63%. The same thing is explained by Omar et al. (2017) there is a significant relationship between teacher competence and achievement motivation, and student achievement. Good teaching practices such as; class preparation, quality teaching techniques and responsibility for the class being taught will motivate students to understand the lesson effectively (Omar et al., 2017).

Slameto (2010) states that perception is one of the factors that influence the cognitive aspects of students. In learning activities, a good perception is needed from students regarding the competence of their lecturers. A good perception of the competence of lecturers will encourage and cause feelings of interest to attend lectures/mentoring. Conversely, if a student has a bad perception of the competence of his lecturers, it can cause feelings of embarrassment, lazy to do lectures/mentoring (Sariani & Nurhakim, 2018).

There are several explanations related to perception. First, it is related to stimulus received by individuals in the form of information, events, objects, etc. Then, the stimulus or excitement is given meaning by the individual concerned (Ramadhan, 2009). Second, everyone has different tendencies to see the same thing. Knowledge, perspectives and experience are factors that influence these different trends. Perception relates to the way a person perceives a certain object in different ways, someone tries to interpret it using the senses owned (Hermuningsih & Wardani, 2016).

In general, perceptions have several stages: the process of receiving stimuli, the process of selecting, the process of organizing, the process of interpretation, the process of checking, and the

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reaction process. During the guidance activity takes placethere will be a reciprocal relationship between lecturers and students. When the interaction happens, students will give attention and assessment of the lecturer. Assessment activities or give meaning to an object is called perception. Thus, the perception of students for lecturers is student assessment regarding the competence of lecturers during TKA mentoring activities occur.

Competency is the origin of words of *kompetensi* in Bahasa Indonesia that can be interpreted as basic abilities or skills. Competence can also be interpreted as a performance that can be accounted for so that a goal is achieved (Muzdalifah, 2009). According to the Oxford Dictionary, competence is "the ability to do something" or "the ability to complete tasks". The Macquarie Dictionary defines competence as "quality to be competent", while competent means "to meet the requirements well" (Hager & Gonczi, 1996).

Moeheriono as cited in Jufri (2018) defines competency as the underlying characteristics of a person related to the effectiveness of his work performance or the basic characteristics of individuals who have a casual relationship or cause and effect on criteria used as a reference or to perform prime or superior at work. Besides, competence can be translated as a basic characteristic of someone who allows them to display performance related to their work. Competence is very much tied to one's personality and can be predicted in various circumstances and jobs. To find out a teacher/ lecturer "competent or not", evaluation activities must be conducted (Pattiasina et al., 2016).

The four competencies set out in the Teacher and Lecturer Law are: pedagogical competence (ability in managing learning), professional competence (mastery of extensive and in-depth lecture material), social competence (ability to communicate and interact effectively and efficiently with students and or the surrounding environment), and personality competence (strong, moral, and exemplary personality abilities). Those competencies must be possessed by lecturers (Suarjana & Yintayani, 2017).

In supporting the success of student learning, lecturers play an important role. Lecturers do not merely role as teachers, but they also need to act as: motivators, role models, directors, and facilitators in the success of their students, more specifically in completing final paper (TKA). Based on the background, the author aims to to explain the competence of lecturers as supervisor the final paper in Office Administration study program.

RESEARCH METHOD

A process of finding knowledge by using data in the form of the numeral as an analysis tool about something you want to know is the definition of quantitative research (Kasiram, 2008). The entire research subject is the definition of the population, while the sample is representative of the population to be examined (Arikunto, 2010). The sampling technique used in this study is purposive sampling. Purposive sampling is a sampling technique with a specific purpose.

In this paper, the samples were taken from students in semester 6 or currently on an internship. The objects of perception by students were seven lecturers who supervise final papers. This research is related to student perceptions. Hence, the question for "competency indicators" used a modified Likert scale, namely: (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree.

The data analysis technique used in this research is descriptive statistical analysis with several steps conducted as follows. (1) Determining the maximum score (SM), namely the ideal score achieved in an answer, in which ∑SM= the highest score of Likert Scale x number of respondents. For example, the total respondents are 10, then multiplied by the highest likert scale, obtained 40. (2) Determining the total score obtained (SO), namely the total results of data collection from respondents' choices, in which ∑SO = choice of likert scale number of respondents x number of respondents. For example, the total respondents are 10, then five people choose likert scale 3, five people choose likert scale 4, so ∑SO = (3 x 5) + (4 x 5) = 15 + 20 = 35. (3) Determining the competency gap percentages (P) with this formula presented in Formula (1). The calculation results are classified into four categories, as presented in Table 1.

$$P = \frac{\sum SO}{\sum SM} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

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Table 1. Category of Competence

Interval (%)	Category
≥ 81.25 % - 100 %	Competent
≥ 62.50 % - < 81.25 %	Fairly Competent
≥ 43.75 % - < 62.50 %	Less Competent
≥ 25 % - < 43.75 %	Incompetent

Questionnaires distributed to respondents were tested for validity and reliability. Validity test is conducted to determine the ability of research instruments to measure what should be measured. Reliability test is used to measure the consistency of measuring instruments in measuring a concept or can to measure the consistency of respondents in answering question items in the questionnaire. The indicators for this research, as divided into four categories of competency, are as follows. (1) For pedagogy competency, the indicators are (a) well prepared in mentoring final paper, (b) regularly scheduled in mentoring, (c) able to raise up enthusiasm student who are mentored, (d) able to explain the material final paper, (e) able to use various media and learning technologies in mentoring the final paper (such as whiteboard, e-learning, etc.), and (f) providing feedback. (2) For professional competency, the indicators are (a) able to provide relevant examples related to the final paper, (b) able to explain the relevance of final paper topics with other fields/topics, (c) able to explain the relevance of final paper topics to real life contexts, (d) mastering the latest issues related to the final paper topic, (e) able to use the results of other research (thesis, final paper, etc.) to improve the quality of mentoring, and (f) able to use communication technology (e-mail, WhatsApp, etc.) to supporting the mentoring process. (3) For personality competency, the indicators are (a) having a dignified attitude in mentoring, (b) having a wisdom in mentoring, (c) having attitudes and behaviors that can become a model for the students mentored, such as being on time and patient, (d) able to control themselves in various mentoring conditions and situations, and (e) able to treat fairly the students who are mentored. (4) For social competency, the indicators are (a) being able to comunicate the theme of the mentoring well, (b) knowing well the students who are mentored, (c) being easy to get along with various parties such as students, colleagues, etc., and (d) appreciating the diversity of students who are mentored.

RESULTS AND DISCUSSION

Description of the Respondents

In terms of gender, the research respondents are divided into two: male and female, as shown in Figure 2. As many as 91% or 40 people of the total respondents were female, while 9% or 4 of the total respondents were male. In terms of the Grade Point Average (GPA), it is shown in Figure 3 that 50% of the respondents or 22 students mentored had a GPA categorized into cumlaude category, and 50% of the total respondents had a GPA categorized into very satisfying category. In terms of the lecturer's status, it is shown in Figure 4 that four lecturers or 57% of the subject already have lecturer certificates and three lecturers or 43% do not have lecturer certificates yet.

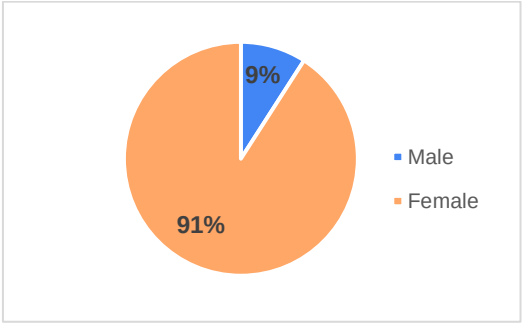

Figure 2. Gender

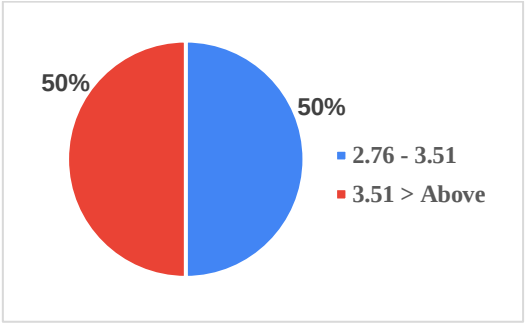

Figure 3. Grade Point Average

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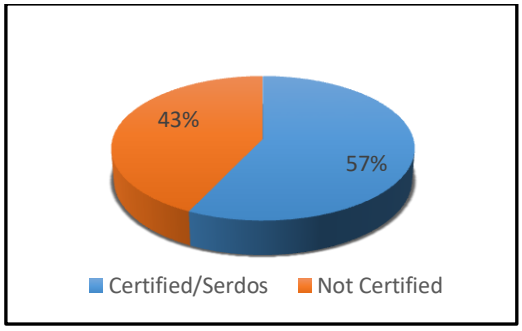

Figure 4. Lecturer Status

Validity and Reliability of the Test

The test validity was conducted with a sample of 30 respondents analyzed using the SPSS software. An instrument is considered valid if the result is: $r_{count} \geq r_{table}$. Based on the results of the validity test of all existing variables, it is obtained that $r_{count} \geq r_{table}$ (0.3494). Thus, all data generated by the validity test is declared valid.

The test reliability was conducted to 30 respondents (students) as sample. The result of the reliability test to 30 respondents is shown in Table 2. It can be seen that the value of *Cronbach Alpha* of the test reliability is 0.975, so the collected data is declared reliable.

Table 2. Reliabilty of the Test

Cronbach's Alpha	N of Items
.975	22

Competency Analysis

Pedagogy Competency

There are six items of indicator for pedagogy competency. The explanation for each item is elaborated as follows. Based on Table 3, the total respondents' score for the indicator of "being well prepared in mentoring final paper" amounted to 148 of the maximum total score that could be reached 176 point. Competency gap for this indicator is 148/176 = 84 percent, so this indicator is categorized as competent. Meanwhile, based on Table 4, the total respondents' score for the indicator of "being regularly scheduled in mentoring" is 142 of the total maximum score that can reach 176. The competency gap for this indicator is 142/176 = 81 percent, thus, it is categorized as fairly competent.

Table 3. Being Well Pepared in Mentoring Final Paper

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	1	2	2
3	Agree	23	69	52
4	Strongly Agree	19	76	43
	Total	**44**	**148**	**100**

Table 4. Being Regularly Scheduled in Mentoring

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	2	2	5
2	Disagree	3	6	7
3	Agree	22	66	50
4	Strongly Agree	17	68	39
	Total	**44**	**142**	**100**

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In addition, based on Table 5, the results of respondents' score for the indicator of "being able to raise up enthusiasm of students who are mentored" is 153 of the maximum value that can reach 176. Competency gap for this indicator is 153/176 = 87 percent. With this score, this indicator is categorized as competent. Based on Table 6, the total respondents' score for the indicator of "being able to use various media and learning technologies in mentoring the final paper (such as whiteboard, e-learning, etc.)" is 134 of the maximum total value that can reach 176. Competency gap for this indicator is 134/176 = 76 percent, so that it is categorized as fairly competent. Based on Table 7, the total respondents' score for the indicator of "being able to explain the material of the final paper" is 152 (86%) of the total maximum score that can reach 176. Competency gap for this indicator is 152/176 = 86 percent, so that it is categorized as competent. Based on Table 8, it is known that the total respondents' score for the indicator of "providing feedback" is 152 of the maximum total score that can reach 176. Competency gap for this indicator is 152/176 = 86 percent, so the indicator is categorized as competent.

Table 5. Being Able to Raise Up Enthusiasm Students Who are Mentored

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	2	4	5
3	Agree	16	48	36
4	Strongly Agree	25	100	57
	Total	**44**	**153**	**100**

Table 6. Being Able to Use Various Media and Learning Technologies in Mentoring the Final Paper (Such as Whiteboard, E-learning, etc.)

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	0	0	0
2	Disagree	10	20	23
3	Agree	22	66	50
4	Strongly Agree	12	48	27
	Total	**44**	**134**	**100**

Table 7. Being Able to Explain the Material of the Final Paper

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	1	2	2
3	Agree	19	57	43
4	Strongly Agree	23	92	52
	Total	**44**	**152**	**100**

Table 8. Providing Feedback

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	0	0	0
3	Agree	21	63	48
4	Strongly Agree	22	88	50
	Total	**44**	**152**	**100**

Of the six indicators in pedagogy competency, overall, the indicators are categorized as competent. However, two indicators need to be improved, namely, "being regularly scheduled in mentoring" and "being able to use various media and learning technologies in mentoring the final paper (such as whiteboard, e-learning, etc.)" because they are considered low (disagree value > 10%). The value weights for the pedagogy competency is in Table 9, where the average weights value of pedagogy competency is 3.34, and the score percentage of conformity with the respondents' expectations for pedagogy aspects is 83%, so the pedagogy aspect is categorized as competent.

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Table 9. Value Weight of Pedagogy Competency

Indicator	Var 1	Var 2	Var 3	Var 4	Var 5	Var 6	Average
Weight	3.36	3.23	3.48	3.45	3.05	3.45	3.34
Percent	84	81	87	86	76	86	83

Profesional Competency

Professional competency has six indicators. Each indicator is elaborated as follows. Table 10 presents the total respondents' score for the category of "being able to provide relevant examples related to the final paper" that reach 151 of the maximum total score that can be 176. Competency gap for this indicator is 151/176= 86 percent, so this indicator is categorized as competent. Based on Table 11, the total respondents' score for the "being able to explain a final paper topics related to other fields/topics" indicator is 148 of the maximum total score that can be 176. Competency gap for this indicator is 148/176= 84 percent, so this indicator is categorized as competent. In addition, based on Table 12, it is known that the total respondents' score for the indicator of "being able to explain relevant topics to the real life context" reaches 143 of the maximum total score that could be 176. Competency gap for this indicator is 143/176= 81 percent. With this score, this indicator is categorized as fairly competent.

Table 10.Being Able to Provide Relevant Examples Related to the Final Paper

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	2	4	5
3	Agree	18	54	41
4	Strongly Agree	23	92	52
	Total	**44**	**151**	**100**

Table 11. Being Able to Explain the Final Paper Topics Related to Other Fields/Topics

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	2	4	5
3	Agree	21	63	48
4	Strongly Agree	20	80	45
	Total	**44**	**148**	**100**

Table 12. Being Able to Explain the Relevant Topics to Real Life Contexts

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	3	6	7
3	Agree	24	72	55
4	Strongly Agree	16	64	36
	Total	**44**	**143**	**100**

Based on Table 13, the total respondents' score for "mastering the latest issues related to the final paper topic" is 148 of the maximum total score that can be 176. Competency gap for this indicator is 148/176 = 84 percent. With this score, this indicator is categorized as competent. Meanwhile, based on Table 14, the total score of respondents for the "being able to use the results of other research (thesis, final paper, etc.) to improve the quality of mentoring" indicator is 140 of the maximum total score that can be 176. Competency gap for this indicator is 140/176 = 80 percent. With this score, this indicator is categorized fairly competent. Based on Table 15, the total respondents' score for the indicator of "being able to use communication technology (e-mail, WhatsApp, etc.) in supporting the mentoring process" is 154 of the total maximum value that can be 176. The competency gap for this indicator is 154/176 = 88 percent. With this score, this indicator is categorized as competent.

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Table 13. Mastering the Latest Issues Related to the Final Paper Topic

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	3	6	7
3	Agree	19	57	43
4	Strongly Agree	21	84	48
	Total	**44**	**148**	**100**

Table 14. Being Able to Use the Results of Other Research (Thesis, Final Paper, etc.) to Improve the Quality of Mentoring

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	5	10	11
3	Agree	23	69	52
4	Strongly Agree	15	60	34
	Total	**44**	**140**	**100**

Table 15. Being Able to Use Communication Technology (E-mail, WhatsApp, etc.) in Supporting the Mentoring Process

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	2	4	5
3	Agree	15	45	34
4	Strongly Agree	26	104	59
	Total	**44**	**154**	**100**

Of the six indicators in the category of professional competence, in general, the majority of respondents give the answer "agree". However, there are two indicators that need to get the attention to improve, namely: “being able to use the results of other research (thesis, final paper, etc.) to improve the quality of mentoring” and “being able to explain relevant topics to the real life context” because they are considered low (disagree value > 10%). As many as 13% of the total respondents said they disagree that lecturers are able to use other research sources. The value weight for the professional competency category can be seen in Table 16, in which the average weight value of professional competency is 3.35, and the percentage of conformity with the respondents’ expectations for the professional aspect is 84%, so the professional aspect is categorized as competence.

Table 16. Value Weight of Profesional Competency

Indicator	Var 1	Var 2	Var 3	Var 4	Var 5	Var 6	Average
Weight	3.43	3.36	3.25	3.36	3.18	3.50	3.35
Percent	86%	84%	81%	84%	80%	88%	84%

Personality Competency

Personality competence has five indicators. Each indicator is elaborated as follows. Based on Table 17, the total respondents' score for “having a dignified attitude in mentoring” is 153 of the total maximum score that can be 176. The competency gap for this indicator is 153/176 = 87 percent. With this score, this indicator is categorized as competence. In addition, based on Table 18, the total respondents' score for “having a wisdom in mentoring” is 153 of the total maximum score that can reach 176. The competency gap for this indicator is 153/176 = 87 percent, therefore, this indicator can be categorized as competent. Furthermore, based on Table 19, the total respondents' score for “having attitudes and behaviors that can become a model for the students mentored, such as being on time and patient” is 146 of the total maximum score that can reach 176. The competency gap for this indicator is 146/176 = 83 percent. With this score, this indicator can be categorized as competent.

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Table 17. Having a Dignified Attitude in Mentoring

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	0	0	0
3	Agree	20	60	45
4	Strongly Agree	23	92	52
	Total	**44**	**153**	**100**

Table 18. Having a Wisdom in Mentoring

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	0	0	0
3	Agree	20	60	45
4	Strongly Agree	23	92	52
	Total	**44**	**153**	**100**

Table 19. Having Attitudes and Behaviors that Can Become a Model for the Students Mentored, Such as Being On Time and Patient

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	0	0	0
3	Agree	27	81	61
4	Strongly Agree	16	64	36
	Total	**44**	**146**	**100**

Based on Table 20, the total respondents' score for “being able to control themselves in various mentoring conditions and situations” is 146 of the total maximum score that can reach 176. The competency gap for this indicator is 146/176 = 83 percent. With this score, this indicator is categorized as competent. Based on Table 21, the total respondents' score for “being able to treat fairly the students mentored” is 148 of the total maximum score that can reach 176. The competency gap for this indicator is 148/176 = 84 percent. Therefore, with this score, this indicator is categorized as competent.

In the personality competency category, there are five indicators. In general, the majority of the respondents give the answer "agree". The value weight of the personality competency category is presented in Table 22, in which the average value weight of "personality competency" is 3.39. The percentage of conformity with respondents' expectations of the personality competence aspect is 85%. Therefore, this aspect is categorized as competent.

Table 20. Being Able to Control Themselves in Various Mentoring Conditions and Situations

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	1	2	2
3	Agree	25	75	57
4	Strongly Agree	17	68	39
	Total	**44**	**146**	**100**

Table 21. Being Able to Treat Fairly the Students Who are Mentored

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	0	0	0
3	Agree	25	75	57
4	Strongly Agree	18	72	41
	Total	**44**	**148**	**100**

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Table 22. Weight Value of Personality Competency

Indicator	Var 1	Var 2	Var 3	Var 4	Var 5	Average
Weight	3.48	3.48	3.32	3.32	3.36	3.39
Percent	87	87	83	83	84	85

Social Competency

Social competency has four indicators. Each indicator is elaborated as follows. From Table 23, the total respondents' score for "being able to comunicate the topic of mentoring well" is 147 of the total maximum score that can be 176. The competency gap for this indicator is 147/176 = 84 percent, so this indicator is categorized competent. In Table 24, the total respondents' score for the indicator "knowing well the students who are mentored" is 143 of the maximum total score that can be 176. Competency gap for this indicator is 143/176 = 81 percent. With this score, this indicator is categorized fairly competent. Based on Table 25, the total respondents' score for "being easy to get along with various parties such as students, colleagues, etc." is 148 of the total maximum score that can be 176. Competency gap for this indicator is 148/176 = 84 percent, so this indicator is categorized competent. From Table 26, the total respondents' score for "appreciating the diversity of students who are mentored" is 151 of the total maximum score that can be 176. Competency gap for this indicator is 151/176 = 86 percent. With this score, this indicator is categorized as competent.

Table 23. Being Able to Comunicate the Topic of Mentoring Well

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	1	2	2
3	Agree	24	72	55
4	Strongly Agree	18	72	41
	Total	**44**	**147**	**100**

Table 24. Knowing Well the Students Who are Mentored

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	4	8	9
3	Agree	22	66	50
4	Strongly Agree	17	68	39
	Total	**44**	**143**	**100**

Table 25. Being Easy to Get Along with Various Parties Such as Students, Colleagues, etc.

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	2	4	5
3	Agree	21	63	48
4	Strongly Agree	20	80	45
	Total	**44**	**148**	**100**

Table 26. Appreciating the Diversity of Students Who are Mentored

No	Answer Option	Frequency	Value	(%)
1	Strongly Disagree	1	1	2
2	Disagree	0	0	0
3	Agree	22	66	50
4	Strongly Agree	21	84	48
	Total	**44**	**151**	**100**

For the category of social competence, there are four explanatory indicators. In general, the majority of respondents give the answer "agree". However, there is one indicator that needs to be

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improved, namely the “knowing well the students who are mentored” indicator because it is considered low (disagree value > 10%). As many as 11% of the total respondents stated that they disagree that the lecturer as mentor knew the students. The value weight for this category can be seen in Table 27.

Table 27. Value Weight of Social Competency

Indicator	Var 1	Var 2	Var 3	Var 4	Average
Weight	3.34	3.25	3.36	3.43	3.35
Percent	84	81	84	86	84

Based on Table 27, the average weight score of "social competency" is 3.35. The percentage of conformity with respondents' expectations of the social aspect is 84%. With this score, the social aspects is categorized as competence.

The author also conducted in-depth interviews with respondents, referring to two inputs, as follows. (1) The first respondent, Nisa, said: "there are different final paper rules between one one lecturer and another lecturer". This is certainly something that interferes the mentoring process and does not show professionalism. Lecturers must comply with the existing guidelines. (2) The second respondent, Halimah, said that students need to be guided in making a schedule to achieve the writing target. Thus, it will help them complete the final paper on time and help them with material that has not yet been attained, for example, how to quote using the APA method, etc.

CONCLUSION

Based on the results and discussion on the quality of the lecturers’ competence in supervising final paper in the Office Administration study program, some conclusions can be drawn. (1) Student perception of the competence of lecturers in supervising final paper in Office Administration study program for pedagogical competency is competent. This can be seen from the value weight of the pedagogical aspect average of 3.34, with a percentage value of 83 percent. (2) Students' perception of the competence of lecturers in supervising final paper in Office Administration study program for professional competency is competent. This can be seen from the value weight of the professional aspect average of 3.35, with a percentage value of 84 percent. (3) Students' perception of the competence of lecturers in supervising final paper in Office Administration study program for personality competence is competent. This can be seen from the personality aspect’s average value weight of 3.39, with a percentage value of 85 percent. (4) Students' perception of the competence of permanent lecturers as supervising final paper in Office Administration study program for social competence is competent. This can be seen from the social aspect’s average value weight of 3.35, with a percentage value of 84 percent.

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THE EFFECTIVENESS OF FAMILY WELFARE MOVEMENT PROGRAM IN SLUMS

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Abstract

Demands for family needs are increasing along with the changing times and science. Thus, Family Welfare Program or Program Kesejahteraan Keluarga (PKK) is nationally aimed to empower families to improve prosperity towards faith and devotion to God; virtuous morality; health; prosperity; independence; gender equality, justice; legal and environmental awareness. This paper aims to provide a descriptive picture to PKK Deliksari management about the level of implementation of the members of each workgroup program (I, II, III, IV); give a picture to PKK management about which workgroup is responded mostly by members; provide an overview of the skills education that is most interesting in Deliksari community, so it can be followed up through village entrepreneurship training; provide an overview of facilities needed to motivate the community to increase efforts. The research was conducted in Deliksari. The total respondents are 58 people determined by purposive sampling. The data collection tool is questions with multiple answers corroborated by in-depth interviews with management, some members, and field observations. The study found that the achievement of program implementation percentage included the average achievement of workgroup I in the high category; the average achievement of workgroup II in the medium category; the average achievement of workgroup III in the medium category, the average achievement of workgroup IV in the medium category; the average achievement of workgroup I to IV in the medium category; and the highest percentage, that is, from residents choosing "baking cookies" skill (63.79%), sewing skills (13.79%) and planting fruit around the houses (22.41%).

Keywords: *PKK, family welfare, slums, weak economy*

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INTRODUCTION

The growth of slums in the suburbs has become an extraordinary phenomenon in the portrait of urban population. Although not similar one another, the growth of urban slums in less developed regions around the world is increasing very rapidly to reach an average of two percent each year compared to 0.5 percent in more developed regions (United Nations, 2015). There are one billion people living in slums today, and by the end of 2030, it is predicted to be two billion, and to three billion by 2050 if current trends persist (UN-Habitat, 2010). The emergence of slums has regional and global implications, affecting education, health, child mortality, socio-political exclusion and the like (UN-Habitat, 2003). Work routine is the main key to prosperous family achievement. However, the fact is that most of the people of Indonesia have not been able to meet the needs of a decent life, even though they have worked hard. Deliksari is one of villages in the Gunungpati subdistrict of Semarang City. Its majority of the population is on the poverty line (Kuswardinah et al., 2019; Kuswardinah & Kariada, 2010). The fact that there is always a lack of infrastructure and basic services, such as water, sanitation and health care needed to anticipate an increase in the number of settlers (Cohen, 2006; Montgomery, 2008). It is recognized that those who live in such residential areas suffer at the spatial, economic and social exclusion levels of the urban population (Jones, 2017). Their employment status is precarious, such as buskers, domestic helpers, porters or domestic servants, scavengers and so on. However, some of them also sell food and simple side dishes, and also offer cooking services. The majority of their education level is low, and even some do not receive education. The level of income is also low and precarious, whereas the level of children's health is highly correlated with maternal education (Duflo, 2012), even though this relationship is not a causal relationship. However, there is some evidences that poor health is found in many slums, such as in western Africa, Sub-Saharan (Bocquier et al., 2011; Günther & Harttgen, 2012), in South Asia specifically Bangladesh (Gruebner et al., 2011), and also India (Gaur et al., 2013; Hazarika, 2010). Consequently, children and adolescents growing up in such poverty must be the main target group for prevention and health promotion (Lampert & Kuntz, 2019). Slums are often characterized by conditions that describe adjacent settlements, poor sanitation, and lack of access to drinking water (Sclar et al., 2005). There is a thesis that is very common and accepted, that the characteristics of slums have a strong tendency to produce poor health performance, and ironically the impact goes beyond just living poor and also other characteristics that can occur at the individual level.

Family Welfare Movement program or *Program Kesejahteraan Keluarga* (PKK) is a government program that is operated in every family settlement in the jurisdiction of Indonesia, which contains 10 main programs. PKK movers are dominated by women without distinguishing employment status, and the aim is to achieve a prosperous family. A prosperous family is the result of a long family process where members feel safe, secure and comfortable by obtaining physical, spiritual and social health insurance (Kuswardinah et al., 2019). PKK is a national movement in community development that grows from the bottom, with the concept of: from, by and for the community. Women's participation in slums is a verified assumption, because women in slums tend to have useful skills. They are resilient individuals who are honed from the capacity to take care of households that are always in a critical position, also conditioned in cultural norms that often do not provide the same legal rights and status as men (Cities Alliance, 2011).

The 2015 National Working Meeting on Decree of the PKK resulted in ten main programs that are carried out through four working groups, namely: (1) workgroup I fosters the P4 and mutual cooperation programs; (2) workgroup II fosters the programs of education, skills, and cooperative life; (3) workgroup III fosters the programs of food, clothing and shelter management; (4) workgroup IV fosters health, environmental sustainability, and health planning programs. Departing from the goals of PKK, it is very urgent to encourage family empowerment to achieve a more adequate quality of life.

The condition of the most Deliksari Village people is below the poverty line. This research questions the implications and impact of empowering PKK that is operated through four workgroups, and are expected to improve the quality of life of members, qualitatively and quantitatively. Identifying the skills needed by members was also done to increase their entrepreneurial stock. The

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research outputs are: (1) provide a descriptive picture to the PKK Deliksari management about the level of implementation of the members of each workgroup program (I, II, III, IV); (2) give a picture to PKK management about which workgroup is responded mostly by members; (3) provide an overview of the skills education that are most interesting in the Deliksari community, so that it can be followed up through village entrepreneurship training; (4) provide an overview of facilities that are needed to motivate the community to increase efforts. The results of this study are expected to become a descriptive concept of PKK roles in a weak economic community in improving quality of life.

According to UN-Habitat, the working definition of slums focuses on physical living conditions and legal aspects, namely when a household in which a group of individuals lives under one roof in an urban area that lacks one or more of the following: (1) access to good water; (2) access to better sanitation; (3) security of home land ownership; (4) durability of housing; (5) adequate guest room (UN-Habitat, 2010). Family is the smallest group of people consisting of a man as husband, woman as a wife and child as a result of a legal marriage (Kuswardinah, 2019). Understanding family can be divided into nuclear families, extended families and kinship groups. The nuclear family is a social unit consisting of father, mother and children; in life they have legal, biological, social, psychological and economic ties. Broad family is a family that is not only formed from direct ancestral relationships, but also from marital relationships. Hereditary relationships from extended families occur from a chain of ties between father and mother to children for generations. Kinship group is a combination of a number of extended families based on a lineage of male and female ancestors. What is meant as family in this research is nuclear family.

A good quality family is a family that can carry out activities as functions, namely the family as a biological, economic, social, psychological, and educational function. In general, good quality family is said to be a prosperous family due to capability to fulfil its physical, spiritual and social needs. Physical needs include food, clothing, shelter, and equipment, whereas psychological needs consist of physical and mental health needs.

According to the decision of the national working meeting or *Rapat Kerja Nasional* (*Rakernas*) PKK in 2005, PKK is a national movement for community development that grows from the bottom. PKK empowers families in order to improve prosperity towards the realization of families who believe in Almighty God, have good character, be virtuous, be healthy, prosperous, advance and be independent, realize gender equality and justice, as well as legal and environmental awareness. The ten PKK programs include: (1) guidelines for living up and practicing *Pancasila* (five pillars of ideology of Indonesia); (2) mutual cooperation; (3) food; (4) clothing; (5) housing and household management; (6) education and skills; (7) health; (8) development of cooperative life; (9) environmental preservation and; (10) health planning. The implementation of these ten main PKK programs is operated through four workgroups, namely: workgroups I, II, III, and IV.

The tasks for workgroup I is to manage the Guidelines for Living Up and Praticing *Pancasila* (P4) and mutual cooperation programs. In more detail explanation, the tasks are: (1) upgrading family resilience to realize the awareness of every citizen about living up and practicing *Pancasila*; (2) increasing the development of children and adolescents from an early age in the fields of mental, moral, religious, ethical, and polite values in the family; (3) improving the acculturation of self-concept in the family through parenting; (4) civilizing legal awareness and increasing family knowledge about applicable laws and regulations, for example: trafficking, human rights, child protection, drug abuse; (5) improving understanding of life skills and parenting skills; (6) increasing awareness of living together, social solidarity, order and environmental security; (7) promoting awareness of the elders; and (8) participating in social service teams and united army activities to build villages.

Pokja II manages educational and skills programs and develops cooperative life, which includes: (1) enhancing education and skills in the family, increasing the types and quality of cadres, improving the knowledge of PKK driving teams and PKK workgroups and homelessness through counseling, orientation and training; (2) carrying out and developing the activities of Infant Family Development (*Bina Keluarga Balita* or BKB) program; (3) strengthening study groups A and B packages, and form package C; (4) improving knowledge and fostering awareness in family about the importance of children's education from an early age (0-6 years) so that children grow and de-

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velop optimally according to their age; (5) assisting functional literacy programs in order to enhance family education; (6) upgrading group and business quality to improve Efforts to Increase Family Income (*UP2K* or *Usaha Peningkatan Pendapatan Keluarga*) of PKK; (7) motivating families about the benefits of cooperatives as an effort to improve economy in the family and encourage the formation of cooperatives managed by PKK; (8) compiling training modules; (9) participating together with workgroup IV in any activities related to Early Childhood Education Program (*Pendidikan Anak Usia Dini* or PAUD).

Workgroup III organizes food, clothing and shelter management program. The operational formulation of workgroup III includes: (1) striving for family food security, increasing the quality and quantity of family food through diversification of food crop cultivation in the environment; (2) fostering public awareness to consume diverse, nutritious and balanced foods, and encouraging the consumption of *halal* and healthy food; (3) doing some efforts to use artificial land, at least for family needs; (4) increasing the use of yard by strengthening yard characteristics to be green, organized, beautiful, and comfortable (which becomes "heart" of PKK); (5) encouraging the use of appropriate technology to improve the quality and quantity of production and ease the workload, also fostering a sense of love for Indonesian food and production; (6) promoting proper food for children and elders; (7) developing creativity of traditional clothing and making souvenirs with traditional/regional motifs to support tourism; (8) creating work in the fields of services, clothing, food and simple healthy housing; promoting healthy and livable homes to support the realization of good quality family life; (9) creating the function of the house as a place for growth and development of the family, strengthening the inner relationships of the family, fostering a fabric of affection, maintaining harmony, norms of life and personality; (10) enhancing cooperation with related agencies, the private sector, social institutions; (11) striving to increase the use of yard for local food supporting the implementation of Provision of Additional Food for School Children (PMT-AS or *Program Makanan Tambahan – Anak Sekolah*) in collaboration with Wokgroup IV.

Workgroup IV manages the programs of health, environmental sustainability, and health planning. The operationalization of workgroup IV includes: (1) improving family knowledge, awareness and ability about balanced health and nutrition, so that families remain healthy and productive in order to reduce morbidity and family mortality; (2) improving awareness to live clean, healthy and preserve the environment; (3) upgrading knowledge of financial management and existing means to create good quality families in accordance with their portions.

RESEARCH METHOD

This research is a descriptive study that describes the percentage of achievements according to respondents' perceptions of PKK program implementation at Deliksari Village, Semarang. It is measured through instruments questioning about: (1) their efforts to improve education and family skills, increasing the knowledge of PKK mobilizing teams and PKK workgroups and homeless through counseling, orientation, and training; (2) attempts to implement the Infant Family Development Program; (3) attempts to enhance knowledge and awareness of the importance of education and care for children to grow and develop optimally according to age; (4) efforts to improve groupwork and Efforts to Increase Family Income (UP2K) of PKK; (5) attempts to strengthen understanding of the benefits of cooperatives in improving the family economy and encourage the formation of cooperatives managed by PKK.

Deliksari Village, Gunungpati Sub-district of Semarang, is located on the southern outskirts, on the highway to Universitas Negeri Semarang. It is next to several developing settlements which are more advanced in socioeconomic status. The research site is figured on the map presented in Figure 1.

The samples are all PKK members who live in RT (neighbourhood) six Deliksari Village, and the number $\Sigma = 150$. Samples were taken by purposive sampling based on literacy and active characteristics as PKK members, each RT was around 50 percent (members and administrators), obtained a sample size of $n = 58$ people. The research variable is the performance of management and members implementing the PKK programs. This research describes the percentage value of the achievements of respondents (management and members) in implementing the PKK programs.

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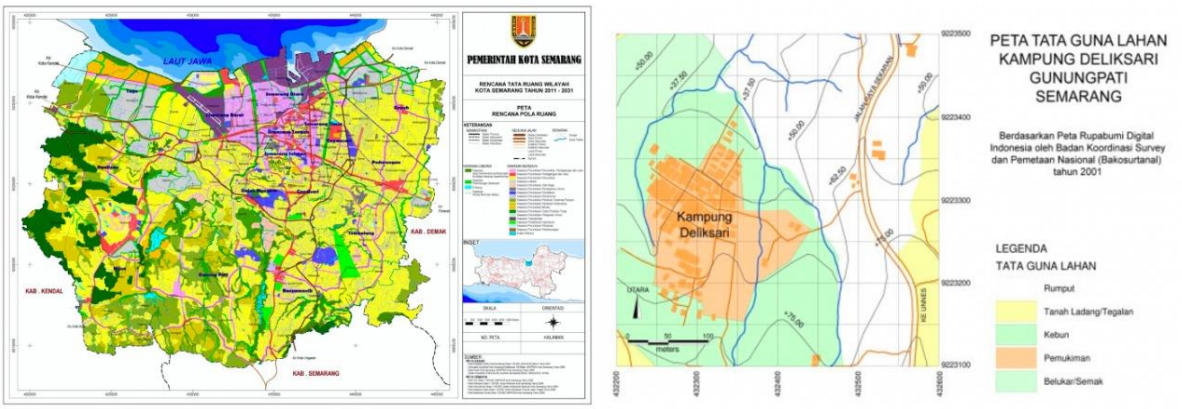

Sources: Badan Koordinasi Survey dan Pemetaan Nasional (Bakosurtanal) (2001); Regulation of Semarang City Region No. 14 of 2011

Figure 1. Location Map of Deliksari Village, Semarang

The data revealed by each measuring instrument are: (1) "achievement of workgroup I" through seven items of action questions, and the choices are: “ever more than once” scores 3, “once” scores 2, “never” scores 1, and Σ achievement of every respondent is $x = (7 \leq x \leq 21)$; (2) "achievement of workgroup II" through eight action questions, and the choices are: “often” scores 3, “rarely” scores 2, “never” scores 1, and Σ achievement score of each respondent is $x = (8 \leq x \leq 24)$; (3) "achievement of workgroup III" through 12 action questions, and the choices are: “often” scores 3, “rarely” scores 2, “never” scores 1, and Σ achievement score of each respondent is $x = (12 \leq x \leq 36)$; (4) "achievement of workgroup IV" through 14 action questions, and the choices are: “often” scores 3, “rarely” scores 2, “never” scores 1, and Σ achievement score of each respondent is $x = (14 \leq x \leq 42)$. Data were tested for validity and reliability. In addition to the filling instruments, data were revealed through in-depth interviews with all management and some selected members. Comprehensive field observations were also made, taking a close look at the facts that occurred in Deliksari Village. The data were then used to strengthen academic arguments for the answers of the instruments. The interview guide revealed: (1) implementation of the main performance of each workgroup, and (2) the constraints faced in achieving organizational targets. The results of the interview were used to strengthen the academic arguments of the respondents' answers.

$$NP = (R \times 100\%) \times (SR)^{-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

The data is categorized by criteria: (1) $X < (\mu - 1.0\ \sigma)$ (low category), (2) $(\mu - 1.0\ \sigma) \leq X < (\mu + 1.0\ \sigma)$ (medium category), (3) $(\mu + 1.0\ \sigma) \leq X$ (high category), where X = score, μ = theoretical mean, and σ = standard deviation. The percentage of achievements in each category is calculated using the formula as presented in Equation (1), where NP = percentage value sought or expected, R = number of respondents in a particular category, SR = total number of respondents, 100 = fixed number (Azwar, 2012).

RESULTS AND DISCUSSION

Description of the 10 Main PKK Programs Implementation in Each Workgroup

The implementation of ten main PKK programs are included in the four working group areas (according to the results of 2015 National Working Meeting of PKK). The first is Work Program 1 (*Pokja 1*). Two focuses of this program are the appreciation and practice of *Pancasila* (program 1 – being obedient and loyal to the country and government by actively commemorating independence day and other holidays) and in mutual cooperation or *gotong royong* (program 2 - community service activities).

The next program is Work Program II (*Pokja II*). This program includes education and skills (program 6 - literacy eradication activities) and cooperative life development (program 8 – actively

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being as PKK cooperative members). Then, the program is Work Program III (*Pokja III*) which includes some activities such as food sector (program 3 - learning the types of healthy food, supplementary foods, etc.), clothing (program 4 - practicing sewing skills, learning simple hand-crafted skills), and Housing and Household Management (program 5 - organizing houses in a healthy and condition healthy toilet). The last is Work Program IV (*Pokja IV*). Some programs are Health Sector (program 7 - actively participating in the activities of *posyandu* for toddlers), Environmental Sustainability (program 9 - planting family medicinal plants) and Healthy Planning (program 10 - actively utilizing the elderly *posyandu*).

The response of residents to the 10 PKK programs was very enthusiastic, and positive. The descriptions of the implementation can be seen from Table 1, Table 2, Table 3, Table 4, and Table 5. Table 1 is about the description of P4 and mutual implementation.

Table 1. Description of P4 and Mutual Cooperation Implementation

Interval Class	Category	Frequency	Percentage
7.0 – 11.6	Low	1	1.73%
11.7 – 16.3	Medium	25	43.10%
16.4 – 21.0	High	32	55. 17%
Total		**58**	**100%**

From the percentage presented in Table 1, it is clear that of the total 58 frequencies of the program implementation, most of them are in high category. Therefore, the mean implementation score is 16.58, which is included in high category. Then, the description of training implementation is described in Table 2.

Table 2. Description of Skills and Cooperative Training Implementation

Interval Class	Category	Frequency	Percentage
8.0 – 13.2	Low	19	32.75 %
13.3 – 18.5	Medium	32	55.18 %
18.6 – 24.0	High	7	12.07 %
Total		**58**	**100 %**

The mean implementation score is 15.03 percent in the medium category. Workgroup III manages food, clothing, and shelter management. In addition, the implementation of food, clothing, and shelter is shown in Table 3.

Table 3. Description of Food, Clothing, and Shelter Management Implementation

Interval Class	Category	Frequency	Percentage
12.0 – 19.9	low	9	15.51 %
20.0 – 27.9	medium	49	84.49 %
28.0 – 36.0	high	0	0 %
Total		**58**	**100%**

Table 3 shows that the average implementation score is 22.12 percent in the medium category. Workgroup IV manages health, environmental sustainability, and health planning.Based on the research finding, it can also be seen from Table 4 about description of health, environmental sustainability, and health planning implementation.

Table 4. Description of Health, Environmental Sustainability, and Health Planning Implementation

Interval Class	Category	Frequency	Percentage
14.0 – 23.2	low	2	3.44 %
23.3 – 32.5	medium	41	70.69 %
32.6 – 42.0	high	15	25.87 %
Total		**58**	**100%**

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The average implementation score is 29.96 percent in the medium category. For workgroup I to IV, the implementation description of joint workgroups is presented in Table 5.

Table 5. Description of Joint Workgroups Program Implementation

Interval Class	Category	Frequency	Percentage
41.0 – 68.2	low	2	3.45 %
68.3 – 95.5	medium	47	81.03 %
95.6 – 123.0	high	9	15.52 %
Total		**58**	**100%**

Identification of Skills, Constraints and Contributions

The skills that Deliksari PKK members are interested in to support family income include: (1) sewing clothes and cooking cakes by 13.79 percent; (2) baking cakes by 63.79 percent; and (3) planting fruit around the house by 22.41 percent. The constraints felt by the management and members in the program implementation were the lack of infrastructure, economic factors, and the difficulty of clean water. The most significant contribution felt by the members was *posyandu* or health monitoring for toddlers, even though in general the implementation of workgroup was in the medium category.

The implementation of the PKK programs in workgroup I concerning P4 and mutual cooperation has achievement in the high category. The phenomenon of mutual cooperation is one of the values becoming the main target of the P4 program. This mutual cooperation has turned to be an inseparable part of the life of Deliksari community, whose majority is at the weak socio-economic level. Mutual cooperation is identical to their lifestyle and is inherent in daily routine. A phenomenon that is diametric with the pattern of life of the middle-upper socio-economic community. The workgroup I management implements programs in time, space and context with other workgroups, but the response of community implementation to the workgroup I is highest. This is allegedly due to the dominant setting factor expressed in the mutual cooperation culture that is inherent among the residents of Deliksari Village.

The PKK programs of workgroup II deal with education, skills training and cooperative life, and the score is in the medium category. The program was repeatedly facilitated by state and private universities, but there was no post-activity as follow up. This is due to the limited facilities and infrastructure that are inadequate in supporting post-training implementation, both the gifts from the facilitator and sought by administrators and members of PKK. In this regard, PKK members might view program implementation as merely socialization from the relevant workgroups, because there was no follow-up for educational messages from ongoing education and training activities. From this circumstance, a tentative conclusion can be constructed, that how inefficient and effective training activities were initiated by outsiders in order to help the community in this newly developing area. There is a simple evaluative calculation that can be submitted to comment on it. First, the parties who helped only carrying out their own program targets without careful planning especially about a sufficient duration. Second, there was a lack of community preparedness in interpreting the activities that they participated in, among them is that they still had difficulties in unraveling the burden of psychological resistance that has been trapping it, namely the perceptions of poverty that are chronic and the dominance of pessimism to be able to change it. The adjustment requires quite a long time and can even be extremely long depending on personal mental quality, and it is impossible for a spontaneous time span to condition change. As an illustration, despite the rapid economic development in the Jakarta metropolitan area, the facts show that in Jabodetabek locations, poverty relatively remains in a stagnant condition, which is around six percent since 2000. This means that poverty reduction programs have no significant effect (Suryahadi & Marlina, 2018). The growth of new settlement with a higher economic level of its inhabitants which takes place particularly around the village of Deliksari, and the city of Semarang in general, actually adds pressure to the citizens of Deliksari which can be categorized as workers with a low skill base (Baker & Watanabe, 2017).

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The program implementation of workgroup III focuses in the field of food, clothing and shelter management, and the score is in the medium category. The implementation of workgroup III is generally hampered by the infrastructure and facilities in the environment, which is relatively limited and even unable to provide adequate support. Besides, the socio-economic factors of the community clearly did not provide opportunities that would have supported the implementation of the program in the daily life of PKK members, although many efforts were made in a planned and systematic way towards them. They were the periodic socialization, counseling, also organizing training by outside parties and related working groups on a regular basis. The conclusions that can be identified from the phenomenon are thought to originate from two dominant causes. First, the mindset of the community is still not able to see the spirit construction of a house as a place to build affection, foster spiritual and academic values. For example, among them the house is still too rare to function as a place to develop mental and spiritual and strengthen the academic capacity of family members. They still think that the two are more properly obtained outside, namely in the *mushola*/mosque and in formal schools. Second, the map and their mental capacity are not yet well established to reach proportionally the images that have been constructed from many beautiful and ideal messages from the PKK program. The focus of their lives is still too busy at the level of maintaining what has existed and faced from morning to night, day after day thus and so onwards. Ironically, in the midst of their world, they are conditioned to tend to experience higher crime rates, both as perpetrators or victims, violence and escalating environmental pressures that increase sporadically, to become a group of citizens who are worthy of suspicion (Braveman & Gottlieb, 2014; Chetty et al., 2016; Stringhini et al., 2010).

The program implementation of workgroup IV deals with health, environmental sustainability and health planning. The achievement score is in the medium category. Despite this, the intensity of activities remains high especially in the health sector. The program consistently runs particularly the *posyandu* (Integrated Healthcare Center), which once a month shared additional food for toddlers. It must be known that there is a significant relationship between the health status of children with mother's education, age of children and the area of residence (Zereyesus et al., 2017). Nutrition intake from the initiation of PKK program is very important for toddlers, although it is really ironic, because the intended nutritional intake is given only once a month. It is more ironic when it is known that malnutrition of mother and child is strongly influenced by the biological sequences of the incidence of maternal malnutrition during breastfeeding (Tigga & Sen, 2016). It is also generally recognized that there is a very significant relationship between the nutritional status of the mother and the health of the child (Islam et al., 1994; Kulasekaran, 2012; Tigga & Sen, 2016).

The activities of preserving environment and health planning do not have field indications that point to its implementation, namely post-socialization and training. This is more due to perceptional limitations among settlers regarding PKK program messages. The above phenomenon gives a clear picture of what actually happened. PKK members have a drive for activities only when there is an appropriate stimulus, for example receiving toddlers' supplementary food becomes more concrete as a motivating factor for their activity rather than an awareness to act on behalf of understanding. The perception of participating to preserve the environment seems to still be a taste of luxury for them. A forced concept, even though it is appropriate and still needed for the long-term interests, is extremely difficult to be done if they do not yet have a deep-rooted foundation for such needs.

The joint implementation of these four workgroups scored in the medium category, which means that the local community feels the application of the four programs running normally, yet it has not been able to take their impression maximally. This refers to the obstacles in implementing the program that were revealed by PKK management and members in the interview. The closest and most concrete factor is the lack of infrastructure supporting the implementation mostly of the program messages from each workgroup. Furthermore, economic factors and difficulties in obtaining clean water add to the routine burden of their lives, and both must be prioritized. Clean water and good sanitation in a settlement can improve health which has an impact on improving socio-economic well-being, for example decreasing diarrheal diseases after an increase in water supply (Clasen et al., 2006; Waddington et al., 2009). Meanwhile, the results of the follow-up impact eval-

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uation concluded, increasing supply of water in a settlement could improve the household economy, because they could reallocate the time saved from collecting water for productive activities (Aiga & Umenai, 2002)

The results of the identification of the types of skills that PKK Deliksari members are interested in are selling food in the form of side dishes and cakes, providing stitching service and using the land around the house to grow fruit. The percentage of specialization in skills expected to be realized can be identified as follows: (1) cooking side dishes and cakes (13.79%); (2) baking cakes (63.79%); (3) sewing clothes and cooking cake (12.04%); (4) planting fruit and flowers and baking cakes (22.41%). Based on these identification results, the average PKK member are interested in improving baking skills. They assume that selling cookies or wet cakes every day can be sold especially if they already have a place and customers. Besides, learning to make cakes for members is easy to do, because of their daily habit of preparing food.

As for the things that are felt to hamper the implementation of the PKK program, according to the management and members of the committee, there is a lack of infrastructure, economic factors, and the difficulty of water which is felt to greatly increase the workload. The average PKK member acknowledges that there is no profit if only to run the PKK program, because these activities do not result in obtaining direct benefits, so they tend to focus more on doing household tasks. An argument of recognition that is very reasonable to accept, nothing is covered, and that is them, citizens who still need primary economic support to continue to survive. They are weak economic groups who are looking for a living as household assistants and must find water to meet their daily needs.

The contribution felt very beneficial by PKK members was *posyandu* (Integrated Healthcare Center) activities. Through this activity, the public could immediately know the health condition and growth and development of their toddlers, in addition to receiving food incentives directly. Although the nominal is very small, the incentive is enough to motivate the active participation of mothers. Giving prizes directly in the implementation of the program was still urgent even though the support was not too big.

CONCLUSION

Based on the research findings, some conclusions can be drawn as follows. First, the PKK program has existed for decades in Deliksari, but in general, there are still many implicative obstacles, namely when assessing the effectiveness of its implementation. In Deliksari community group, there is a strong and rooted perception about what has become life postulate. They live life massively and stagnantly, as a routine without beautiful dreams, without correction, only hunting for the fulfillment of a simple portion of the primary needs of food and clothing for survival. Their conditions are still far from a decent standard. They are still too far to meet the ideal value to construct various businesses in order to achieve family welfare, even if only at a minimal dose;

Second, there is an interesting phenomenon from the performance results of workgroup II in charge of developing P4 and mutual cooperation; the achievement of the average is high. The achievement becomes a spark of light that shows the existence of nationalism and the strong culture of mutual cooperation of new developing settlements (slums), amid the crisis of national commitment and the rise of sectoral egoism of most urban communities. This phenomenon stands against the mainstream ones that have developed lately. Commitment to *Pancasila* shows how the lower-class people have a loyal attitude towards the ideology of the nation, an ideological power that should be appreciated, a luxury of spirit that can correct an awareness not to overdo it in the hunt for material luxury. The strength of mutual cooperation is an indicator of the closeness of relationships between citizens, a sense of unity between the settlers. Based on that rational reason, the national commitment and mutual cooperation attitude both should be cared for and maintained forever.

Third, there was a thought polarization process among PKK members in responding to the programs. On the one hand, there was a strong will driving the desire to realize programs delivered and trained, but on the other hand, the reality of routine life was more dominant to build the limitations of realizing it. Thus, the facts are: they are not able to demonstrate any concrete response sup-

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porting the realization of the program. The programs which got positive responses in the form of active participation are programs that cling directly to activities related and potentially give economic value to them, for example, *posyandu*.

Fourth, the skill of making cakes became the most visible choice among PKK members, namely because of the consideration of its usefulness and affordability. The choice of PKK mothers reflects their close mentality to what is related to economic value, an activity that clings to material rewards. Thus, baking skills provide the shortest path to achieving additional benefits.

Fifth, in the context of settler's perspective, the PKK activity programs are positioned as a program that must be followed. It may be that if they have the opportunity to vote, the number of PKK members is not as much as it is now. The motivations were just mixed up in their head; participation was more motivated by fear of alienating government programs, rather than participation that rose from consciousness itself. There is no pure awareness among them in participation. Settlers of new developing areas are still growing preoccupied with the completion of basic needs, and it is natural if they prioritize. This is different from the PKK management; activities to deliver PKK members' programs are a binding obligation even though they do not receive compensation.

Sixth, the implementation of the PKK programs in Deliksari, Semarang City, has not had a systemic impact that is able to significantly change the quality of the members' perspective, especially their behavior. They are still imprisoned in a preoccupation with strict care and discipline of survival in their own way. Not enough evidence was found about the influence of the PKK programs to be able to shift their life postulates to areas that would have an impact on improving the family's economy. Although they welcomed with joy the PKK programs, which are actually needed, the existence of the programs as facilitator yet could not change them. According to the context, the PKK program really must always be present for them to build a personal and group spirit to raise the image as a family or a dignified family group, that is, as idealized and described in the PKK program itself.

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NEED ANALYSIS TO DEVELOP TEACHING MATERIALS AT VOCATIONAL COLLEGE UGM

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Abstract

Needs analysis as an initial process in a course becomes crucial before deciding learning objectives, setting the assessment, creating course design, as well as developing materials. This study aims to describe the English competence and skills needed by the stakeholders and students' perceptions of good teaching materials from various study programs at Vocational College UGM. The methods used in collecting data are questionnaires and interviews. The questionnaire is distributed to the first semester students from all applied bachelor programs in Vocational College UGM using a stratified random sampling method. In addition, the interview is done with all heads of applied bachelor programs in Vocational College UGM for triangulation. The results show that the students are in the beginner level or basic users (A2 level in Common European Framework of Reference for Languages or CEFR). Moreover, the competencies stated in the A2 level are considered needed by the students to master in academic and work-life contexts. Besides, the skill considered as the most important is speaking, followed by writing. The students also propose some criteria of good teaching materials that include the content, sequence, exercise, language features, technology, layout, and price.

Keywords*: needs analysis, English teaching materials, vocational college*

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INTRODUCTION

Needs analysis - a process of analyzing learners' needs in a course used since 1960s during the emergence of English for Specific Purposes (ESP) - has a pivotal role in curriculum and material development to create more meaningful and motivating programs (Dooey, 2010; Richards, 2001; Stoller et al., 2006). Needs analysis (NA) becomes not only a fundamental instrument in ESP course design (West (1994) in Huang, 2010, p. 517), but also fundamental in English for Academic Purposes (EAP) (Hamp-Lyons (2001) in Huang, 2010, p. 518). NA can provide valuable information to help educators make decisions for the courses, and to match the course objectives with the needs of external stakeholder, such as company owners or prospective employers where the students might work after their graduation (Poedjiastutie & Oliver, 2017, pp. 2–3). In other words, a comprehensive NA can fill the gap between what is taught in educational institution and what is really needed in the real world. Moreover, the information obtained from a thorough NA can also be used as the basis to select or design appropriate materials or textbooks as resources to achieve learning goals (Litz, 2001).

Unfortunately, in practice, as a study program that is often proposed to send the lecturers to teach English language courses at Vocational College of Universitas Gadjah Mada (UGM), English program often finds difficulties in determining the teaching materials that fit the users' needs. In fact, the material used has not been completely tailored to the needs of the users in terms of the competencies and skills expected. On the other hand, the English Program is not capable to accommodate all different requests of 13 Applied Bachelor Programs in the academic year of 2019-2020. Therefore, English Program needs to map the teaching material needs for the English language courses, especially for *Bahasa Inggris I* as one of the compulsory courses at Vocational College, UGM, in order to be more focused and outcome-oriented.

This study aims to (1) map the needs of Bahasa Inggris I teaching materials according to the needs of each study program at the Vocational College UGM and (2) look for the similarities of those teaching materials. Therefore, this study focuses on the analysis of teaching material needs for *Bahasa Inggris I* at Vocational College UGM because *Bahasa Inggris I* is the basis for further English language learning in that college. Hopefully, the dominant similarities can be obtained to reveal the tendency of the learning material needs that are suitable for all study programs.

There are several similar studies that have been done in the past, such as two studies titled conducted by Zohoorian (2015) and Li (2014). The first research was conducted by Zohoorian (2015) from the Department of Languages, Islamic Azad University, Mashhad Branch, Mashhad, Iran. The research conducted on the students of Computer Engineering and Information Technology in Iran aims to find the intersection of the skills taught using their module with the needs of the students. The research was conducted by doing interviews. The second study was conducted by Li (2014) from School of Foreign Language Studies, Shandong Jiaotong University, Jinan, China. The study discusses whether and how the needs analysis can be applied in the curriculum development of Business English for improvement of Business English teaching in China.

This research is different from the two aforementioned studies as it leads to the analysis of teaching material needs for Basic English/English for General Purposes not on English for Academic Purposes (EAP) or English for Specific Purposes (ESP). Besides, this study is neither comparing between the needs and use of teaching materials nor describing the implementation process of needs analysis results in a curriculum development. Thus, the study is different from the existing studies and from the studies listed in the references. This study is based on several theories, namely needs analysis, language learning for adults, language competency and outcome-based education.

Needs Analysis (NA)

NA plays an important role as an underlying and initial point for identifying learners' needs as well as for curriculum design, text selection, tasks design, and material development (Huang, 2010, p. 518). Beside the learner's needs, "information about the language itself, the background of the learners and the teachers, and the constraints and resources of the program" are also necessary to be considered since those factors may affect a course or program (Lambert, 2010, p. 99).

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Long (2005, pp. 25–30) mentions that there are several sources of information for needs analysis, namely: published and unpublished literature, learners, teachers and applied linguists, specific field experts, and triangulation sources. Referring to both published and unpublished sources of written information, course designers/researchers do not need to research the things that previous researchers have discovered. Thus, the course designer can utilize the existing written source. Besides, learners have the right to determine what they need or what they want to learn. Discussions between teachers and learners can raise awareness of both parties on the reason they are doing learning activities as well as media and learning objectives. Applied linguists and field experts can also provide feedback on the needs of learning because they often do research or experience in a particular field. In addition, the triangulation sources are often used to increase the credibility of the data iterating. Triangulation can be done by comparing two or more different sources, methods, or theories and sometimes also combining them (Licoln & Guba in Long, 2005, p. 28). The triangulation method may involve the use of different data collection procedures, such as recording, non-participant observation, interviews, questionnaires, and tests, or may also be with case studies and quasi-experimental research methods. Long (2005, p. 29) adds that there are many need analysis for the ESP program that involves data from various sources and/or data collected through different methods.

There are many data collection procedures in needs analysis according to Long (2005, pp. 31–32): non-expert intuition, expert practitioner intuition, unstructured interviews, structured interiews, scheduled interviews, surveys and questionnaires, language audits, ethnographic methods, participant observation, non-participant observation, class observation, diary, journal, and notes, role playing and simulation, content analysis, discourse analysis, rhetorical analysis, corpus analysis with computer, genre analysis, performance test based on criteria, and triangulation methods.

Language Learning for Adults

According to Broughton et al. (2003, pp. 190–191), in some countries where English is a foreign language, it is very common that English lecturers at a university are faced with a group of non-English Program students who need to learn general English skills. General English can be adapted for the purpose of a group of students who need English for special purpose.

Students as adult learners generally have a range of innate experiences and abilities they bring to learning, and they also have different motivations for learning. Diagnostic assessments can be performed to help identify the competency and needs of learners, including the obstacles in learning, as well as resources that may be needed to address the learning obstacles (Looney, 2008, p. 106). This kind of test is intended to seek the gap between learners and the objectives/learning outcomes. Meanwhile, informal interviews can be done to avoid the anxiety of learners. Informal questions are very effective at establishing collaborations between learners and teachers and providing useful preliminary information during the interview, even informal observation and conversation enable the researchers/teachers to make accurate diagnosis of the learner's profile. In addition, learners can also conduct personal assessment of their level of ability based on a specific scale (Looney, 2008, p. 107).

Language Competency

The concept of language competency has been developed over time, but the most influential is the concept introduced by Noam Chomsky about transformational grammar and language components that include competence and performance (Llurda, 2000, p. 85). Chomsky's theory emphasizes that linguistic competence can make a person produce a proper sentence in terms of its grammar. Along with the development of science, Hymes (1972) introduces a communicative competence theory stating that in order to use language, someone requires not only linguistic competence, but also sociolinguistic competencies. The theory implies integration between competence and performance. After that, Canale and Swain (1980) develop a language skills framework that includes three competences, namely grammar competence, sociocultural competence, and strategic competence in which is then supplemented with discourse competence (Canale, 1983).

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With the development of the concept of language competency, that definition also undergoes several changes. Bachman (1990, p. 6) defines language skills as a unity of competence, knowledge, or ability to use language. Nunan (2001) describes language competency as the ability to use a second language for communication purposes. Moreover, based on the article of Renandya et al. (2018), in general the meaning of language skills is the ability to use language for a wide range of communication. Therefore, it is safe to say that language competency covers the knowledge about the language and the ability of using the language for communication, or what is called communicative competencies.

Communicative competencies can be categorized into various levels of proficiency, for example: elementary, intermediate or advanced. An international reference commonly used is the Common European Framework of Reference for Languages (CEFR) issued by the Council of Europe (2001). CEFR consists of six level divisions (A1-C2) where at each level there is a description of the skills and expertise of a person in using the language with A1 as the basic level and C2 as the highest level.

The level of proficiency of a person in language can be measured by assessments, one of which is by carrying out tests. Determination of the proficiency level is also one of the needs analysis activities as the basis of determining the difficulty level of the teaching materials to match the desired learning outcomes. The teaching materials should be one level above the learners' proficiency (i+1), which are often referred to as comprehensible inputs (Lightbown & Spada, 2006, p. 39). That way, the teaching materials will be understood by the learners, while enhancing the learning skills.

Outcome-Based Education

The main component in the Outcome Based Education (OBE) is learning outcome. Learning outcome is a statement of expectation about what the learners will learn and how it is measured (Driscoll & Wood, 2007, p. 5). The achievement of learning can be arranged based on the existing design from external parties and within the institution (internal). The design from external parties can be from the existing policy made by competent institution or government institution. For example, in Indonesia, higher education learning outcomes are stated Indonesian National Qualification Framework (*Kerangka Kualifikasi Nasional Indonesia* or KKNI). Meanwhile, the design of learning access from the internal institution can be compiled by the institution itself based on the input from stakeholders, users, graduates, learners, or teachers.

Study programs/faculties and students are the sources of learning outcomes that are often overlooked. The study program or faculty is actually the most appropriate party in interpreting the vision, mission, as well as values of the institution into the learning outcomes. It is because they understand the content of a particular discipline, understand the character of the learners or students, and also know the expectations of the graduates in their field (Driscoll & Wood, 2007, p. 58).

RESEARCH METHOD

The study was held at a Vocational College in April – October 2019, using a qualitative approach. Data were collected by distributing questionnaire and doing interview. The respondents consists of two groups, namely study program managers/heads and students of all the Applied Bachelor (Diploma IV) of the Vocational College.

Questionnaire in the form of Google Form surveys contains questions about English competencies and skills needed are distributed to students in semester 1 of Applied Bachelor in that Vocational College. The sampling system used is stratified random sampling to classify students based on their study program which is then continued by using random sampling system from each study program. In addition, the interview method is also implemented to find out the expected learning objectives of *Bahasa Inggris I* in accordance with the curriculum applied in each study program, to know more about English communication skills expected by the study program managers, and to know the learning process implemented so far.

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The instruments used in this study are questionnaire using closed and open questions and also a list of interview questions. The questionnaire consists of five sections: the respondent's identity, self-evaluation, English skills needed, English language competence needed, and perception about effective teaching material. The respondent identity section consists of open-ended questions that include the respondent's name, study program and batch, address, and English learning time range. The second part is self-evaluation. Respondents were asked to assess their English proficiency level through closed-questions using Likert scale. In addition, there are also open-ended questions about the type of English competency test ever taken and the score achieved. In the third part, respondents sort the English skills from the less-needed to the most needed skills in the college life and in the working field they will be in. The fourth part about the English competency needed is the core part of the questionnaire in this study. This section consists of a number of closed-ended questions in which the respondents can provide an answer on the Likert scale related to English competence needed both in the academic world and in the working world. The fourth section is designed based on the Common European Framework of Reference for Languages (CEFR) A2 level (beginner/basic user). Meanwhile, some of the competencies of the productive skills (speaking and writing) are taken from B1 level (independent user) to facilitate comprehensible input (i+1) as proposed by Lightbown and Spada (2006, p. 39). The final part consists of closed-ended questions with Likert scale on the perception of effective teaching materials. The section is aimed at finding out the expected aspects of an English language teaching materials to achieve the intended learning outcome.

Meanwhile, there are ten open-ended questions in the interview question list that become the guidance of interview with the study program managers. These questions are about the formulated learning outcomes, the expected communication skills, and language skills that become the learning focus of the study program. Other matters related to the implementation of the learning, constraints faced, and solutions applied are also parts of the interview questions. In addition, graduate work fields and the role of English language competency and skills in supporting general curriculum of the study program and the graduates' performance are also asked during the interview.

Before being administered to collect the data, the designed questionnaire was piloted to 39-semester-1 students from four study programs, namely Applied Bachelor of Economic Development, Applied Bachelor of Banking, Applied Bachelor of Public Sector Accounting, and Applied Bachelor of Property Management and Valuation to know its validity and reliability. The validity of the questionnaire (especially for sections 5 and 6) was measured with the SPSS 25 application using Pearson Correlation and Sig. (2-tailed). From the calculation, it is known that the Correlation score of 50 items in Section 4 is > 0316 (r table) and the score of Sig. (2-tailed) is < 0.05. All question items in Section 4 can be considered valid. As for Section 5, in which it has 22 questions, there are 20 questions that have Correlation score > 0316 (r table) and Sig. (2-tailed) < 0.05, so those 20 questions are valid. However, the remaining two questions are classified as invalid questions and were eliminated from the questionnaire. Then, the reliability test was done with Cronbach's Alpha. Section 4 of the questionnaire has 50 questions with a score of .990 (> 0.60) and Section 5 with 22 questions has a score of .895 (> 0.60), then it can be concluded that all the questions are reliable.

The questionnaire was then distributed via google form to the total of 483 freshmen from 13 applied bachelor programs. After being distributed, data from questionnaires were analyzed with descriptive statistics by specifying the frequency, percentage, mean, and mode. It was intended to seek the tendency or similarity of results from all respondents. The decision to determine the importance of each factor was based on Sudijono (2009, p. 175) descriptors for interpreting the mean scores. Then, data from the interview in the form of recording were transcribed and classified into six categories: learning outcomes; communication skills; focused language skills; learning process, constraints, and solutions; graduate working area; and role of English competency and skills in supporting the curriculum and graduate performances. Those data were used as triangulation.

RESULTS AND DISCUSSION

Results obtained through questionnaires distributed to 483 students of semester 1 of the 13 applied bachelor study programs have some key points of self-evaluation, English language skills

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required, English language competencies required, and perception of effective teaching materials. First, the level of English proficiency of the respondents according to the self-evaluation is depicted in Figure 1. Seventy one percent of respondents (342 students) mention that they are at the beginner level (equivalent to TOEFL 337-459) (Educational Testing Service, 2012). One hundred and thirty five respondents (28%) rate their English proficiency at the intermediate levels, while the other six respondents (1%) feel that they are at the advanced level. It can be said that most of the respondents are in beginner or basic user level (A2) of CEFR (Council of Europe, 2001).

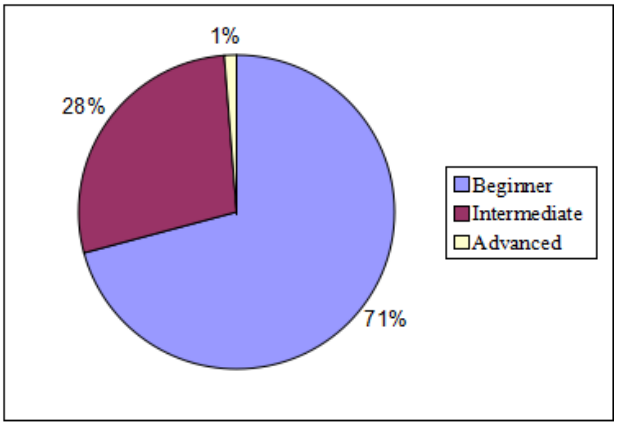

Figure 1. English Proficiency Level

The respondents also assessed the proficiency of each English skill and language features (in Figure 2). Reading skill is assessed as their highly mastered skill with the mean score 3.56. It is followed by skill and language features consecutively as follows; listening (3.20), writing (3.16), pronunciation (3.08), vocabulary (3.05), speaking (2.86), and the lowest is grammar (2.73). The proficiency of the reading skill is categorized as 'good' as it is within the range of 3.40-4.19 and the others are called 'fair' which are within the score range of 2.70-3.39 (Sudijono, 2009, p. 175).

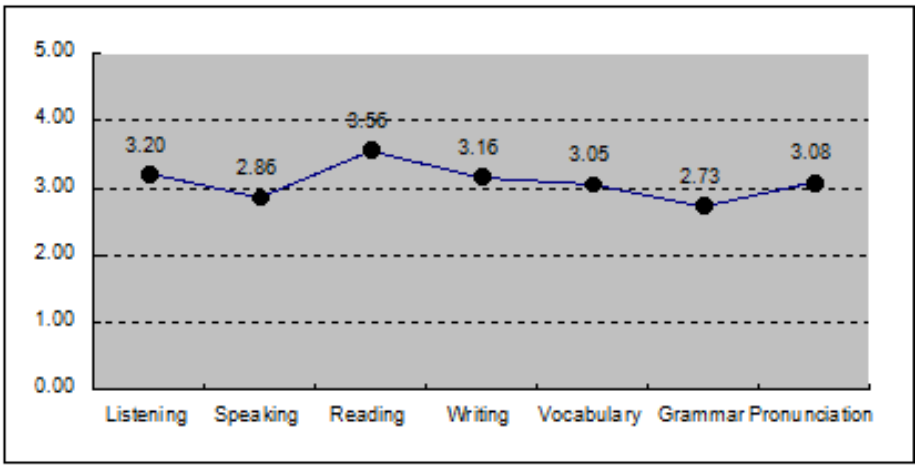

Figure 2. English Language Skills and Features Proficiency

The data of the required English competencies are displayed in the mean score in Table 1, Table 2, Table 3, and Table 4 and perception of effective teaching materials according to respondents is in Table 5. Tables 1 - 4 show the mean score of the response given by all respondents of the close-ended questions using Likert scale with five options, ranging from “totally not needed” to “highly needed”. Based on the criteria adapted from Sudijono (2009, p. 175), 1.00-1.89 means “totally not needed”, 1.90-2.69 is “not needed”, 2.70-3.39 can be interpreted as “fair”, 3.40-4.19 is “needed”, and 4.20-5.00 means “highly needed”.

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Table 1. Required English Competencies for Listening Skill

No	Competencies	Response
	Listening	
1	Able to generally identify the topic of discussion delivered by native speakers	4.47
2	Able to follow a lecture or talk within his/her own field	4.35
3	Able to catch the main point in short, clear, simple messages and announcement	4.12
4	Able to understand directions	3.86
5	Able to understand and extract the essential information from short recorded passages	4.13
6	Able to identify the main point of TV news items	3.75

The mean score for the listening skill has the highest score of 4.47 and the lowest score is 3.75. Of the six competencies offered, item number 1 with the highest score is "able to generally identify the topic of discussion delivered by native speakers" is said to be "indispensable/highly needed". Meanwhile, item number 6 with the lowest score (able to identify the main idea of TV news items) is categorized as "needed" competency.

For reading skills, there are eight competencies that come out in the questionnaire. The competencies that has the highest mean score (4.31/"highly needed") are "to understand basic types of standard routine letters/email (inquiries, orders, letters of confirmation, etc.) on familiar topics" and "to understand regulations (for example safety regulation)", while the lowest (4.07/"needed") is "able to understand simple instructions on equipment encountered in everyday life".

The speaking skill offers 31 competencies. "Able to generally follow changes of topic in formal discussion related to his/her field (e.g. economics and business, electrical engineering, computer, etc)" is a "highly needed" item with a mean score of 4.57. "Able to get all the information needed about travel and tourism" is referred to as 'needed' competence despite having the lowest mean score, which is 3.98.

Table 2. Required English Competencies for Reading Skill

No	Competencies	Response
	Reading	
7	Able to understand basic types of standard routine letters/email (inquiries, orders, letters of confirmation etc.) on familiar topics	4.31
8	Able to understand short simple personal letters/emails	4.15
9	Able to find specific, predictable information in simple everyday material such as advertisements, prospectuses, menus, reference lists and timetables	4.16
10	Able to locate specific information in lists/labels	4.09
11	Able to understand everyday signs and notices: in public places, and in workplaces,	4.08
12	Able to identify specific information in simpler written material he/she encounters such as letters, brochures and short newspaper articles describing events	4.14
13	Able to understand regulations (for example safety regulation)	4.31
14	Able to understand simple instructions on equipment encountered in everyday life	4.07

There are five competencies for writing skill. The highest scoring competence is "able to write very simple personal letters expressing thanks and apology". With a mean score of 4.31, the item can be said to be a "highly needed" competency. The last competency "able to write short poems about people" is deemed "needed" by the respondent because it has a mean score of 3.40.

In general, it can be said that 50% of the overall competencies (25 items) listed in the questionnaire are needed by the respondents in the academic activities and predicted to be needed in their work field. The twenty-five items are dispersed in all four language skills, both receptive and productive, namely listening, reading, speaking, and writing. Meanwhile, another 50% (25 competencies) are considered "highly needed" by the respondents. Therefore, none of the competency is called "fair", "not needed", or even "totally not needed" so that there is no item needs to be eliminated. In other words, all these competencies are indispensable to be accommodated in English

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learning materials of *Bahasa Inggris I.* This confirms that the level of the 1st semester students is A2 because they assume that the competencies designed based on level A2 (beginner/Basic user) in CEFR (Council of Europe, 2001) is needed and even highly needed. Therefore, the teaching materials should become comprehensible inputs, which is i+1 or one level above the learners' proficiency as stated by Lightbown and Spada (2006). By having that concept, the teaching materials will be understood by the learners, as well as enhancing their learning skills.

Table 3. Required English Competencies for Speaking Skill

No	Competencies	Response
	Speaking	
15	Able to maintain a conversation with native speakers on a variety of subjects related to his/her everyday aspect or field of interest	4.55
16	Able to understand and use expressions of greetings and farewells	4.08
17	Able to understand and use expressions of introductions	4.19
18	Able to make and respond to thanks, invitations and apologies	4.30
19	Able to participate in short conversations in routine contexts on topics of interest.	4.40
20	Able to say what he/she likes and dislike	4.03
21	Able to generally identify the topic of discussion around him/her	4.24
22	Able to make and respond to suggestions.	4.52
23	Able to agree and disagree with others	4.33
24	Able to discuss what to do, where to go and make arrangements to meet.	4.52
25	Able to generally follow changes of topic in formal discussion related to his/her field (e.g. economics and business, electrical engineering, computer, etc)	4.57
26	Able to exchange relevant information and give his/her opinion on practical problems	4.51
27	Able to say what he/she thinks about things when addressed directly in a formal meeting	4.55
28	Able to understand enough to manage simple, routine tasks	4.24
29	Able to discuss what to do next, in solving a simple problem or everyday routines.	4.30
30	Able to ask for and give direction and instruction	4.25
31	Able to communicate to ask for and get information about everyday routines	4.44
32	Able to cope and deal with common aspects of everyday living such as travel, lodgings, eating and shopping (e.g. ordering a meal, ordering a taxi, hotel check in/check out, purchasing goods and bargaining a price, etc.)	4.41
33	Able to get all the information needed about travel and tourism.	3.98
34	Able toask for and provide everyday goods and services.	4.04
35	Able to give and receive information about quantities, numbers, prices etc	4.15
36	Able to exchange information about recent issues, habits and routines, pastimes and past activities	4.33
37	Able to exchange information about activities in a work environment, free time and personal information.	4.35
38	Able to communicate ideas and information on familiar topics in an interview	4.47
39	Able to describe briefly present and past events and also present and past activities	4.19
40	Able to describe personal experiences.	4.13
41	Able to describe possessions and compare objects	4.09
42	Able to describe everyday aspects of his/her environment e.g. personal information, people, family, job or study experience in simple terms	4.10
43	Able to briefly give reasons and explanations for opinions, plans and actions.	4.33
44	Able to deliver very short, rehearsed announcements	4.11
45	Able to answer straightforward follow up questions on a delivered presentation	4.50

The final section of the questionnaire consists of closed-ended questions with Likert scale on the perception of effective teaching materials. The section is aimed at finding out the expected aspects of English language teaching materials to achieve the intended learning outcomes.

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Table 4. Required English Competencies for Writing Skill

No	Competencies	Response
	Writing	
46	Able to write very simple personal letters expressing thanks and apology	4.31
47	Able to write short and simple message (in form of notes or written interaction) on a variety of subjects related to his/her everyday aspect or field of interest	4.11
48	Able to write short, simple, free composition about everyday aspects of his/her environment e.g. people, places, events, past activities and personal experiences or his/her topics of interest in linked sentences	4.03
49	Able to write short, simple imaginary biographies about people	3.88
50	Able to write short poems about people	3.40

Table 5. Perception of Good Teaching Materials

No	Criteria	Response
	Content	
1	The contents are relevant with the learned subject	4.50
2	The topics are interesting	4.54
3	The topics are up-to-date and relevant to global needs	4.65
4	The learning materials are authentic (original)	4.46
	Sequence	
5	The materials are arranged sequentially from easy to difficult	4.32
6	The exercises are arranged in a sequence starting from the guided to free exercise	4.42
	Exercises	
7	The instructions of exercises are easy to understand	4.62
8	The content of exercises can be understood	4.47
9	The types of exercises are various	4.59
10	The types of exercises are interesting	4.16
11	The types of exercises are challenging	4.73
12	The types of exercises can train all four skills (listening, speaking, reading, writing)	4.41
	Language Features	
13	There are vocabulary lists	4.41
14	There are useful phrases (expressions) that help increase language proficiency	4.49
15	There are grammar sections related to usage / material context	4.47
	Technology	
16	The teaching material is involving the use of other learning media (audio and video)	4.54
	Layout	
17	The design of the teaching material is attractive	4.48
18	There are illustrations (pictures, tables, graphs, etc.) of the material/explanation	4.47
19	The font type and font size can be read easily	4.39
	Price	
20	The price of teaching materials is affordable	4.55

Table 5 illustrates the perception of effective teaching materials according to the respondents. The criteria of the teaching materials are divided into several aspects: content, order, practice, language features, technology, layout, and price. The respondents' perception is expressed in the options on the Likert scale. The descriptors of the mean score range are "totally insignificant" (1.00-1.89), "insignificant" (1.90-2.69), "fair" (2.70-3.39), "significant" (3.40-4.19), and "very significant" (4.20-5.00) (adapted from Sudijono, 2009, p. 175).

Of the 20 criteria offered in those seven aspects, 19 criteria are considered "very significant". The respondents consider that "challenging exercises" is paramount to them. This criterion is followed by "up-to-date topics/relevant to global needs" also considered very important. Besides, Triyono (2016, p. 356) states that academic institutions need to adjust the teaching materials with the competencies required by the industry. In addition to these two criteria, "easy-to-understand instruction" is the next criterion a teaching material should have. The mean scores of those three criteria are 4.73, 4.65, and 4.62 respectively. Moreover, from the findings, students also consider

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varied exercises, varied teaching media, and interesting topics very important to be in a teaching material. This is in line with the findings of needs analysis by Hamid et al. (2017, p. 153) showing that students need interesting topics as well as active learning process with different types of exercises or activities in their module to increase learning outcomes. In addition to the criteria aforementioned, the other listed criteria are important to be considered in developing teaching materials, especially for *Bahasa Inggris I*, with the lowest mean score of 4.16. By looking at these scores, all the criteria in Table 5 are significant and even very significant for the teaching materials development for *Bahasa Inggris I* at the Vocational College UGM. In addition to data from the questionnaires distributed to the students, there are also data from interview with all (13) heads of applied bachelor programs of Vocational College UGM in 2019-2020. However, there were two heads of the study program that have not been successfully interviewed due to health problem and the leader turnover period. Interview results with 11 heads of study program are summarized as follows.

Learning Outcomes

The learning outcomes formulated by most study programs (from major to less prioritized) are that the students can: (1) communicate in general and workplace context actively and passively, (2) analyze communication results for a specific purpose, (3) do presentation in particular field of study, (4) write a simple report, (5) comprehend text related to particular field of study, (6) understand basic grammar, (7) understand specific terms of particular field of study, (8) obtain certain score in TEVocS, and (9) obtain certain score in general proficiency tests (IELTS/TOEFL/TOEIC).

Communication Skills

Communication skills expected by the program managers are: (1) basic communication in general and work context with co-workers, clients, or vendors, (2) communication to capture the client's needs and analyze it, (3) communication through discussion, (4) communication through presentation, (5) written communication by making a report, (6) written communication through business correspondence, (7) understanding communication ethics, (8) understanding a specific job code of ethics, and (9) communication through academic writing.

Focused Language Skills

The language skills becoming the study program's focus are active skills: speaking and writing, considered crucial since the learning outcomes brought by heads of study programs focus on communication, while students' proficiency in both skills (Figure 2) is still rated "fair". However, other skills and language features such as reading, listening, grammar and vocabulary mastery, and confidence to communicate orally also need to be developed to produce comprehensive outcomes.

Learning Process, Constraints, and Solutions

In its implementation, *Bahasa Inggris I* in most study programs are handled by teachers from English Program. Nevertheless, there are obstacles faced by the study programs, like (1) the shortage of lecturers, (2) the large class size, (3) limited number of classrooms, (4) no adequate language laboratory available, (5) less qualified sound system in classrooms, (6) differences in general terms with specific field terms, (7) limited number of native speakers, (8) lack of courage and confidence to speak or convey ideas/opinions in English, and (9) low TEVocS score of a few students.

The solutions applied to overcome those constraints are (1) in some study programs, *Bahasa Inggris I* is handled by their own lecturers (non-English program lecturers), (2) utilizing the existing classrooms and facilities, (3) utilizing information and communication technology, (4) providing English literature for non-English courses, (5) inviting guest practitioners/lecturers experts in a specific field, (6) inviting expert lecturers (from other countries) in a special program with study programs to have public lectures, (7) encouraging students to join student exchange program, competitions, exhibitions, conferences, (8) providing supplementary materials for TEVocS preparation.

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In addition to solutions, there are also plans that can be applied in order to improve the quality of *Bahasa Inggris I*, such as (1) conducting English language tutorials for certain fields, (2) conducting English Day/English Club, (3) conducting English proficiency test for the admission of new students, (4) making classes more effective by reducing the number of students for each English class, (5) encouraging non-English lecturers to use English in their classes, and (6) proposing a program that enables students from other study programs to take an English course at the English Program.

Graduate Working Area

The working field of the graduate from the 13 study programs are varied. They are archive, medical record field and health information, economics, banking, accounting, property, mechanical engineering, construction, software, internet/network, and electrical engineering.

The Role of English Competency and Skills in Supporting the Curriculum and Graduate Performances

The afore-mentioned English competencies and skills are able to (1) support active communication with many parties, (2) help the students/graduates understand English-language literature, (3) support the preparation of professional certification conducted in English, (4) support the preparation of competitions in English, (5) support internet-based lectures with English materials, (6) support in doing presentation, and (7) support in providing services. In general, the study programs target that the students can communicate in English in academic and workplace context after taking *Bahasa Inggris I*. This reflects the theory of language competency in which the students should use the language for wide range of communication purposes (Nunan, 2001; Renandya et al., 2018).

CONCLUSION

The needs analysis done results in information about the level of English proficiency of the students, learning outcomes or competencies that must be attained by students through *Bahasa Inggris I* course, students' perception about effective learning materials, the learning outcomes, the expected communication skills, and language skills required by the institution. This study leads the writers to move forward to the next study about designing the blueprint of the learning materials.

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SCHOOL MANAGEMENT: THE OPTIMIZATION OF LEARNING FACILITIES TO IMPROVE THE QUALITY OF VOCATIONAL SCHOOLS

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Abstract

The creation of qualified graduates is a parameter of the implementation of quality education. Vocational schools become one of the learning places to produce quality human resources who are ready to enter the world of business and industry. Effective and efficient management of learning facilities and infrastructure is a leadership strategy of the school's related parties to improve the quality of graduates. This research uses a qualitative approach with a case-study design. A total of three vocational schools in Sumedang Regency were selected as research sites. This research aims to understand, describe, and analyze the school principals' leadership strategies in managing and developing learning facilities and infrastructure to improve their graduates' quality. The research data were collected through observation, interviews, documentation studies, and field notes. The results show that despite all the problems due to the limited availability of practical equipment and the minimal cost allocated, vocational schools in Sumedang Regency can produce graduates with the industrial world's certified expertise competencies. The use of learning facilities and infrastructure to improve graduates' quality in the three vocational schools participating in the research has been running optimally. However, the strategy for developing learning facilities and infrastructure has not been implemented as expected. Planning, implementation, and supervision are stages that must be highly considered by school principals in managing learning facilities and infrastructure.

Keywords: *school management, leadership strategy, graduate quality, learning facilities, vocational school*

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INTRODUCTION

Development in the field of education is one of the most strategic steps to increase the quantity and quality of human resources. Empirically, the progress in the field of education in a country has a positive correlation with the increase in the welfare of its citizens. The development of education that is well organized and appropriate will produce an intelligent, competent, productive and competitive society so that it can be the backbone of the social, political, and economic development of a nation. Education in Indonesia as stated in the Law of Republic of Indonesia No. 20 of 2003 concerning National Education System article 13 is divided into three main pathways, namely formal, informal and non-formal education. One part of formal education that contributes to creating quality human resources is vocational education.

Vocational education can be defined from various perspectives. In the school perspective, vocational education teaches how a person can work effectively. Thus, vocational education takes place when an individual or some get information, understanding, abilities, skills, appreciation, interests and or attitudes that enable him to start or continue a productive activity. In vocational education, students are prepared to become professional workers or to continue their education to a higher level (Djojonegoro, 1998; Hamalik, 1990).

In general, vocational education is part of education that makes a person more "employable" in a work group (Evans, 1978). There are several characteristics of vocational education, among others are preparing graduates who can be marketed in the world of work and have the ability to adapt to industrial development, have workshops and laboratories as the main equipment in the learning process that can reflect the world of work situation realistically and educatively, and have cooperative relations with business and industry as a means of synchronizing vocational education programs with the demands of the world of business and industry (Young, 2004). The success of vocational education can be seen from two criteria: the success of students in school (in-school success) and outside of school (out-of school success). The first criterion includes the success of students in meeting curricular requirements, while the second criterion is shown by the success or performance of graduates after being in the real and actual world of work (Idrus & Arviana, 2018).

In connection with the quality of graduates, vocational high schools (*sekolah menengah kejuruan* or SMK) are mandated by the law to prepare human resources who are ready to enter the world of work and become productive workers. This is explained in the explanation of Law of Republic of Indonesia No. 20 of 2003 concerning National Education System article 15 that vocational education is secondary education that prepares students, especially to work in certain fields. Thus, SMK graduates should ideally be quality workers in terms of quality and ready to work directly in the world of business and industry. The quality of graduates here includes several dimensions, namely tangible, empathy, responsiveness, reliability, and assurance (Ilyas, 2004).

Qualified graduates are the output of quality education. Quality education is education that is able to carry out the process of maturation of the quality of students developed by freeing students from ignorance, incapacity, helplessness, untruthfulness, dishonesty, and bad morals and faiths (Mulyasana, 2011). The quality of education is the achievement obtained by the students after completing their studies stated in the form of test scores or learning evaluation scores.

The quality of education with a relative definition has two aspects, namely the measurement of meeting the needs and demands of customers which include parents of students and the community and the measurement of the skills of the graduates in accordance with the school goals set in the curriculum (Nurjaman, 2011). At vocational schools, the curriculum is developed and implemented using a competency-based approach so the assessment of learning outcomes uses a competency-based assessment method. This relative definition of graduate quality and educational quality has implications for management and curriculum in vocational high schools.

Vocational high schools must be managed with reference to the main goal, which is to prepare graduates who are ready to enter the world of work. Vocational management must be designed by considering the effectiveness and efficiency (Hasibuan, 2006; Terry & Rue, 2005; Umar, 2003). The curriculum must also be arranged based on the needs of the world of work. Workshops and laboratories must be provided with the same criteria or at least close to the world of work. This really needs to be a major concern because in practical activities, facilities are a good primary

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learning resource which, if used properly, can help explain something so that information conveyed through practical activities will become clearer (Bafadal, 2004; Departmet of Education and Culture, 1981; Wotto, 2000). Therefore, the learning process in vocational schools must be carried out in such a way that graduates are truly prepared to enter the workforce, in the sense of having the knowledge, skills and attitudes needed in the world of work.

The learning process is a humane interaction between teachers and students who are laden with uncertainty. One factor that causes this major uncertainty is school culture, influenced by leadership styles. Figure 1 shows a chart that explains the role of leadership styles in generating school culture in improving the quality of the Organizing School for Excellence model (Zamroni, 2007).

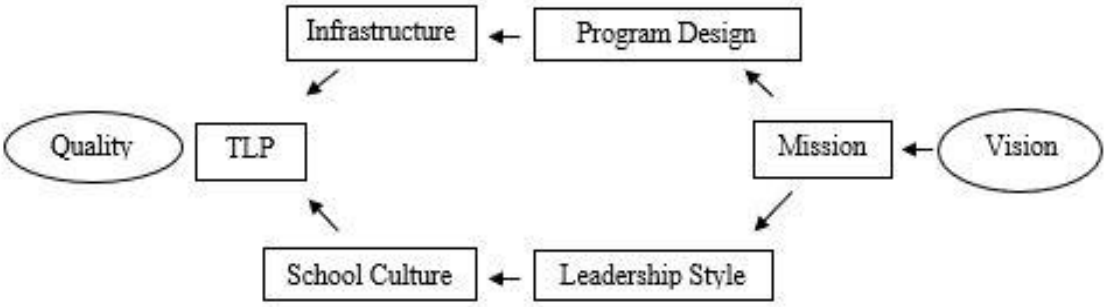

Figure 1. Organizing School for Excellency

The school principal as the top leader in the school has a vital role in a series of school planning, implementation and management activities, including learning facilities and infrastructure. A school principal should implement leadership strategies that are appropriate, effective, and efficient in order to achieve the vision and mission of the school and the creation of qualified graduates.

Based on observations and interviews at a number of vocational schools in Sumedang Regency related to the management of learning facilities and infrastructure, it is known that there are limited numbers of practicum equipment, minimal costs allocated to support practicum activities that require relatively large budgets, and a learning environment that is far from resembling the conditions of the world of work. When compared with other regions in West Java, the practical equipment owned by vocational schools in Sumedang is still far behind.

This research aims to understand, describe, and analyze the leadership strategies of school principals in several vocational schools in Sumedang Regency in managing learning facilities and infrastructure to improve the quality of their graduates. Several similar researches have been conducted before (Indiana, 2005; Taryana, 2011; Taufik, 2011). Teachers also play a role in improving the quality of students through optimizing the use of available learning facilities and infrastructure (Indiana, 2005). In addition, improving student learning outcomes is strongly influenced by the strategic management applied by the schools in developing learning facilities and infrastructure (Taryana, 2011).

The implementation of management of learning facilities and infrastructure requires the involvement of the whole school elements. If one of the elements does not function in accordance with its responsibilities, this will result in the suboptimal goal of the implementation of learning facilities and infrastructure management, which is, to improve the quality of learning (Taufik, 2011). Different from previous researches, the present research chooses vocational high schools as a place of research and specifically establishes three elements of school leadership which include school principal, vice principal in infrastructure, and the head of machinery engineering expertise program as the main subject.

RESEARCH METHOD

This research uses a qualitative approach with a case-study design. Case study was chosen as the research design because it is a design that aims to understand, describe, and analyze in detail and in depth the object being studied. The focus of this research is to understand, describe, and analyze in depth about the leadership strategies implemented by school principals in managing

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learning facilities and infrastructure as an effort to improve the quality of vocational school graduates in Sumedang Regency. In this study the principal acted as the research subject

A total of three vocational schools in Sumedang Regency that have the machinery engineering expertise programs were selected as research sites, consisting of two private vocational schools and one public vocational school. In detail, the purpose of this research is to understand, describe, and analyze (1) how the school principal's leadership strategy in managing learning facilities and infrastructure, (2) what obstacles arise in the management of the learning facilities and infrastructure, and (3) what are the efforts made by schools in overcoming obstacles that arise in managing learning facilities and infrastructure.

In addition to the researcher as the main instrument, the research data were also obtained through observations, interviews, documentation studies, and field notes. Various data collection techniques are used in an attempt to obtain valid data. The results of the interviews are compared with the data obtained from observations and available documents, thus the data will provide valid conclusions after passing the triangulation stage. The interview with the school principal aims to dig deeper information related to his strategy in improving the quality of graduates through the management of learning facilities and infrastructure.

Documentation studies were carried out on documents relating to the implementation of strategies for managing vocational practical facilities and infrastructure, including (1) regulations, provisions, decisions and policies relating to the management of facilities and infrastructure for vocational practices to improve the quality of learning, and (2) physical evidence regarding the management of vocational practical facilities and infrastructure.

RESULTS AND DISCUSSION

The differences in the school principal's strategies in managing the learning facilities and infrastructure at the vocational schools studied are due to differences in strengths, weaknesses, opportunities and challenges faced by each of them. The differences are also caused by the differences in the ability of the school principals as the leaders as well as other school personnel who are responsible for the progress of student learning.

In terms of management, the school principals have divided the tasks and delegated authority to the head of the expertise competency (productive teacher) in the application of the process of managing learning infrastructure or practical facilities. Thus, the management of practical facilities is handled by teachers who have competence in their fields. From the Study of School Activity Budget Plan (*rencana kegiatan dan anggaran sekolah* or RAKS), it is known that funding sources in vocational schools are obtained from the government and parents of students. The existence of quality management operational assistance from the central government aimed at improving the quality of learning in vocational schools has also helped the availability of teaching materials supporting practice in the teaching and learning process.

Based on the data obtained by the researcher, a number of school principals' strategies and other school leadership elements can be formulated in the management of learning facilities and infrastructure to improve the quality of school graduates. These strategies can be seen in Table 1.

Table 1. School Principal's Leadership Strategies in Managing Learning Facilities and Infrastructure

No.	Strategies
1	Developing quality management of practical facilities and infrastructure by increasing the number of practical facilities to meet the Minimum Service Standards (SPM).
2	Improving the quality of human resources and management of facilities and infrastructure for vocational practices.
3	Optimizing the use of vocational teachers in the procurement and maintenance of practical facilities.
4	Optimizing the use of practical facilities owned by schools.
5	Monitoring the learning process in the workshop.
6	Evaluating and revamping the performance that has been carried out.
7	Strengthening the network of cooperation with stakeholders to develop workshops.

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In implementing the strategy that had been formulated by school leaders in order to improve the quality of their school graduates, several obstacles were also found. Table 2 presents the obstacles experienced by schools in the management of learning facilities and infrastructure.

Table 2. Obstacles in the Management of Learning Facilities and Infrastructure

No.	Obstacles	Impacts
1	The lack of funds that can be realized by the school to the competency, in other words the realized funds are smaller than those proposed.	Delays in the process of procurement, use, maintenance and repair. This situation also causes not all competencies that exist in machinery engineering expertise can be fully equipped.
2	Funds allocated, both from parents and quality management operational assistance from the government cannot meet the needs in accordance with curriculum demands.	Meeting the needs of practical tools and materials is an obstacle because the needs of tools and materials for each expertise competency are different.
3	The number of machines needed is limited.	The emergence of damage due to the limited number of machines that causes more hours of use, which leads to the faster level of wear and frequent mild and severe accidents.
4	Lack of funding owned by schools or foundations (private schools) for maintenance.	Not having special technical personnel in the repair and maintenance of practical facilities.

In an effort to overcome the obstacles that arise in the management of learning facilities and infrastructure in order to improve the quality of school graduates, the vocational school principals in Sumedang Regency do several things that can be seen in Table 3.

Table 3. Efforts to Overcome Obstacles in the Management of Learning Facilities and Infrastructure

No.	Obstacles	Solutions
1	Availability of main equipment (machinery) and supporting equipment	a. In the procurement of the main equipment in the form of machines by requesting assistance to the central government, in this case the Directorate of Vocational Development b. Requesting for assistance in the form of grants from the world of business industry c. Collaborating with the Bank to get a machine purchase credit
2	No practical tools and materials	For the upcoming school year, the procurement of tools and materials through purchases is made by the Shopping Team formed by the school principal
3	Overcoming the use of workshop facilities	With an insufficient number of teachers (private vocational schools) where one group is handled by one teacher, the teacher or the head of expertise competency provides guidance to several students who have a prominent ability to help the teacher become a mentor to their peers
4	Overcoming the lack of funds in the procurement, maintenance and repair of practical tools and materials.	To overcome the lack of funds received by expertise competencies, the school through the production unit in the workshop serves the community or industry that utilizes vocational workshops (production unit) in the manufacture of spare parts or construction work (welding). Although it is felt to be able to cope with funds, in its development obstacles in the form of very few or not routine orders from the user are still faced.

In the transformational theory, the school principal must act as an agent of reform that can transform optimally all school resources, including leadership staff, teachers, administrative staff, students, facilities, funds, and external factors in the school in order to achieve meaningful goals in accordance with the target which has been determined in the development of learning facilities and infrastructure (Kwan, 2020; Permadi & Arifin, 2007). The school principal's leadership is observed

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by referring to the four dimensions of leadership (Kruse, 2017; Stein et al., 2016; Sudha et al., 2016). First, the school principal is an idealized influence, which makes his followers admire, respect, and at the same time trust him in carrying out the strategies set before. Second, the school principal is an inspirational motivation, who is able to articulate clear expectations of the achievements of teachers and education staff, demonstrate his commitment to the overall goals of developing learning facilities and infrastructure, and arouse team spirit in school organizations through growing enthusiasm and optimism. With facilities and funds that are still minimal, the school principal is optimistic to develop learning facilities and infrastructure through empowering the resources of the school and establishing partnerships through cooperation with various parties involved and by developing businesses through the production unit.

The third dimension is the school principal as intellectual stimulation, who is able to foster new ideas, provide creative solutions to the problems faced, and provide motivations to vocational teachers to look for new approaches in carrying out tasks for developing learning facilities and infrastructure. Fourth, the school principal is an individualized consideration, who is listening carefully to constructive suggestions from other school elements related to the use of practical facilities and specifically paying attention to the needs and career development of teachers to give excellent performance.

The development of the manufacturing industry requires vocational schools to always prepare their graduates ready to adapt and be competitive in the development of science and technology. This requires them to always develop a curriculum that is in line with the demands of the world of business and industry, which will ultimately demand the development of learning facilities and infrastructure (Akdon, 2009; Sagala, 2011).

In order to meet future market demands, vocational schools must be able to develop learning facilities and infrastructure by completing practical facilities in accordance with the existing technology in the world of business and industry, both conventional and technology-assisted equipment. In addition, in managing learning facilities and infrastructure, vocational schools should not only rely on government funding or educational contributions from parents, but also look for other funding sources.

Sophisticated technology and easy access to information in the 21st century require teachers and school principals to creatively manage learning tools. Learning must be directed to facilitate students to be ready to face the world of work by having critical-thinking skills, creativity, communication, collaboration and ICT mastery skills (Care et al., 2018; Griffin et al., 2012; Griffin & Care, 2015; Shidiq & Yamtinah, 2019; Trilling & Fadel, 2009; Urbani et al., 2017). There have been many innovations made by teachers and students in vocational schools to improve the quality of learning.

Some efforts that have been made are utilizing students' android mobile phones as teaching materials for vocational students in Surabaya (Hakim et al., 2019), using *e-learning* as learning a method in several subject matters (Pevac et al., 2005; Sebnem, 2015; Tuna et al., 2018), link local wisdom into vocational learning (Anggraini & Kusniarti, 2017), using project-based methods by utilizing various facilities owned by students and schools (Chiang & Lee, 2016; See et al., 2015), and using the blended-learning method to maximize the potential of school ICT facilities (Irawan et al., 2017; Sugiarti et al., 2018). The creativity and innovation of learning undertaken by these teachers and researchers can also be used as a reference for teachers and school principals to utilize the potential of the existing facilities so that the learning becomes more interesting and meaningful.

CONCLUSION

In general, the school principal's strategy in optimizing the use of vocational practical facilities to improve the quality of graduates is already good, which can be seen from the students who are declared competent with the issuance of competency certificates from the world of business and industry. The application of the procurement, maintenance, and improvement processes of vocational practical facilities and their relevance to curriculum needs has not been implemented optimally. This can be seen from the type and amount of practice equipment that is still inadequate according to curriculum requirements.

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Optimizing the use of practical facilities is implemented by dividing small groups and combining several competency standards in one teaching-learning activity. Some obstacles faced by school principals in developing learning facilities and infrastructure are that the maintenance of the vocational practical facilities is still not optimal due to the lack of funds that can be realized and the number of productive teachers in their relevant expertise competence is still inadequate. The school principal's efforts to overcome obstacles in the application of the procurement process, the use, maintenance and improvement of practical facilities in workshop management in order to improve graduate quality are carried out in various ways, starting from utilizing existing resources to request for assistance, either through the community, government or through the world of business and industry.

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THE EFFECTIVENESS OF THE PROBLEM-BASED LEARNING MODEL USING PEER ASSESSMENT IN VOCATIONAL HIGH SCHOOL

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Abstract

This study aimed to determine the effectiveness of the effect between the Problem-Based Learning model using Peer assessment and the Problem-Based Learning model on student competencies. The study used a quantitative experimental approach at SMK Negeri 1 Sragen in class XI AK 4 as a control class and XI AK 5 as an experimental class. The population involved all XI Accounting class students totaling 160 students, while the sample consisted of 64 students divided into the experimental class and the control class. The results showed that the first hypothesis obtained Fcount data>Ftable or 5.214> 2.760 and sig values. 0.026 <0.05, then Ho is rejected, and Ha is accepted. Learning using the Problem-Based Learning model with Peer Assessment has an average value of 83.78, higher than the average value of the Problem-Based Learning model that is equal to 81.53. This study concludes that there are differences in the effect between the control class and the experimental class on student competence. The experimental class using the Problem-Based Learning Model using Peer Assessment is more effective than the control class using the Problem-Based Learning model.

Keywords: *problem-based learning, peer assessment, student's competence*

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INTRODUCTION

Learning is a teacher and student activity that is designed to help develop the potential of students into expected competencies. Various attempts have been made by the government in creating learning innovations. Learning innovations carried out usually pay attention to three important reasons, namely effective learning, efficient learning and convenience. Effective learning is learning that is able to bring students to achieve the desired learning goals or competencies. Efficient learning is a learning activity that takes place using relatively little time and resources but produces results that are beneficial to students, while convenience is a source of learning, learning media, and methods that are determined in such a way as to provide a passion for teaching for teachers and students (Pribadi, 2011, p. 15).

Effective and quality learning is when interactions between teachers and students in a learning environment are able to produce changes in student competence. Pribadi (2011, p. 1) argues that to be able to facilitate students in achieving the desired competencies, teachers need to master the ability to design, implement, and evaluate learning so as to create effective, efficient, and interesting learning. Daryanto and Rahardjo (2012, p. 2) revealed that to be able to create conditions for effective teaching and learning, there needs to be changes in classroom management, use of learning methods, teaching and learning strategies, class organizing, and actively involving students. In an effective learning process requires students to be actively involved in teaching and learning activities so as to improve student competency.

Student competence is also influenced by several components in the learning process such as objectives, learning materials, teaching and learning activities, methods, tools, teaching resources, and evaluation (Djamarah, 2005). Objectives are what will be achieved in learning activities. Clear learning objectives will make it easier for students to improve their competency. Learning material is the content or material that will be studied by students. Well organized material will make it easier for students to achieve learning goals. Teaching and learning activities are the core activities in education.

Teaching and learning activities that are running well can produce changes in competence. The method is a method used in learning tailored to the purpose. Tools are all things that can be used in order to achieve learning objectives. The source of teaching is everything that is used in the learning process that is tailored to the objectives, while evaluation is an activity carried out to obtain data about the extent of student success and teacher success in teaching. Proper evaluation will provide information to correct deficiencies so as to improve student competency.

Based on observations at SMK Negeri 1 Sragen, low student competency is possible because the learning process still ignores several learning components, including subject matter that has not been well organized, learning methods are not appropriate and the teacher has not done the evaluation of learning that supports students to learn better. Instead, the learning is centered on the teacher (teacher center) and positions students as objects. As a result, learning is only dominated by teacher lecture activities that is like one-way communication and students tend to be less active in learning.

The learning process that occurs in the field in fact, does not describe an effective learning process that does not involve students actively in teaching and learning activities. The results of interviews with tax administration subject teachers obtained some information related to the implementation of learning. These include: (1) as many as 47% of students when learning are not actively listening to lectures, taking notes and paying attention to the material provided by the teacher, (2) as many as 62.5% students are less participating in the learning process, this is marked by more students passive, students do not dare bring up questions and the lack of opportunity or a forum for discussion, (3) the student lacked discipline during the lesson, some students talking, joking with friends and other activities that have nothing to do with learning, observation results show students are less discipline of 67.5%, (4) the average value of student skills seen from the results of the student worksheet for tax administration material is 60.4, and (5) the assessment is only done by the teacher at the end of the material (the teacher calls it a daily test) before proceeding to the next material without any feedback to students.

Learning components that have not been implemented effectively lead to a low level of student understanding of tax administration subjects. Lack of opportunities for students to communi-

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cate with teachers and fellow students, construct and explore their thoughts in the form of asking questions or giving opinions, can make students less optimal in understanding subject matter. The use of lecture method causes boredom for students, especially in learning tax administration in class XI Accounting at SMK Negeri 1 Sragen so that students become less focused. If allowed to continue it will ultimately result in low student competency. The low competence of students will have some impact students will find it difficult to continue on the next learning. In addition, students will have difficulty solving problems that exist in everyday life.

One effort to improve student competency is to use innovative learning models. One learning model that can be used by teachers and provides opportunities for students to be able to communicate more and can encourage students to think and be active is the Problem-Based Learning model. The problem-based learning model is a learning model that is carried out with the provision of stimuli in the form of problems, which are then carried out problem solving by students, which are expected to increase student competence in the achievement of learning material.

The application of the Problem-Based Learning model requires students to be able to think critically, analytically, and correctly in identifying, understanding, and solving problems, so students can apply learning material to the problems that exist in the surrounding environment. Based on research by Yew and Goh (2016), Hadie and Yusoff (2016), and Wulandari and Surjono (2013), the Problem-Based Learning model affects student learning outcomes and competencies. The Problem-Based Learning process requires a structured and systematic approach; therefore, students are encouraged to be able to present problems systematically. The application of this model can encourage students to be able to solve problems, thereby increasing students' skills in applying the concept of learning material.

Low student competency may also be influenced by the lack of evaluation in the learning process. Evaluation was preceded by an assessment. During the learning process, especially in formative tests, teachers do not give feedback to students which is useful for knowing students' abilities or providing motivation to students. Thus, the Problem-Based Learning model needs to be modified so that the learning component can be fully implemented.

Assessment is the process of obtaining information that can be used as a basis for decision making about students. Budiyono (2011, p. 58) states that assessment that is often done by teachers in Indonesia is a summative assessment that is used to get a score or student achievement without the effort to improve learning. Assessment that can be used to improve the quality of learning is formative assessment.

Peer assessment is an assessment by students of other students, in a formative assessment for feedback and scoring. Peer evaluation involves students assessing and/or providing feedback on their peers' work. Peer assessment includes a process that asks students to provide feedback based on predetermined success criteria.

Peer assessment is one form of innovative assessment that aims to empower students during the learning process and improve the quality of tax administration learning. Tax administration subjects in vocational schools embed many concepts and calculations. Students 'backgrounds have different abilities so that students' competencies also vary. The teacher is required to be able to deliver the material so that each student can master the material provided.

In addition to using the problem-based learning model the teacher can also use the assessment in the learning process. By applying models and assessments that can be used to improve the quality of learning so that students' competencies will increase. The use of the problem-based learning model using peer assessment has the advantage that students can develop new knowledge, students better understand the content of learning, and students can provide feedback on the learning process.

Based on the opinion of some experts problem-based learning model is a learning model that is carried out with the provision of stimuli to identify learning concepts that need to be known by students in the form of problems which then do problem solving by students, which are expected to increase student competence in achieving learning material.

The peer assessment also provides information about oneself and peers that may not be in accordance with what the teacher feels (Alias et al., 2015; Özbıçakçı et al., 2012; Yew & Goh, 2016). Falchikov in Thomas et al. (2011, p. 3) says that peer assessment includes processes that require

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students to give feedback on the learning process, assign values to results, processes and performance based on success criteria where students may also be involved in determining learning criteria.

Problem-based learning is not designed to help teachers provide as much information as possible to students, but problem-based learning is developed for students so that they can develop thinking abilities, problem solving, and student competencies. The application of the combination of Problem-Based Learning models can encourage students to think more critically and more precisely in understanding and applying learning material, then it is combined with peer assessment which helps students to provide feedback in the learning process.

RESEARCH METHOD

In this study, the research design used is factorial design because the information provided by an experiment can be significantly improved by emphasizing the simultaneous effect of two or more independent variables on the dependent variable and also the interaction between some of these variables. This study uses a 2 x 2 simple factorial design to determine the effect of two independent variables on the dependent variable. Data obtained in the study will be processed by conducting a hypothesis test. The hypothesis testing procedure uses an analysis of variance (Anava). This test procedure aims to test whether or not there are differences in the effects of several treatments (factors) on the dependent variable.

This research is experimental research with pretest-posttest. The population involved all XI Accounting class students totaling 160 students, while the sample consisted of 64 students who were divided into the experimental class and the control class. The experimental class is a class in the learning process using the Problem-Based Learning model with Peer assessment, while the control class uses the Problem-Based Learning model.

RESULTS AND DISCUSSION

Prerequisite test results include normality and homogeneity tests. The normality test is used to test whether the sample in the study came from populations that were normally distributed or not. Normality test is used on students' competency data in tax administration subjects using the Problem-Based Learning model with Peer Assessment, and competency data on students in tax administration subjects using the Problem-Based Learning model with student motivation. The results of the normality test are presented in Table 1.

Table 1. Normality Test Data for Student Competency Pretest

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Experimental	.132	32	.168	.946	32	.113
Control	.138	32	.127	.922	32	.024

Based on Table 1, it can be seen that the significance value for pretest data in the experimental class using the Problem-Based Learning model with Peer Assessment is 0.168 and the control class using the Problem-Based Learning model is 0.127 both of which are greater than the significance level α (alpha) = 0.05, so it can be concluded that the pretest value data of the experimental class and the control class come from populations that are normally distributed.

Table 2. Normality Test Data for Student Competency Posttest

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Experimental	.086	32	.200*	.957	32	.226
Control	.119	32	.200*	.962	32	.309

Annotation: *. This is a lower bound of the true significance
a. Lilliefors Significance Correction

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Based on Table 2, it can be seen that the significance value for the posttest data in the experimental class using the Problem-Based Learning model with Peer Assessment is 0.200 and in the control class using the Problem-Based Learning model is 0.200 both of which are greater than the significance level α (alpha) = 0.05, so it can be concluded that the posttest value data of the experimental class and the control class come from populations that are normally distributed.

Meanwhile, the homogeneity test is used to determine whether the sample comes from a homogeneous population or not. Homogeneity test uses the F Levene Statistics test. Homogeneity test results are presented in Table 3.

Table 3. Student Competency Homogeneity Test

Pretest			
Levene Statistic	**df1**	**df2**	**Sig.**
.202	1	62	.655

Based on Table 3, in the pretest homogeneity test, it can be seen the value of the statistical levene is 0.222 with a probability value or sig> 0.05 which is 0.655 then the sample variant is homogeneous. Hypothesis testing is used to answer the research hypotheses that have been conducted. In this study there are three hypotheses: first, there are differences in the effect of the Problem-Based Learning model with Peer Assessment and the Problem-Based Learning model on student competencies, second, there are differences in the effect between students who have high levels of learning motivation and low learning motivation on student competencies, third there is an influence of interaction between the Problem-Based Learning model with Peer Assessment and learning motivation on student competencies. The hypothesis test used in this study is the Two-Way Anova analysis or two-way variance analysis. The results of the analysis is shown in Table 4.

Table 4. Hypothesis Test – Tests of Between-Subjects Effects

Dependent Variable: Class					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	200.625[a]	3	66.875	4.554	.006
Intercept	437582.250	1	437582.250	29797.061	.000
Model	76.563	1	76.563	5.214	.026
Error	881.125	60	14.685		
Total	438664.000	64			
Corrected Total	1081.750	63			

Annotation: a. R Squared = .185 (Adjusted R Squared = .145)

Based on the results of data processing using SPSS V.22, Fcount>Ftable or 5.214>2.760 and sig values. 0.026<0.05, then Ho is rejected and Ha is accepted, stating that there are differences in the influence of the Problem-Based Learning model with Peer Assessment and the Problem-Based Learning model on student competency. There are two types of the hypotheses in this study: the null hypothesis (Ho) and the alternative hypothesis (Ha). Ho states there is no influence or interaction of one variable with other variables, while Ha states that there is an influence or interaction of one variable with another variable. The testing criteria are if the Sig value <0.05, then Ho is rejected and Ha is accepted, while if the Sig value> 0.05, then Ha is rejected.

This study was conducted to determine the effect of the Problem-Based Learning model with Peer Assessment and Problem-Based Learning model on student competencies. This research was conducted in class XI AK 5 by applying the Problem-Based Learning model with Peer Assessment and class XI AK 4 by applying the Problem-Based Learning model. The results of calculations on the first hypothesis obtained data Fcount>Ftable or 5.214> 2.760 and sig value 0.026<0.05 then Ho is rejected and Ha is accepted. Based on the data analysis, there are differences in the influence of the Problem-Based Learning model with Peer Assessment and the Problem-Based Learning model on student competency. Besides, learning using the Problem-Based Learning model with Peer Assessment has an average value of 83.78 higher than the average value of the Problem-Based Learning model that is equal to 81.53.

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The results of this study are consistent with a research by Alias et al. (2015, p. 315) regarding self-assessment, peer assessment, and teacher assessment. The results of the study stated that the results of the pretest and posttest scores of peer evaluations had the highest scores compared to self-assessment and teacher assessment. This is related to two reasons, namely students' reluctance to value others lower than themselves or their belief that others are better than themselves.

With many innovative learning models being used, assessment is an important component that contributes to learning success. Assessment serves to encourage the learning process and provide meaningful feedback for students. Learning as an instructional system refers to a component that depend on each other to achieve the learning objectives.

According to McDonald and Savin-Baden, in learning students are often actively involved in group activities to gain knowledge about the material and problem-solving skills. Thus, in the implementation of Problem-Based Learning, it is important for students to be assessed based on their contribution to group work. Student contributions to group learning in addition to assessments from teachers can be assessed through self-assessment and peer assessment (Alias et al., 2015, p. 310).

Trianto (2012, p. 72) states that the last stage in problem-based learning is evaluation. Evaluations can be done by the teacher, peers, and students themselves. In this study the assessment used is peer assessment, Peer assessment can provide information about themselves and peers who may not be in accordance with what is felt by the teacher (Alias et al., 2015).

Each assessment activity focuses on certain aspects. According to Popham in Budiyono (2011), cognitive aspects of assessment targets focus on students' intellectual operations, affective aspects assessment targets have a focus on attitudes and values of students, and psychomotor aspects of assessment targets have a focus on skills. Thus, the assessment is a procedure for obtaining information about student learning achievement that should be integrated in the learning process in order to support the learning process so as to achieve the learning objectives.

The Problem-Based Learning model with peer assessment can spur students to improve their competence because the use of Problem-Based Learning presents challenges for students to work together in groups, find new information to solve problems, acquire new skills, and be responsible for what they do. When the learning process takes place, students are given the task in the form of problems that must be solved by the group. The problems given are in the form of problems that students must solve to gain knowledge.

The use of Problem-Based Learning can provide free space and thinking processes for students to look for concepts and solve problems related to the material delivered by the teacher. The teacher acts as a facilitator who directs students to be actively involved in the entire learning process by giving problems related to the concepts being learned. Problem-based learning is not designed to help teachers provide as much information as possible to students, but problem-based learning is developed for students to develop thinking skills, problem solving, and intellectual skills.

According to Gielen et al. (2011), there are five general objectives of peer assessment, namely: (1) as a social control tool, (2) as an assessment tool, (3) as a learning tool, (4) as a learning tool for assessing, (5) as an active participation tool. In this study, peer assessment is an assessment tool, where students assess the work of their peers, peer assessment is also a learning tool that is after applying the Problem-Based Learning model and solving problems, students participate in the assessment process. As a learning tool for assessing, students get the right answers along with the steps in the form of rubrics. That way, students who actively participate in learning and can provide feedback on the questions done by their friends, so as to further enhance student understanding.

Asyari et al. (2016) and Downing et al. (2011) in their study concluded that the implementation of Problem-Based Learning encourages students to think critically through planning, debating, raising questions and problems, and analyzing and providing solutions to existing problems in the surrounding environment. In line with a research conducted by Jalani and Sern (2015), the results of the study concluded that Problem-Based Learning improves student test performance during the learning phase. A learning model "Example-Problem Based Learning" provides an example learning strategy and problem solving. Learning through problem solving since students already have knowledge. Thus, this model can improve students' cognitive knowledge. In addition, the results of researches by Sutrisno (2012), Arvianto et al. (2013), and Anggreini et al. (2016) concluded that the application of peer assessment in students' scientific attitudes was effective.

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In contrast to learning that only uses the Problem-Based Learning model without assessment, the application of the Problem-Based Learning model without using assessment also uses group discussion and is given a problem that must be solved by students. Students discuss with each other about the questions given by the teacher, but the assessment is only done by the teacher, and there is a lack of feedback from students because students are not involved in the assessment. The results of the analysis are logical because the model is able to improve students' cognitive competence in calculating Pph article 21.

CONCLUSION

There are differences in the effect of the application of the Problem-Based Learning model with Peer Assessment and the Problem-Based Learning model on student competency. The Problem-Based Learning model with Peer Assessment is more effective than the Problem-Based Learning model. Students who applied the Problem-Based Learning model with Peer Assessment in learning had an average value of 83.78, higher than the average value of the Problem-Based Learning model of 81.53. The Problem-Based Learning model with Peer Assessment can become teachers' reference in choosing innovative learning models. Through an innovative teaching model, teacher is expected to increase students' learning motivation and active participation to encourage them to improve their competencies and learning objectives can be achieved.

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DEVELOPING ENGLISH READING AND WRITING MATERIALS FOR AUTOMOTIVE ENGINEERING PROGRAM IN VOCATIONAL HIGH SCHOOL

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Abstract

The aims of this study are: (1) to identify the needs of grade 11 students of the Automotive Engineering Study Program in learning reading and writing, and (2) to develop appropriate English reading and writing learning materials. This is research and development that employed Jolly and Bolitho's model with some adaptation. The development procedure consists of conducting needs analysis, designing the syllabus, developing learning materials, expert judgment, conducting field testing, and materials evaluation. The research subject was 64 grade XI students of Light Vehicle Engineering or Teknik Kendaraan Ringan (TKR) at Vocational High School (VHS) AX. The needs analysis data indicate that, in learning reading, the students want to learn simple instructions and vocabulary items relevant to the automotive field. They also want to learn to write letters and create simple reports that are relevant to the automotive field. Regarding the theoretical validation, the appropriateness of learning materials is categorized as "very good" according to the expert with a mean score of 3.48 (in the interval $3.28 \leq x \leq 4$). According to the students, the appropriateness of the learning materials is categorized as "very good" with a score of 3.54 (in the interval $3.28 \leq x \leq 4$). In general, the developed learning materials are appropriate for grade 11 students of the Automotive Engineering Study Program of VHS AX.

Keywords: *automotive engineering, materials development, reading, writing*

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INTRODUCTION

Vocational education belongs to the domain of formal education, which is one of three recognized streams of education in Indonesia alongside non-formal and informal education. Within the vocational track, the vocational school offers secular academic subject and subject that focuses on technical skill (Kadir et al., 2016). Vocational Education has a link with industries. The end-users of the skills acquired by vocational school graduates are employers. The fundamental in ensuring that new graduates are equipped with the employment relevant skills is a close partnership between the industries and vocational education institutions. The Indonesian Ministry of Education and Culture pioneered the "link and match" policy for Vocational High School (VHS) and tertiary vocational education to promote an industry-based vocational education model.

Kadir et al. (2016) stated that curriculum development in VHS and the tertiary vocational institution must adhere to the national competency standards at work meant for the courses offered to bridge the gap between what is learned in schools and the actual standards demanded by the industries. According to Komarudin et al. (2017), there are several problems that are faced by Indonesian VHS: (1) the control of vocational competency of students is still categorized less, as much as 20% of Automotive students did not pass in the test, (2) in some researches, the mastery of vocational competence is influenced by many factors: method, learning model, (3) facilities and infrastructure, and (4) self-efficacy should be considered to improve achievement and vocational. Moreover, Haq et al. (2019) mentioned that in the dimensions of being and having self–efficacy as the aspect of being and student-teacher relation. In line with this, Soeprijanto et al. (2019) classified the problems into man, machine, method, material, and money.

Durmuş and Dağli (2017) stated that vocational schools' curriculums need to be re-audited so they can keep pace with rapidly changing industry conditions in recent years. The world automobile industry is expanding fastly, so it has an important role in the Indonesian economy. The branch offices of a foreign automobile company in Indonesia are broader. The condition pushes the graduates of vocational high school to be directed to the workplace, especially in the Automotive sector. There is a potential to use English in daily communication in the context of the Automobile industry. Since Indonesian VHS is applying the 2013-curriculum, the government lacks English learning material that is specific designed for the Automotive field. In terms of learning materials in the 2013-curriculum, they are integrated into two or more skills. An integrated study is, one in which, students broadly explore knowledge in various subjects related to their certain environment aspects.

Brown (2001) believes that when the language skills are integrated, students have a chance to diversify their efforts in meaningful tasks. Reading is one of the respective skills that must be mastered by students, and also writing is the continuity of reading for producing something, namely, productive skills have to be drilled often. In line with this, Richards and Renandya (2002, p. 273) emphasize that good reading texts can provide good writing models and provide chances for stimulating discussion. In the reading class, students are asked to read the text related to their needs in the Automotive Engineering field, while in writing class, they are asked to be ready in writing some texts related to their jobs. Since reading is the continuity of writing, the students can read texts and create similar text with different topics in writing class through reading class.

At Vocational High School *AX*, English for Automotive Engineering is taught by two different teachers for two classes: *TKR A* and *TKR B*. The first teacher teaches the *TKR A* class, the other one teaches the *TKR B* class following the English course syllabus. Vocational High School (VHS) in Indonesia is run under the umbrella of English for Specific Purposes (ESP). The objectives that the students will go to work on are related to their skills. The historical schools' data support that most of the graduates of Vocational High School *AX* are offered to work at an automobile company or workshop, such as *Astra, Mitshubishi, Nasmoco, Suzuki,* and so on. Hence, students need English learning materials containing input texts related to their field, Automotive Engineering.

Since some of the textbooks used by the English teacher and the students are not yet appropriate in Vocational High School *AX*, improvement has to be done in the near future. Currently, the main textbook used at the school is "*Bahasa Inggris*," and students' worksheet (LKS) is "*Master Bahasa Inggris*", both of them focus on General English. Despite the textbook is in line with the required curriculum standard, there is no specific aspect related to Automotive Engineering.

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The fact shows a contrast with the concept of ESP. Hutchinson and Waters (1987) accentuate that what distinguishes English for Specific Purposes (ESP) from General English is the awareness for the former towards the students' needs. The specific inputs in learning English in terms of input texts and the technical terms on Automotive Engineering are needed. The learning materials have been developed to be the guidance for the English teacher in order to consider the learning needs. In line with this, Jaleniauskiene et al. (2019) suggest that educators need to develop and integrate more professional guidance to support the development of students' skills.

Furthermore, in his research, Yang (2019) also got the finding that many students still need the teachers' guidance in studying English as a foreign culture may be new to them. Thus, this research aims to develop English reading and writing learning materials for grade 11 students of the Automotive Engineering study program of Vocational High School *AX*.

RESEARCH METHOD

In developing the learning materials, the researchers adopted the development model proposed by Jolly and Bolitho (Lestari & Priyana, 2019) with some adaptations. According to their model of development, there are some steps to develop the learning materials, shown in Figure 1.

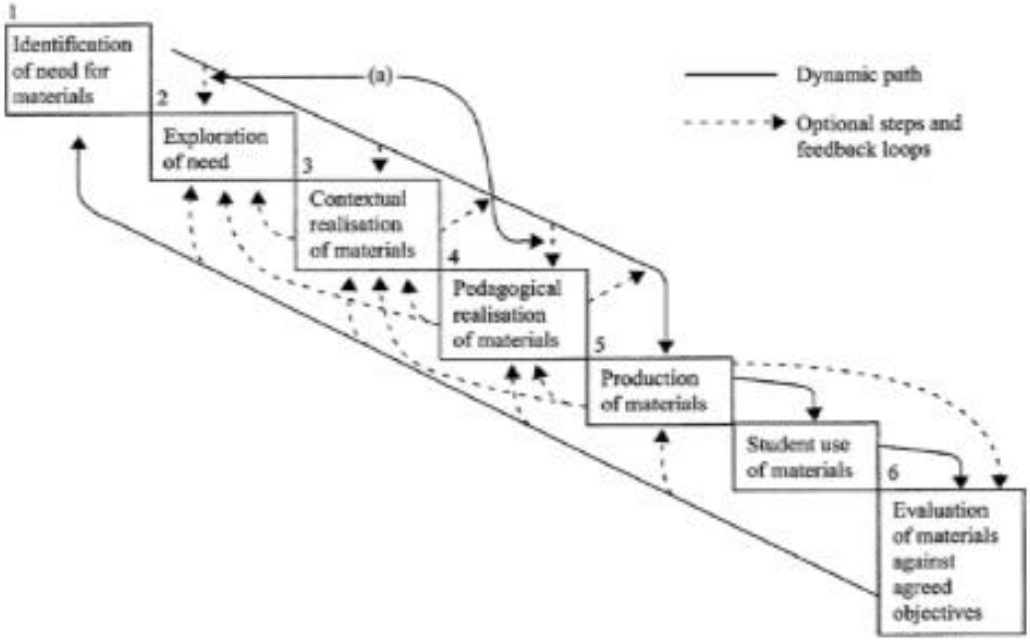

Figure 1. Jolly and Bolitho Model of Development (1998) (Lestari & Priyana, 2019)

However, to make the development steps more feasible, some adaptation of the steps were conducted based on the real condition. The researchers combined the second, third, and fourth steps of Jolly and Bolithos' model of development into one step, namely designing the syllabus. The sequence of the development processes can be seen in Figure 2.

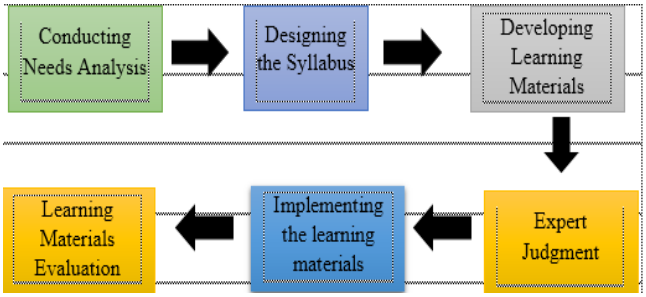

Figure 2. The Model of Development

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At the beginning of the development, the researchers gathered the data by identifying the students' needs. The questionnaire was used to collect the data. Moreover, the researchers conducted an interview with English teachers related to the English teaching-learning process and the vice head master for curriculum concerning the curriculum in Vocational High School *AX*. After that, the researchers analyzed the result of the needs analysis and the interview result as guidelines to design the syllabus and develop the learning materials. Developing the reading and writing learning materials based on the syllabus was conducted in this stage.

The first draft was developed based on the syllabus. The researchers did an expert judgment step. To deal with the validity of the learning materials, the researcher distributed a questionnaire to the expert of the learning materials. The questionnaire covered some items related to identifying the appropriateness of content, presentation, language, and layout. The first product of the learning materials was revised based on the comment, suggestions, feedback, and judgments from the learning material expert. The data from the first product were used to develop the second draft of learning materials. The following step was the implementation of the learning materials. In this step, the students were asked to use the textbook entitled "AUTOCAR English" as supplementary reading and writing learning materials.

The implementations were divided into two stages, namely small group implementation and field implementation. In small group implementations, there were eight students as the sample of the implementation. To gain qualitative data, the researchers did interviews with the students and the English teacher. Furthermore, field implementation was conducted. The researchers distributed a questionnaire to the students after the implementation to gain the data related to the learning materials' appropriateness. In this stage, the learning materials were evaluated whether the materials met the objectives. The evaluation before the implementation was conducted by revising the product based on the suggestion, comments, and feedback from the expert. The evaluation after the product had been implemented regarding the comment and feedback from the students.

RESULTS AND DISCUSSION

The research findings are the need analysis data and the appropriateness of the learning materials to the needs. The findings are described in the following steps of development. The first step of the development was needs analysis. It was aimed to find out the target needs and learning needs. As a learning material for ESP learners, the developed learning materials should be based on needs analysis since this is the difference between ESP from others (Hutchinson & Waters, 1987). In the needs analysis step, the data were collected through observing the existing textbook and documents, conducting an interview, and distributing a questionnaire. The questionnaires were developed by adopting the principle of needs analysis, which is proposed by Hutchinson and Waters (1987). It covers target needs and learning needs. In terms of target needs, the questionnaire items were divided into four components: necessities, lacks, wants, and goals. The results of target needs will be concerned as the basis for developing the learning materials.

Thus, they need activities that can facilitate them to collaborate with their classmates, possibly through discovery learning activities. This is in line with Sutman et al. (2008) that teamwork is considered as an essential development of students' discovery during instruction. It is often advisable that the class can be grouped into teams before a lesson begins.

In terms of learning needs, it covers some key aspects: input, activities (procedure), setting, learners' role, and teachers' role. Those components are also considered as the component of the task on the chapters developed. The first aspect of learning needs is input. Nunan (2004) describes input as the source of learning. In this research, the input of the learning was taken from reliable sources. Based on the result of needs analysis, the students' input texts are those related to Automotive Engineering. Since the developed materials are reading and writing, the given input texts were in the form of written texts. Among the graduate of technical colleges had a lack of reading and writing proficiency (Goyol & Sunday, 2020). It can be said if there was need an improvement in the skills.

The next aspect is the setting. Nunan (2004) defines the term "setting" as the way to carry out the works. Based on the needs analysis, the students preferred working in small groups consist-

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ing of three or four students. Therefore, to meet the needs, the tasks are mostly designed to be done in a small group consisting of three or four students.

The fourth aspect is the role. By concerning to needs analysis result, the students mostly preferred to use their creativity in doing the task in terms of learner's role. They also preferred to participate in the classroom discussion actively. In line with this, one of the strengths of discovery learning is stimulating the learners to be active learners (National Agency for Education Standard, 2016). Therefore, most of the tasks emphasize the process of discussion, especially in a small group that consists of three or four students. In terms of teacher's role, the students preferred that the teacher creates a good atmosphere to get the students' involvement in the classroom and motivate them to do the task.

After analyzing the needs, the next step is designing the syllabus. Before the materials are developed, the syllabus was made as a guideline to develop the learning materials. The syllabus covers basic competences of Vocational High School such as the name of the school, program of expertise, class and semester, number of the chapter, chapter's title, topics, text type, learning indicators, input, language focus (grammar and vocabulary), and the description of learning activities. The reading and writing learning materials were develop based on the syllabus. Designing the learning material using the syllabus developed will increase the competencies of the participants at workplaces because the syllabus is designed based on the needs (Guerid & Mami, 2017).

The development of the learning materials considered the theories presented in the literature review. The researchers referred to Richards (2015) in designing the reading activities embedded in the task for grammar knowledge and vocabulary knowledge. The goals were decided, and then the reading texts were selected. There were six text types of a formal invitation: personal letter, manual, factual report, analytical exposition, and biography text; while for deciding the types of reading classroom performances, the researcher referred to Brown (2001), who classified silent reading into two categories: intensive and extensive readings. In terms of classroom writing performances, the researcher referred to Brown (2001), which mentioned some kinds of writing performances such as imitative, intensive, self-display, and real writing. Since the learning materials are integrated between reading and writing tasks, the researchers adopted the types of integration proposed by Baturay and Akar (2007). They stated that using an integrated skills approach enables the student to develop their ability to use two or more of the four skills within the real contexts and in a communicative framework.

Besides, micro and macro skills of reading and writing proposed by Brown (2004) were also considered. The realization of micro-skills of reading was conducted by providing activities that facilitated students to recognize the core of words, interpret word order patterns and their significance, and also recognize grammatical word classes, systems, patterns, rules, and elliptical forms through collaborative learning activities in small group discussion. In order to support the student in realizing the macro skills of reading: to recognize the communicative function of written text, according to form and purpose; to infer context that is not explicit by using background knowledge; and to describe events, ideas, new information, and generalization through an individual task, pair work, and small group work.

The researchers designed some reading tasks to facilitate students' learning reading like skimming tasks, ordering tasks, open-ended reading comprehension questions, cloze procedure, contextualized grammar editing tasks, editing tasks, and selected-response fill in vocabulary, and matching tasks. Regarding to micro and macro skills of writing proposed by Brown (2004), the researchers also facilitated the students to produce writing at an efficient rate of speed to suit purpose; to use cohesive devices in written discourse; and to use acceptable grammatical system, patterns, and rules through some writing tasks to implement micro skills of writing. In terms of macro skills of writing, the researcher highlighted some macro skills: appropriately accomplish the communicative functions of written texts according to the form and purpose; develop and use writing strategies using paraphrases and synonyms, soliciting peer instructor feedback for revising and editing; convey links and connection such as give new information and generalization. One of the solution for writing teachers by developing supplementary writing materials if the available materials are not appropriate with the students' ability (Nurhajati, 2018).

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The researchers designed some writing tasks to facilitate the students in learning writing, such as picture-cued task, grammatical transformation task, ordering task, and paraphrasing task. Reading is integrated into writing task since it was in line with Richards and Renandya (2002), who emphasize that good reading texts can provide a good model of writing and provide the chance of stimulating discussion.

Jaleniauskiene et al. (2019) mentioned some typical skills that must be promoted in tasks: information, communication technology literacy, creativity, innovation, critical thinking, and problem-solving. One of the government's teaching methods in 2013-curriculum that directs the students to be problem solvers is discovery learning.

In this development stage, the way to incorporating discovery learning activities in the classroom were through discovery learning steps based on a chapter. There were six chapters developed. Regarding the standard of contents for VHS (Regulation of Minister of National Education No. 22 of 2006), the learning activities need to be contextualized with the curriculum and the student's needs. Since Vocational High School *AX* adopted C-13, the researchers highlighted an approach proposed by the Law of Republic of Indonesia No. 20 of 2003 as the basis to develop the learning materials, Discovery learning. The learning materials also developed in line with an automotive field by entering some Automotive Engineering topics that consist of engine, transmission, carjacking, piston, compressor, and the like. In line with this, Hui (2016) mentioned that English for Automobile is a branch of ESP that is composed of different units, parts, and systems: engine, transmission, steering, mechanism, chassis, suspension, or the electrical system. Paltridge and Starfield (2012) state that ESP specialists accept the responsibility for finding out what their learners will likely need to be, especially in reading, writing, speaking, which are comprehend for listeners to achieve their goals. Since in achieving their goals, the students are not presented directly to the properties, but they are to be discovered through experimentation and interpretation (Gijlers & de Jong, 2005). The students will have an opportunity to enrich personal knowledge on a particular thematic area or topic, developing a more comprehensive opinion and being ready for such an in-class discussion or a student presentation session.

In designing the learning materials, the researchers adopted discovery learning steps proposed by the Law of Republic of Indonesia No. 20 of 2003, where there are six steps: stimulation, problem statement, data collecting, data processing, verification, and generalization. Before the simulation step, the researcher took warm-up activities. Sutman et al. (2008) mentioned some criteria of discovery skill for grade 9-12 students such as, students are asked to be able to use the technology for improving investigation and communications since in the learning materials developed, the researcher added some tasks that asked the students to use the internet to find supporting data.

Regarding the lesson plan in the 2013-curriculum for one semester, the developed reading and writing learning materials are divided into six chapters. The result of need analysis shows that the students choose to design the chapter consisting of 15-19 tasks. In chapter 1, the students are directed to study formal invitations. In chapter 2, the students will study personal letters. In chapter 3, the students will study manual texts. Moreover, in chapter 4, the students can study factual report texts. In chapter 5, the students are directed to study analytical exposition texts. In chapter 6, the students can study biography texts. Each chapter has (a) chapter title and learning objectives; (b) warm-up activities; (c) the main activities designed based on discovery learning activities since discovery learning is one of the teaching method that proposed by the government in line with 2013-curriculum. It consists of stimulation, problem statement, data collecting, data processing, verification, generalization, (d) word list; and (e) self-reflection. Remembering that nowadays, some students are lack collaboration skills, so the ESP teachers should involve language learners in collaborative learning environments more frequently (Jaleniauskiene et al., 2019).

After the learning materials were ready, the next step was expert judgment. It was aimed at finding out the feasibility of reading and writing learning materials based on micro-skills opinion. The learning materials were evaluated by the learning material expert in the English materials developed field. There were four aspects to be observed consist of the feasibility of content, presentation, language, and layout design. The evaluation process was done by distributing the four-point Likert-scale questionnaire. The questionnaire was developed based on the *Instrument Penilaian Buku Bahasa Inggris SMK* since the solutions of the learning materials were appropriate with stu-

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dent's needs of Automotive Engineering Study Program due to soforevisions. The comments, suggestions, and feedback from experts were used to complete the second draft and make the final draft more appropriate. Since the learning material was categorized as "Very Good," some revisions had been made based on the expert judgment results, as presented in Figure 3. Some points should be revised.

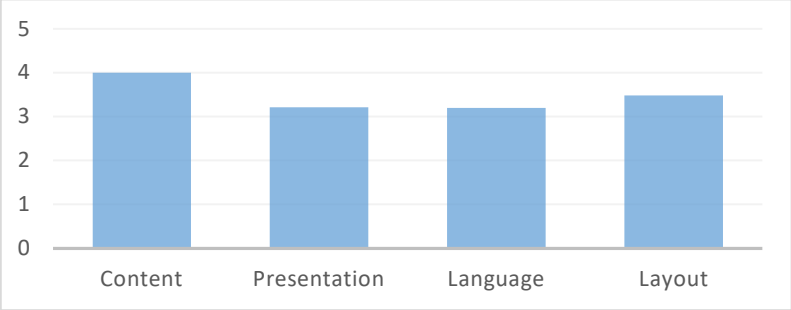

Figure 3. Expert Judgments' Result

Moreover, the expert also gave some suggestions through an interview. In general, the expert considered that the learning materials were appropriate and ready to be implemented in the school by revising some and considering the result of the expert's comments and suggestions. The comment, suggestions, and feedback from the expert were used to complete the second draft and make the product more appropriate.

After being revised, the reading and writing learning materials were implemented. There were two implementations of small group implementation and field implementation. *First*, the small group implementation was conducted to re-check the contents of the textbook. The researcher did an interview to identify the students' opinions related to the learning materials. There were eight students taken from two classes, namely *TKR A* and *TKR B*. The result of the interview was good enough. The students gave positive responses related to the learning materials. In short, the learning materials meet with students' needs of Automotive Engineering.

After the small implementation was conducted, the learning materials were implemented in the field implementation. The field implementation subject was grade 11 students of Automotive Engineering Study Program of Vocational High School AX, Indonesia by total students were 64. Because of some limitations, the researcher only implemented three chapters, namely Chapter 1, Chapter 3, and Chapter 6. The chapters are considered by the students randomly based on their interests. After the field implementation was finished, the researchers distributed the questionnaire, which was handed to the students. Four aspects must be evaluated, namely the appropriateness of content, presentation, language, and layout design, as presented in Figure 4.

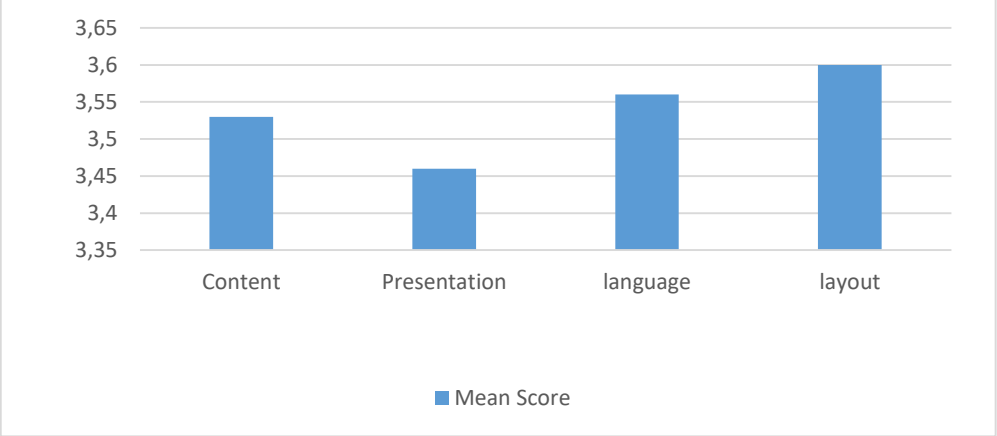

Figure 4. The Appropriateness Based on Students' Argument

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Furthermore, all aspects were categorized as "Very Good." There was no specific revision based on the students' comments and suggestion, since the result of the implementation needs other sources and technology such as the internet to help the students find the data related to the topics being discussed. The use of these learning materials depends on the school regulation, whether the school is permitted their students to bring their own laptop or gadget to access the internet freely in the classroom or not.

To support the data from expert judgment and student's feedback, the researchers conducted an interview with the English teachers of *TKR A* and *TKR B*. In the interview, the researchers asked about their opinions related to the content, presentation, language, and layout design of the learning materials. Overall, the teachers' responses implied that the learning materials are appropriate with the students' needs, and it had similarity with experts' responses and students' feedbacks. Since the English teachers suggested the cover picture, they supported the researchers if the pictures were related to a mechanic and workshop situation rather than changed to the student's picture. The reason is related to the background of the school is a vocational school with a specific study program.

Based on the results of expert judgment, student's feedback, and English teacher's feedback, it can be said that the learning materials are appropriate and ready to be implemented in the classroom, particularly for grade 11 students of Automotive Engineering study program of Vocational High School *AX* on the first semester.

The product of this study was a set of supplementary reading and writing learning materials, which was based on discovery learning steps. These learning materials were intended for Grade 11 Students of the Automotive Engineering Study Program of Vocational High School *AX*, Indonesia. In supporting 21st-century skills in C-13, these learning materials implement collaborative skills, media literacy, and creativity. Discovery learning is described as the process of students being active in the class and identifying the key principles for themselves rather than simply accepting the teacher's explanation (Bruner in Lestari & Priyana, 2019). The learning activities support learners to do collaborative learning. It was facilitated the way for the students to practice reading and writing. Hence, the development of the Discovery Learning activity was important to be conducted.

CONCLUSION

Based on the result of expert judgments, the learning materials are categorized "Very Good." The mean of field implementation was categorized as "Very Good." An interview was conducted with the English teachers to support the data from expert judgments and students' feedbacks. Based on the result of all, it can be said the reading and writing learning materials developed based on discovery learning were appropriate to be implemented. The learning materials had met the students' needs and the 2013 curriculum.

In developing learning materials, the researchers must consider several things, namely target need and learning needs. Researchers must know the basic science areas of expertise that will be developed in its learning material. If the researchers want to develop learning materials for automotive students, the researchers are asked to learn the basic foundation of automotive and the upcoming event in the automotive field. Related to the layout and presentation that should be made as attractive as possible, the choice of colors must be right, because colors can motivate students to learn, colored textbooks are more interesting than a black and white textbook.

The stakeholder must support the students in learning English by providing them an English textbook that is specifically designed for them. The stakeholders are asked to provide the students with a multi-colored textbook that can motivate the students in learning English. Because printing this book is quite expensive among students, it is expected that Vocational High School stakeholders can facilitate them regarding funding and ownership of the appropriate textbook, as well as other supporting facilities such as the internet and other scientific books in the Automotive field.

The product becomes a review for the policymaker in Vocational High School to further support Vocational High school students, especially in providing English textbooks that are appropriate with their interests. Considering there are many study programs in vocational high school that still need the same attention by the government, they need English textbooks that vary in number according to their study program.

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IMPLEMENTATION OF PROBLEM-BASED LEARNING TO IMPROVE PROBLEM-SOLVING SKILLS IN VOCATIONAL HIGH SCHOOL

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Abstract

The learning process in Vocational High Schools must encourage students to have problem-solving skills needed in the industry through the application of appropriate learning models. In reality, the students' problem-solving skills in computer subjects and basic networks are still lacking, and the Problem-Based Learning learning model has never been applied. This research aims to understand the implementation of Problem-Based Learning (PBL) to improve students' problem-solving skills. This research is a class action research model of Kemmis and Taggart, carried out in three cycles; each cycle consisted of two meetings. The data were analyzed descriptively. The results show how PBL on computer subjects and basic networks can improve problem-solving skills. Improvements occurred in all aspects of observation. In problem-solving skills, 56.25% of the students in the above medium category in cycle I increased in cycle II to be 71.875% and increased again in cycle III to be 100%. This means that there are no students below the medium category in cycle III. PBL can improve problem-solving skills with the steps: (1) orienting students to the problem classically; (2) organizing students to study in a group work of four people and the division of tasks for each member; (3) guiding individual and group investigations on the same topic, discussed maximum in two groups; (4) developing and presenting the work done in front of the class with more time allocation in the discussion session; (5) analyzing and evaluating the problem-solving process that focuses on re-checking the results.

Keywords: *problem-solving skills, problem-based learning, vocational high school*

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INTRODUCTION

The needs and challenges of the increasingly complex world of work require graduates to be able to compete and have professional competencies. The world of work will require the workforce to have the ability to think at a high level, problem-solving and collaborative learning. This is supported by several studies on learning outcomes to deal with the world of work. 21st century skills and attitudes are classified as ways to think (knowledge, critical and creative thinking), ways to learn (literacy and soft skills), and ways to learn with others (personal, social, and civic responsibilities) (Griffin & Care, 2015). To enter the "new world of work" seven survival skills are required, namely: (1) critical thinking and problem-solving; (2) collaboration across networks and leading by influence; (3) agility and adaptability; (4) initiative and entrepreneurialism; (5) effective oral and written communication; (6) accessing and analyzing information; (7) curiosity and imagination (Wagner, 2008, p. 14). There is a paradigm shift and 21st century competency framework regarding 21st century student outcomes and support systems formulated in The Partnership for 21st Century Skills, where 21st century student outcomes include learning and innovation skills which include creativity and innovation skills, critical thinking and problem-solving skills, communication and collaboration skills (Partnership for 21st Century Skills, 2008).

One of the Educational Institutions whose job to produce a competent workforce is Vocational Education. In Indonesia there are three levels of Vocational Education namely at the level of vocational secondary education, vocational education in higher education, and professional education. The success of Technical and Vocational Education and Training (TVET) is measured from four aspects, namely: (1) the degree of absorption of graduates in the world of work; (2) alumni satisfaction level after completing Education; (3) the level of alumni user satisfaction with alumni performance in the world of work; (4) the number of alumni as entrepreneurs (Sudira, 2018, p. 6). Vocational High Schools as one of the Vocational Education Institutions at the secondary level must be able to produce competent graduates so that the success of TVET is achieved.

The quality of vocational high school graduates is influenced by several factors, one of which is the quality of the learning process in schools. To achieve the competency needed in the working world in the 21st century, learning in vocational high schools must be able to encourage students to be creative and innovative, to think critically to solve problems, and to have the ability to communicate and collaborate. In addition, learning in vocational high schools must also be able to fulfill the needs of work skills in the 21st century which are quite complex and lead to the skill of using High Order Thinking Skills (HOTS). The learning process in vocational high school should also by folowing the needs in the industrial world. Therefore, subjects given during learning should refer to industry needs.

Vocational Basic subjects are the basic subjects for *Teknik Komputer dan Jaringan (TKJ)* / Computer and Network Engineering major, meaning that Vocational Basic subjects will comprehensively underlying TKJ graduates. Mastery of basic vocational learning materials is very important because it is the basis for understanding, knowing, and having the next competence in stages.

However, as the matter of fact, based on alumni tracking by schools, students start to work between three months until one year, but students who work according to vocational school competency skills are only 10%. Based on interviews conducted with alumni, the level of problem-solving creativity that applied in learning with demands in world of work is rather not optimal.

Based on the interview with students, TKJ subjects are difficult to understand in practical steps. Most students claimed to have difficulty in applying the theory that has been learned into practice. Students are less-able to construct the theories that have been learned into practice. In addition, based on the researchers' observations during learning, students are less enthusiastic about learning because learning is still dominated by teachers. However, when students are asked for discussion and the teacher gave stimulus questions to the students to develop their curiosity, students look silent and only rely on one of the friends from the group. Students are less able to understand the problems given so it is difficult to solve the problems.

The lack of variations in learning models and limited facilities and infrastructure cause students to be less active in giving opinion. Students are not yet having an awareness that learning is their need. At the time of learning process, students secretly use smartphones or computers for un-

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necessary purposes. In addition, students have the habit of skipping school so that the understanding of the material is different from one student to another. This causes the ability to solve problem of students is not visible.

Teachers as educators have the task and responsibility of finding appropriate learning models in implementing learning to improve students' creative thinking and problem-solving. The use of varied learning methods and student center will foster creativity and problem-solving skill in learning. The learning models applied must also meet the needs of conformity to the work context. Various learning models are suitable to be applied, one of which is the problem-based learning model (PBL) (Sudira, 2018, p. 157).

PBL is one of the right models developed in learning to respond to the issue of improving the quality of learning and anticipating changes in the working world (Nurhadiyanto & Wagiran, 2007, p. 13). PBL learning model provides a positive influence in order to improve problem solving, critical thinking, and creativity (Selçuk et al., 2013). Therefore, it is believed that PBL can improve problem-solving skills through the process of understanding the context of real-world problems and then constructing them in practical learning activities.

Several studies have been conducted including research on mathematics students (tenth-year senior high school) which states that PBL can improve problem-solving skills (S. J. Simamora et al., 2017). Implementation of PBL Models can improve students' problem-solving and self-efficacy on IX Class Students of Muhammadiyah Junior High School (Rokhmawati et al., 2016). PBL can also enhance learning activities and problem-solving skills of junior high school students (R. E. Simamora et al., 2017). Besides, the use of PBL is as an effective instructional tool to improve problem-solving skills at the undergraduate level (Kadir et al., 2016). Based on the real conditions or problems in the classroom and the previous research studies, it is necessary to research to improve students' problem-solving skills using PBL in the vocational high school level.

Problem-Solving Skill

Problem-solving is a strategic competency shown by students in understanding, choosing approaches and problem-solving strategies, and solving models to solve problems (Regulation of the Minister of National Education of Republic of Indonesia No. 22 of 2006). In addition, Gagne also stated that the ability to solve problems is a set of procedures or strategies that enable one to increase independence in thinking (Amir, 2009, p. 45). In developing problem-solving competencies, between learning content and problem-solving competencies, it is unnecessary to be carried out in different activities, so that interrelated activities can achieve goals in learning (Yeo & Tan, 2014, p. 747). Hence, in practice, learning with PBL in it can contain problem-solving content.

According to Polya, there are five steps in problem-solving that can be observed, namely, the ability to: (1) understand the problem (understanding), (2) plan solutions (planning), (3) solve problems (solving), and (4) do the re-checking (checking) (Nuralam, 2009). These steps were used as indicators of observing the ability of problem-solving.

Problem-Based Learning Model

Problem-based learning is a learning model that uses real problems (authentic) that are not structured (ill-structured) and is open as a context for students to develop problem-solving skills and critical thinking and build new knowledge (H. Sofyan et al., 2016, p. 25). In line with this, Dutch added that PBL is an instructional method that challenges students to learn to work together in groups and find solutions to the real problems (Amir, 2009, p. 27). Based on those opinions, it can be concluded that PBL is a learning approach based on real problems to develop problem-solving skills and build new knowledge.

PBL offers teachers a structured method that helps students to develop thinking and problem-solving skills while students master important basic knowledge subject (Delisle, 1997, p. 5). In the implementation of PBL, it is very important to emphasize that PBL is learning in harmony with important scientific learning, stressed Sofyan and Komariah (2016, p. 269). PBL encourages students to find new solutions to the problems presented. Students use various sources of information from their textbooks and others in informal discussions with peers (Major & Palmer, 2001). In the

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process, it is believed that it can improve problem-solving skills creatively. Groups involved in PBL practice develop creative thinking by brainstorming when making hypotheses, creating new ways, and integrating skills in a variety of learning material content (Susanti et al., 2016). Students work in small groups to bring together collective skills in acquiring, communicating, and producing information to produce thinking skills, able to analyze and solve complex real-world problems (Duch et al., 2001, p. 6). Although students find learning through PBL is difficult, they are thinking more than memorizing (Awang & Ramly, 2008). This means, PBL can help students understand the problem, plan problem-solving, and solve problems. In large classroom settings, PBL methodology also has a positive effect on students' problem-solving skills (Klegeris & Hurren, 2011).

PBL also has several weaknesses. One of them is when the students have no interest to the problem that will be solved, they will not be eager to try. Besides, when some students assumed that the problem solved is not beneficial, they will study on their own way. The implementation of problem-based learning also requires quite a long time, a standard of 40 to 50 minutes for one lesson at school (Sanjaya, 2009, p. 68).

There are five phases in implementing PBL: (1) orienting students on the problem; (2) organizing students to research; (3) helping independent investigation and communication; (4) developing and presenting the work; (5) analyzing and evaluating the process of solving problems, problems in cyberspace involving learning (Arends, 2008, p. 55). These steps were used in conducting this research. From the description, it can be seen that learning with PBL can be applied as a learning model that can improve problem-solving skills. Thus, it is expected that problem-solving skills can be improved by Problem-Based Learning (PBL) model.

RESEARCH METHOD

The type of research used is classroom action research that aims to overcome the problems found in the classroom. Classroom action research uses Kemmis and Taggart's model. The research was conducted in three cycles, each meeting consisting of three stages: Action Plan, Actuating and Observing, and Reflecting. The action and observation stages are merged because they are two inseparable actions (McTaggart, 1994, p. 31). Visually, the stages of each cycle are presented in Figure 1.

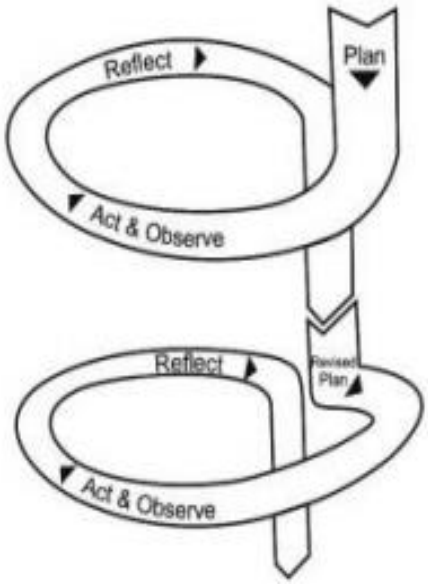

Figure 1. PTK Cycle According to Kemmis and Mc. Taggart

Research Setting

The research was conducted in three months, from January to April 2018. The research was conducted in a vocational school located in Bantul, Yogyakarta.

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Subjects and Characteristics

The subject of this research was TKJ grade X students, the participants are 32 students who carried out learning activities in the even semester of computer and basic network subject in 2017/ 2018 academic year. The reason for taking the subject of the research is because the class has several issues with the problem-solving skills in learning both theory and practice.

Action Scenarios

The research was carried out in a participatory and collaborative way. It is participatory because the researchers were directly involved in all stages of the study. It is collaborative because it involved the teacher as the observer in the research. The planning stage is planned based on pre cycle. Activities undertaken include: (1) preparing of lesson plans; (2) preparing a learning scenario; (3) preparing learning media; (4) preparing discussion material and questions; (5) preparing observation sheets.

The actuation phase is the application of the lesson plan which is divided into preliminary activities, main activities, and closing activities. Preliminary activities include: greeting, conditioning students, leading prayers, calling roll, explaining about PBL, motivating, delivering learning objectives, appreciating. The main activities include activities using a problem-based learning model consisting of five stages: (1) orienting students towards the problem; (2) organizing students to learn; (3) guiding individual and group investigations; (4) developing and presenting the work; (5) analyzing and evaluating the problem-solving process. Closing activities include: reflecting (drawing conclusions, delivering future activities, praying, and greeting). The observation phase was carried out during the teaching and learning process. The observation was made on the learning activities of students in the learning process, namely observation to the ability to think creatively and problem-solving. The reflection phase was done after the teaching and learning process completed. The researchers and the collaborator team summarized the successes and weaknesses of each meeting. The weaknesses functioned to improve the next cycle.

Data Collection Techniques and Instruments

The techniques used to collect data were observation, documentation, and field notes. Observation was used to reveal changes in behavior during research related to problem-solving skills. Documentation and field notes were used to record the activities during the research. The instrument used to measure the ability to think creatively and problem-solving using observation sheets using a rating scale where this type gives numbers in the aspects of assessment columns with limited classification. The assessment aspects will be given a number from 1 to 4.

Success and Data Analysis Techniques

Teaching and learning process is said to be successful and has a good quality if all or at least 75% of the students from the class are capable of solving problems in medium category. Data analysis used for the problem-solving skills is a descriptive analysis based on the observation sheet. Data from the observation were analyzed and presented in the form of percentages and interpreted in words. The problem-solving skills value of each student in each indicator is processed by adding up the scores obtained to determine the total value of the problem-solving skill of each indicator and each student, then comparing it with the expected maximum score. After students' grades are obtained, those grades are then grouped into five levels of problem-solving skills (Table 1).

Table 1. Level of Problem-solving Skills

Degree of Problem-Solving Skills	Category of Problem-Solving Skills
90-100	Very High
80-89	High
65-79	Medium
55-64	Low
0-54	Very Low

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The percentage of problem-solving skills was calculated using Formula (1). The observation guidelines used to measure the students' problem-solving skills during the teaching and learning process is presented in Table 2.

$$Problem\ solving\ precentage = \frac{\sum score\ obtained\ by\ student}{maximum\ score\ of\ each\ aspect} \times 100\% \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Table 2. Observation Guideline of Problem-Solving Skills

No	Indicator	Criteria
1	Understanding	Able to interpret problems by mentioning what is understood and asked.
2	Planning	Able to make a plan to solve the problem based on the procedure using the right solving steps and relate the concept.
3	Solving	Able to do steps to solve the problem using the procedure in a detail way.
4	Checking	Able to check carefully to prove the process validity.

RESULTS AND DISCUSSION

This classroom action research began with pre-action activities. Pre-action activities were carried out to determine the initial abilities of the students. Based on preliminary observations regarding aspects of problem-solving skills, 50 % of the students show problem-solving skills in low category. The students had not written in detail the flow of problem-solving and do not re-check the tasks given. In detail, the results of initial observations of students are presented in Table 3.

Table 3. Results of Preliminary Observations of Problem-Solving Skills

Degree of Problem-Solving Skills	Category of Problem-solving Skills	Number of Student	Percentage (%)
90-100	Very High	0	0
80-89	High	1	3.125
65-79	Medium	8	25.00
55-64	Low	16	50.00
0-54	Very low	7	21.875
Sum		**32**	**100**

In the preliminary activities, teachers and students prayed together as a form of self-actualization to the spiritual attitude. The teacher also called the roll to check students' attendance. The students were given ice breaking guided by the teacher to help them focus on learning. They were also given the reading material related to the material to be taught. The time allocation was written in front of the class so the students could estimate the time to solve the problem. The teacher informed that the teaching and learning proccess used PBL model which conveys learning objectives and provides apperception. At the main activity, PBL that has been integrated with a scientific approach was carried out. The stages of PBL to improve problem-solving in detail are as follows.

The first stage is orienting the students to the problem classically. The teacher is given the reading material related to the material, lets the students to observe, understand the problem, and express relevant ideas. They ask the students to find out students' understanding of the problem, and provide score for the students who dare to express their ideas. Classically, the teacher introduces the topic of learning and provides problems for each group to be solved later.

The second stage is organizing the students to study. The students are divided into four heterogeneous groups. The success of the group is very important. The students divide roles into groups including leading discussions and practices, recording results, reporting to the class, and checking the accuracy. This is in line with Duch et al. (2001) that small groups can unite collective skills so they can analyze and solve problems. The teacher gives worksheets and walks around to help the students identify what needs to be done and found in practice. The students understand the problem given (write down what is known and asked). The students read worksheets and explore supporting information such as in the internet and books. Student divided into study groups of four people and worksheet as a medium, it provides a more meaningful experience (S. J. Simamora et al., 2017).

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The third stage is guiding individual and group investigations. The students prepare equipment and materials according to the instructions, discuss them to solve problems given. Every two groups discuss the same material, this has proven to be more effective. The students arrange the steps for problem-solving in detail, carry out practical activities, and write down the results of the practice in detail and other possibilities in the problem-solving process. Practical activities are still being started from the basic skills to the competencies to be achieved. Repetition of practice to make the students are well trained. The teacher goes around monitoring the work of the students and provides an assessment of individual skills.

The fourth stage is developing and presenting the work. Group representatives present practice reports and discussion results. Other groups must express their opinions and express different concepts or findings. This stage is carried out in classical class. More time is allocated for question and answer sessions. The teacher also provides stimulus so that the students can express concepts that have not been revealed in their own words.

The fifth stage is analyzing and evaluating the problem-solving process. Classically, the teacher reviewsed what has been presented and evaluates the teaching and learning process in class. The students would pay their attention and checked the work results of each group. At the end of the activity, the students return the equipment.

In the closing activity, the teacher and students conclude the material that has been learned, give homework, and give a closing greeting. With activities like the above stages can improve the students' skill to think creatively and problem-solving.

The improvement of the learning atmosphere of the first cycle, second cycle, and third cycle are as follows. In the first cycle, many students were late coming to the class so that it disturbed the concentration of other students. Based on the field notes, the lateness of the students was between 10 to 30 minutes. Some students did not bring books and were not disciplined in wearing uniforms. Students were also not familiar with PBL, so the students claimed that this stage was difficult. The students tended to be passive and repeated the answers of their friends when being asked to express ideas by the teacher. The atmosphere of the class seemed noisy because during the discussion the students asked one another between groups. In the practice activities, the students worked alternately and passively. Different discussion materials each group provided diversity, but the students did not listen to the results of other group discussions so that the mastery of the material is not well achieved. In the presentation, the students tended to memorize and less active. The students were not yet aware of the urgency of learning.

The condition gradually improves in cycle II where the lateness was decrease. In this second cycle, ice breaking began to be given to practice focus and motoric movement. The allocation of the learning time was written in front of the class by the teacher. The students were getting used to PBL rules. The students used to express ideas. Additional points were given to the students who expressed ideas in a relevant way so that the students were enthusiastic. The students positioned themselves in an orderly manner in their respective groups according to the assigned tasks division. Teaching and learning process were more conducive. There were still some groups that asked the teacher to solve the problems. The students began to be detail in writing problem-solving. However, in the presentation, the students paid less attention because the discussion of the presentation between one group and the other was the same. The process of analyzing and evaluating problem-solving run smoothly and there was a two-way communication between the students and the teacher. There were still some students who tried to cheat when they took the test. The students complained when they were given homework. The activities in cycle II were improved in cycle III.

In cycle III, there were no students who came late to the class and dressed according to the rules. Ice breaking activities were carried out under the direct guidance of the teacher. The reading material provided was proven to be more effective because the students were more focused on reading. This is in accordance with a research conducted by Major and Palmer (2001) that the use of various sources of information and informal discussions with peers is more effective. The students actively expressed ideas then the teacher gave points and responds. The atmosphere is calm during the process. The students positioned themselves according to the group calmly. The teacher goes around helping the students identify the problems. The students looked for references from worksheets and the internet. The students worked together in accordance with the division of tasks

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that had been given. The work was completed faster. Although at the beginning of learning students complained that it was difficult, at the end of the cycle the students can complete the work with better results. This is because the students think more than memorizing (Awang & Ramly, 2008). At the end of the practice, the teacher evaluated the group work. Group representatives presented the results and conducted question and answer classically. In this session, the time allocation was longer. At the stage of analyzing and evaluating the problem-solving process, each group member paid attention to the teacher and re-checked the results of the discussion and practice. At the end of the meeting, the students worked on the test calmly and did not do cheating. In detail, the development process of each cycle is illustrated in Table 4.

Table 4. Description of Student Development in Cycle I, Cycle II, and Cycle III

PBL Process	Cycle I	Cycle II	Cycle III
Stage 1: Orienting students to the problem	Students started to pay attention to the topic given. They were still lack of the understanding of the problem. Few students could express ideas.	Students were used to PBL, focused in teaching and learn-ing process, showed problem understanding classically better than in the previous cycle.	Conducive class from the beginning. Point given made the students to try to understand the case given so they could express relevant ideas. It was done classically in the class.
Stage 2: Orienting the students to study	Students tended to be noisy when setting groups. Only one student actively looked for the information. The cooperation in a group was not good.	There was task division for each member. Students could explore information from worksheets and from the internet. They started to write down what they knew and what was asked in not too detail way.	Task division of each member ran more effective. All students were involved in understanding problems. They could write what they knew and what was asked in a more detail way than before.
Stage 3: Guiding investigation both individual and group	The class was noisy. The students were passive in discussion. They started to plan problem-solving but not that in detail. Some students did troubleshooting without asking to the teacher first.	In practice, the students worked alternately, the others did nothing. More in detail in planning problem-solving. More students solved problems and did trouble-shooting without asking the teacher.	Group work worked well according to the main task division and they help one another. The students were able to plan problem-solving in detail and did problem-solving process correctly.
Stage 4: Developing and presenting work	In writing down the results of the discussion, students just memorize. The mate-rial was different for each group, making the group that did not pay enough attention to be less in understanding the material.	The result was presented by each group. The material provided was the same so that in the middle to the end of time the students did not pay attention. The students checked the stage of problem-solving	The result was presented by group representatives to save time and more time was given in the discussion of the material. Other group members were required to ask questions and express opinions while checking the stage of problem-solving.
Stage 5: Analyzing and evaluating problem-solving process	Re-checking the results of the practice found that some groups were not optimal in solving the problem. At the time of the test there were many students who cheated.	The group that checked the results of the practice more than the previous cycle, but not all of them did it in detail.	Students had checked the completion step. Students provided feedback on the evaluation of the problem-solving process by the teacher.

With problem based learning (PBL) and improvements in each cycle in a large class setting, problem-solving skills can be improved. This is in accordance with a research which was conducted by Klegeris and Hurren (2011) that the methodology has a positive effect in solving problems in large classes. The use of problem based learnig has been proven to be effective in improving the problem-solving abilities (Kadir et al., 2016; Rokhmawati et al., 2016; R. E. Simamora et al., 2017). Table 5 presents the detail of the values in the aspect of observation of the problem-solving skills.

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Table 5. Recapitulation of Problem-Solving Skills

Degree of Problem-Solving Skills	Category of Problem-solving Skills	Cycle I meeting 1		Cycle I meeting 2		Cycle II meeting 1		Cycle II meeting 2		Cycle III meeting 1		Cycle III meeting 2	
		∑	%	∑	%	∑	%	∑	%	∑	%	∑	%
90-100	Very High	0	0	0	0	4	12.50	4	12.5	5	15.625	5	15.625
80-89	High	2	6.25	5	15.625	5	15.625	12	37.50	10	31.25	11	34.375
65-79	Medium	10	31.25	13	40.625	13	40.625	7	21.875	9	28.125	16	50.00
55-64	Low	17	53.125	12	37.50	10	31.25	9	28.125	8	25.00	0	0
0-54	Very low	3	9.375	2	6.25	0	0	0	0	0	0	0	0
Sum		**32**	**100**	**32**	**100**	**32**	**100**	**32**	**100**	**32**	**100**	**32**	**100**

Annotation: ∑ = Number of students
% = Percentage

Based on the observation, it was obtained the results in the first cycle, most of the students were at a medium level with a percentage of 40.625%. There were already five students at a high level with a percentage of 15.625%. However, there were still many of them who were at a low level with a percentage of 37.5% and very low with a percentage of 6.25%. This was increased in Cycle 2. There were four students in a very high level with a percentage of 12.5%, 12 students in a high level with a percentage of 37.50%, seven students at a medium level with a percentage of 21.875%, eight students at the low level and none student at the very low level. It is increased again in Cycle III, at the medium level there were 16 students with a percentage of 50%. High level was 34.375%, and a very high level was 15.625%. In this third cycle, there are no students in the low and very low categories. The improvement of the problem-solving skills in every aspect is shown in the recapitulation graph of problem-solving skills of cycles I, II, and III illustrated in Table 6 and Figure 2.

Table 6. Percentage of Appearance Indicators of Problem-Solving Skills

No	Indicator of Problem-Solving Skills	CYCLE I		CYCLE II		CYCLE III	
		Meeting 1	Meeting 2	Meeting 1	Meeting 2	Meeting 1	Meeting 2
1	Understanding	72.46	74.41	78.71	88.48	87.30	87.30
2	Planning	64.06	69.73	76.37	77.73	78.32	78.52
3	Solving	61.72	71.48	72.27	76.17	79.49	79.69
4	Checking	53.91	67.97	71.48	72.85	74.80	77.15

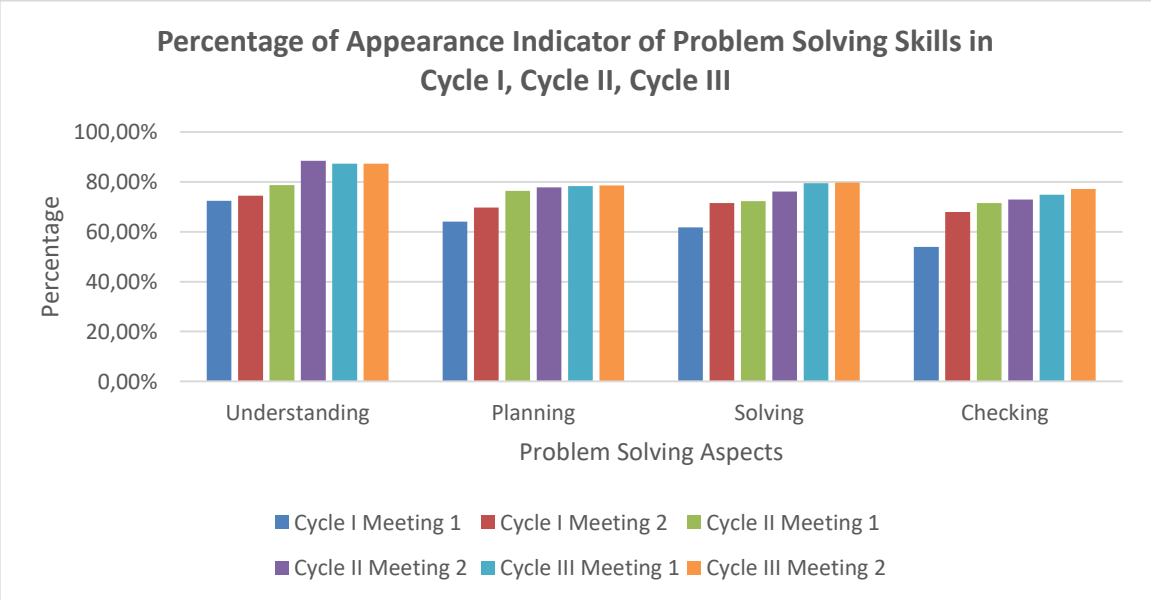

Figure 2. Recapitulation Graph of Problem-solving Skills in Cycle I, II, and III

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From the results of observing the skills of problem-solving, all aspects of problem-solving skills have reached the criteria of research success that minimum 75% of students in medium level. Thus, learning by using PBL can improve students' problem-solving skills.

CONCLUSION

The implementation of teaching and learning process in Computer and Basic Network subject by using PBL in class X TKJ at a vocational high school can improve problem-solving skills. The stages done are orienting the students to the problem classically, organizing the students to study in groups of four people and the division of tasks turns out to be more effective, guiding individual and group investigations (effective if each two groups discuss the same material), developing and presenting the work done in front of the class with more time allocation, analyzing and evaluating the problem-solving process that focuses on re-checking the results. It can be proven by increasing the activity of each cycle and has achieved indicators of research success. In problem-solving skills, there were 56.25% of the students who were in the above medium category in cycle I. Increased in cycle II to be 71.875% and increased again in cycle III to be 100%. This means that there are no students below the medium category in cycle III.

Based on the results and conclusions, some suggestions can be given, among others: for teachers who want to implement learning process, they should plan it well and use the time allocation well. Good time management can help students in completing each stage of learning according to a predetermined time limit. For schools, it is expected to provide full evaluation and support for teachers to develop a variety of learning models in the classroom so that the learning process can run well. And for researchers, it is expected to be able to apply PBL in learning in larger classes and longer periods so that the results are possible to be generalized.

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MODEL OF ESSENTIAL EMPLOYABILITY SKILLS FRAMEWORK FOR MACHINE OPERATOR

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Abstract

Employability skills are the skills that a person must have to get a job, stay in work, and be able to achieve success in their career. This study aims to develop a model of specific employability skills framework for machine operators. The research design used is the mixed methods, a study that combines the quantitative and qualitative methods and convergent parallel strategy in the data mixing process. The research finding is 14 identified frameworks of employability skills, including (1) basic skills: communicating, listening; (2) self-quality: attendance, collaboration, responsibility, honesty, flexibility, empathy; (3) thinking skills: creativeness, problem-solving; (4) management: self-management, planning; (5) system and technology: production flow system, and mastery of job field concept. Industries demand that basic skills have to be possessed by machine operators to be and self-quality as the priority to recruited as prospective skilled workers. Thinking skills, management, and system and technology are better if developed in their future workplace.

Keywords: *employability skills, framework, machine operators*

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INTRODUCTION

The needs for employability skills are very important in order to prepare school graduates to enter the labor market. Employability skills refer to the skills needed to manage attitude, behavior, and academic competence needed by industries (Husain et al., 2010) so that school graduates are prepared to compete in the labor market and have the opportunity to become labor candidates who are ready to be recruited by industries (Ismail & Mohammed, 2015; Sisodia & Agarwal, 2017).

Industrial Revolution 4.0 requires responses to every change in the job market. The climate of the changing labor market needs is directly proportional to the changing skills needs of the workforce, and it has implication in the employability needs that must be updated in accordance with the demands of the labor market needs (Bukit, 2014; Wibawa, 2005; Zaharim et al., 2009). The rapid change of skill needs is caused by the transition process of the industrial economy to knowledge economy, which has effects on the demand and competition of skilled labor.

The competition that will be faced by prospective Indonesian workers is not only regional but also global. Indonesia is faced with APEC (Asian Pacific Economic Corporation) free trade in 2020 so that it becomes an opportunity and challenge for developing countries like Indonesia. Indonesia has a good opportunity because of its fast population growth, where, in 2025, Indonesia will get a demographic bonus with a large population of productive age compared to the population of non-productive age (Tjiptoherijanto, 2001).

On the other hand, the high demographic bonus by having a productive age of Indonesia's population must be accompanied by an increase in human resources quality because this country has a ratio of labor to a population of 64.17% with an unemployment rate of 4.18% (International Labour Organization, 2018). This figure is relatively high compared to that of Southeast Asian countries such as Vietnam, the Philippines, and Myanmar, which is relatively smaller. It becomes a challenge to prepare skilled labor.

Research findings show that the skills that workers must have to support job security are the skills to develop new innovative, creative ideas, ability to analyze problems, and interpersonal communication with colleagues and clients (Nair et al., 2009; Wickramasinghe & Perera, 2010; Yang et al., 2015). In addition, self-managerial skills are considered one of the most important indicators needed by many industries (Sermsuk et al., 2014). Those skills are badly needed because they have an effect on more advanced companies (de Guzman & Choi, 2013).

In more detail, machine operators are at level 2 in the Indonesian Qualification Framework (IQF). Machine operators must have a standard, in which there is mechanical engineering expertise skill, which has the following competencies: (1) applying the K3 principles in the workplace, (2) applying quality procedure, (3) measuring using a measuring instrument, (4) operating general machinery, (5) using manual equipment, (6) reading technical drawing, (7) operating a lathe, (8) operating the milling machine and setting the machine and its program NC/CNC (9) operating and observing machines, and (10) operating machines NC/CNC (National Professional Certification Agency, 2017).

Facts show that many school graduates do not have employability skills in the workplace (Wei Chan et al., 2018). Operators tend to find it difficult to manage time, be less responsible, and not have a positive attitude to sustainable learning. All those hamper production processes in companies (Stoner & Milner, 2010). Besides, the researchers found reality in the field during preresearch interviews with a manager that shows that machine operators did not have good communication skills, which resulted in mistakes in receiving information and a tendency to be passive, which also hampers their work. This impacts the mismatch between industrial needs and graduates' skills.

One of the employability skills that must be possessed by prospective machine operators is the skill to meet labor market needs. Therefore, skillful machine operators can be employed and stay in work in metal and machine manufacturing industries (Rowley, 2014). Thus, employability skills should always be close and hand in hand with the labor market. Based on this rationale, theoretically, employability skills are suitable for workers in various fields such as various technical fields (McLean et al., 2013; Stoner & Milner, 2010). However, in the specific field, machine operators' jobs must vary. For this reason, further research is needed to discover the needs of essential employability skills suitable to be applied by machine operators.

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This research aims to survey essential employability skills needed by machine operators whose orientation is manufacturing industries of metal and machinery. As instructional steps, it identifies and verifies industries to find indicators of employability skills considered important and strategic for the profile of machine operators so that the graduates of mechanical engineering vocational high schools (VHS) can be absorbed more by manufacturing industries of metal and machinery. The result of this research is expected to be a recommended framework as practical anticipatory steps in making the programs of mechanical engineering VHS. In addition, this research's finding becomes a reference and helps industries evaluate their performance in improving their work quality according to the dynamic environment and becomes a recommendation for companies when they recruit new machine operators.

RESEARCH METHOD

The method used in this research is a mixed-method – a method that combines the quantitative and qualitative methods. The convergent parallel strategy design combines both types of data separately and makes interpretations in order to reveal whether there is a convergence or divergence (Creswell, 2009). Furthermore, the findings are analyzed to see whether or not they mutually inform. In this research, the different sample size or weight is not a problem, but it is for getting an in-depth perspective to generalize the population. In addition, the quantitative result is reported first, followed by the qualitative one to confirm and compare them in the discussion (see Figure 1).

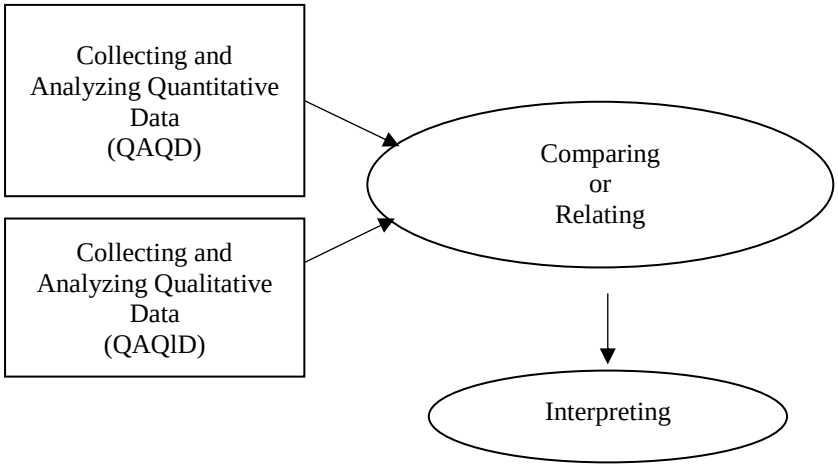

Figure 1. Convergent Parallel Design

This research population is manufacturing industries of metal and machinery situated in the provinces of Jakarta Special Capital Territory, Banten, and West Java. The sampling technique used is based on convenience and availability in the field (Babbie, 2007). The research sample is 69 industries engaged in metal and machinery, with 98 respondents consisting of 69 machine operators, 19 team leaders, eight supervisors, and two managers.

This research uses an online questionnaire and structured interviews for collecting the data. The questionnaire contains statements with checklist (√) at the statement point in accordance with respondents' responses. The instrument for the survey was developed from the indicators of research findings on employability skills. It was adopted from SCANS (The Secretary Commission on Achieving Necessary Skills) which was adapted to the needs of machine operators' work.

The validation of the questioner was done through expert judgment by comparing the suitability among indicators and instrument grids. The reliability measures were done to see the consistency of the research instrument. The rubric developed in this research consists of 42 test items including all indicators measured from the aspects of basic skill, thinking skill, self-quality, human resource management, interpersonal skill, information and system management, and technology. The scoring criterion is a score of four for the highest score and a score of one for the lowest score.

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The statistical and inferential analysis is presented in tables of contribution and diagrams. Then, a parallel convergent strategy was carried out by analyzing the result of the two groups of data separately and by making interpretation to see whether or not there was a convergence or divergence. After that, a decision was made in the form of the suggested framework of the quantitative and qualitative findings for machine operators.

RESULTS AND DISCUSSION

The finding was obtained from respondents after the analysis of quantitative data collected through a survey and qualitative data through interviews. The result of the survey is divided into two parts. The first part contains questions related to demography, and the second part contains 42 close questions. The quantitative analysis presented the data on respondent profiles, descriptive analysis, and ranks of importance. The findings of this research are presented as follows.

Figure 2 shows the respondents' demography. The result of the analysis shows that the educational background of the workers is different from one another. This becomes a variation of its own with various educational backgrounds of the workers. The respondents' profile is classified into four levels of education: high school, diploma 3, bachelor/diploma 4, and masters. Figure 2 shows that most of the sample respondents are high school graduates, with a percentage of 45.92%, followed by diploma 3 graduates, as many as 29.60%. As many as 23.46% of the respondents are bachelor degree holders, and the rest 1.02% hold a master degree.

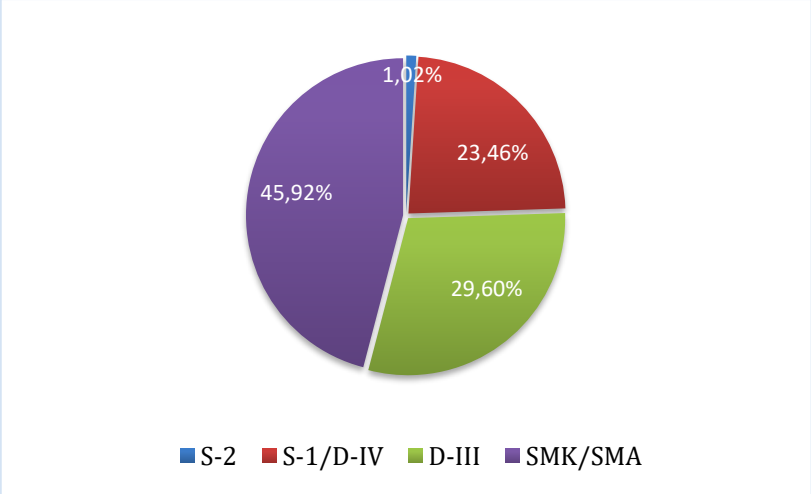

Figure 2. Demography of Respondents

Table 1 presents the result of the quantitative analysis of machine operators' perception of employability skills priority. Machine operators consider that the most essential employability skills needed by an operator in order to achieve top career in the workplace is basic skills with the indicator of careful reading in the workplace, and gave it the highest score (M=3.87). Following that, machine operators consider thinking skills of "completing work in a shorter time than the specified one" is the skill considered not important, and gave it the lowest score (M=3.10).

The results of the questionnaire and interviews were compared in order to have a really essential result by using the parallel convergent technique, which can compare results to see whether or not the findings mutually confirm. The process of combining the qualitative and quantitative data disregarded respondents' scores but focused on in-depth perspective to generalize population. Furthermore, interpretation was done by selecting the indicators which had convergence, and the divergent indicators were not selected and supported by relevant theories. The results that showed similarities and intersect, between the quantitative and qualitative results, were then selected and used further as a recommendation for the employability skills framework. The framework in Figure 3 was developed applying the theory of Robinson and SCANS. This interpretation stage resulted in 14 essential employability skills most needed by manufacturing industries of metal and machinery.

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Table 1. Perception of the Importance Level of Employability Skills

Rank	Employability skills	M	SD
1	Reading the rules that apply in workplace	3.87	0.35
2	Reading the Standard Operasional Prosedur (SOP) on machines	3.83	0.38
3	Reading job description	3.83	0.38
4	Listening to instructions from team leader of machine operators	3.80	0.41
5	Discipline in punctuality	3.80	0.41
6	Behaving honestly in working	3.77	0.50
7	Showing good ethics in working	3.70	0.47
8	Maintaining attendance level in the company	3.70	0.47
9	Being responsible for product quality according to the standard	3.67	0.48
10	Team-working with colleagues	3.67	0.48
11	Conveying verbal informasion clearly in accordance with job needs	3.67	0.48
12	Showing good work ethos in working	3.63	0.56
13	Helping colleagues having difficulties doing their work	3.60	0.50
14	Using safety equipment (safety shoes, wearpack, and spectacles) when working	3.57	0.50
15	Determining quick work procedure	3.57	0.50
16	Informing job progress to new machine operators at the shift changing	3.53	0.57
17	Maintaining the cleanliness of the workshop area	3.53	0.51
18	Identifying hazard potential in the workshop	3.53	0.51
19	Reading the table of speed on machine parameter	3.50	0.51
20	Working according to production target	3.50	0.51
21	Selecting cutting tools with specification suitable with operational needs	3.47	0.51
22	Reading mechanical engineering figure	3.47	0.57
23	Doing the maintenance of inventary tools used in machines	3.47	0.51
24	Understanding Numeric Controlled program information in the system to be operated in machines according to procedure	3.47	0.51
25	Streamlining raw materials to be more economical	3.43	0.57
26	Understanding production flow system from raw materials-production process-quality control	3.43	0.50
27	Identifying trouble shooting in machines	3.40	0.50
28	Accepting team leader's criticism well	3.40	0.56
29	Working according to the planned schedule	3.40	0.50
30	Reading measurement result of precise mechanic measuring device	3.40	0.50
31	Adapting working method to the change of working environment	3.37	0.56
32	Doing the maintenance on the machine used in work	3.37	0.49
33	Selecting machines according to operational needs specification	3.33	0.55
34	Writing daily work reports	3.30	0.47
35	Carrying out machine operation	3.30	0.53
36	Reporting all accidents that have happened	3.23	0.43
37	Controlling production processes	3.23	0.57
38	Calculating machining process parameters	3.17	0.46
39	Working independently	3.17	0.53
40	Understanding company's organization bureaucratic structure	3.13	0.57
41	Setting machine programs (numerical controlled = NC)/(computer numerically controlled = CNC)	3.13	0.68
42	Completing work in a shorter time than the specified one	3.10	0.80

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The criteria of employability skills that must be possessed by a machine operator specifically contains 14 working skills. The industries prioritize good personality or generic skills over performance. Machine operators, in fulfilling the labor market, are prioritized to have the most dominant self-quality and basic skills. They have to pass the standard test that is required by the companies, such as the psycho-test, health, and also interviews. They must also master the basic competence in manufacturing work concept, so that when they work in a company, their employers will not find it difficult to improve their hard skills through the pre-service trainings or pre-service upgrading programs. Furthermore, employability skills enable operators to prove that they can be successful with their occupation. Therefore, by following the changes in the dynamically changing labor market, machine operators must have possessed employability skills in order to stay in their work. Prospective machine operators who are going to enter the world of work should have prioritized skills in order to be recruited, so that the graduates of mechanical engineering from vocational high school (VHS) can participate successfully in the global labor market competition. Eventually, ideal graduates and machine operators have always to be ready to adapt to their work competencies in order that they have the competencies which can compete in the national and even regional ASEAN regions.

Figure 3 presents the formulation of the employability skills that are recommended to machine operators. Meanwhile, the description of the 14 employability skills that must be mastered by machine operators is presented in Table 2. Specifically and in details, the recommended framework can become a guide for machine operators in their efforts to be recruited by employers in the industry.

Figure 3. Model Framework of 14 Employability Skills of Machine Operators

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Table 2. Model Framework Description of 14 Employability Skills for Machine Operators

Employability Skills		Description
Basic Skills	Communication	Machine operators can deliver information clearly to other machine operators, team leaders, and other workers in the company as it is needed.
	Listening	Machine operators can listen to something carefully and attentively in order to be able to analyze information on the job command from team leaders and supervisors.
Self Quality	Attendance	Machine operators can keep their discipline in attendance to be able to work during the time as regulated by the company.
	Responsibility	Machine operators can be responsible for the products they have worked on, according to their own job description in their own division.
	Honesty	Machine operators can act honestly in working under any circumtances at work.
	Collaboration	Machine operators can work in teams or groups discussing and sharing the job to make them work more effectively.
	Flexibility	Machine operators can adapt by adjusting themselves with their working environment, shown by their willingness to learn.
	Empathy	Machine operators have empathy by helping and supporting other machine operators to reach the production targets.
Thinking Skills	Creativity	Machine operators must be creative by prioritizing effective and efficient working steps in doing their job without decreasing the standard quality of the company's product.
	Problem Solving	Machine operators must be able to solve problems by doing new jobs as desired by various customers' orders.
Management	Self Management	Machine operators can manage time by being discipline, shown by being on time at work, following the schedule that has been established.
	Planning Management	Machine operators can finish the production project planning according to the established deadline.
System and Technology	Production Flow System	Machine operators can understand the production flow, starting from raw materials to the final product *(Raw material-Production Process- Quality Control).*
	Mastery of Job Field Concept	Machine operators can master the job field concept, such as reading the machine engineering figures, operating the measurement tools, using the hand tools powerfully, operating conventional machines, and operating CNC machine.

Communication

Communication skill is a basic skill considered the most important. Various employability skills of operators always need a good communication skill. The communication skill of machine operators is obviously different from that of other workers in general. Machine operators seldom talk to the other fellow workers because they deal with non-living things or machines, not humans.

Communication skill is an important aspect, which means that workers have to be skillful in communicating with people of different language backgrounds, and they have to be able to use various forms of communication (Wei Chan et al., 2018), at least, communication in a clear and understandable language. In the workplace, machine operators communicate more intensively with other

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fellow workers or machine operators. Every machine operator must actively communicate clearly so that there will be no misunderstanding, which can cause loses for the company. Meanwhile, communication with their employer or team leader is needed only occasionally and situational in nature. However, it does not mean that they are passive and do not communicate. This aims to maintain the ethics of good interpersonal relationships between employers and employees.

Furthermore, when a machine operator has difficulties in his job, he must be able to communicate verbally in a proper way to solve problems well (Lee & Chin, 2017). This is important in order to support his work. Communication has to be based on honesty so that an operator is open to any problem. Some mistakes are often made by machine operators, including not communicating essential things despite their importance, for instance, a mistake or failure in production. If it continues, it will bring harm to the company.

Listening

Industries agree that listening to instructions is very important. The instruction given by an employer is usually conveyed at the beginning of work or when there is a need for operators regarding job information. Machine operators are often faced with a situation when they have to listen to instructions or orders from their superior. One form of instructions is about job description and explanation on how they have to carry out their work. At this stage, they are required to listen attentively in order that the instruction can be carried out well in accordance with the team leader's direction.

The listening skill is important for the success of machine operators. A team leader is satisfied when machine operators can prove the result of their work, which indicates that they listen to instructions well. In this way, they get feedbacks that aim to improve their work performance (Longweni & Kroon, 2018). Listening to superiors highly empathically is with the aims that misunderstanding and misinformation will not happen, which means that machine operators understand the conversation and so they meet their team leader's expectation.

Attendance

The interview result shows that attendance can improve machine operators' career because by maintaining attendance, they show that they are productive workers, assessed from their attendance report. Managers do not like machine operators who often ask for leave permission or are absent without good reasons, and this often causes them to get heavy sanctions and expel from their job.

Attendance is often interpreted as something important for industries because it teaches machine operators to obey the regulation in the industries. Attendance, often related to presence, includes starting the work at the specified time, being at the workshop on workdays, and completing the described job responsibly. Research findings show that machine operators' superiors, such as supervisors and managers, like those who maintain their work attendance. Their routine attendance shows their good work ethics. This is supported by the findings of the research by Lindsay et al. (2014) that workers must have responsibility for their job by maintaining their attendance.

Responsibility

Other research findings show that industries appreciate the workers who have a high responsibility (Dicker et al., 2019; Potgieter & Ferreira, 2018). In addition, operators must have a responsibility by showing totality in working, which means they can organize all works to be finished with the best results. The superior, who is the team leader or supervisor, can indirectly evaluate how machine operators work by looking at their totality and seriousness in working. This, of course, has a good impact on their career.

Other research findings prove that; managers like machine operators have a positive attitude toward and are responsible for their job (Lim et al., 2016). Being responsible in this case is being able to be relied on doing the job in accordance with specified main duties in each field or division. All responsibilities and duties of machine operators must be carried out in accordance with their

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job description. By building trust in machine operators, employers will find the greater integrity of an operator that can be built while having loyalty to the company.

Building the character of responsibility in workplace tends to be difficult. Not all machine operators find it important to do their job seriously, and there are some who work only to fulfil their obligations. Supervisors or managers need to encourage and give appreciation to good operators. Not only the appreciation in the form of rewards but also direct and useful gratitude and praises are the forms of acknowledgement of machine operators' good work. Therefore, they will have the feeling of belonging to the company and be responsible to work for the good reputation of both the company and themselves.

Honesty

The character value of honesty begins to disappear due to one's attitude. Honesty in the world of work is very important in achieving the success of workers. Honesty has a positive impact on workers because the honesty values always prevent them from various negative actions. In industries, the honesty culture reflects professionalism in working. In this case, machine operators are obliged to be honest in their work. Industries also prioritize self-quality over hard skills in the recruitment of skillful prospective machine operators. Research findings show machine operators have to possess honesty, for example when they are given a job by their supervisor, it must be done honestly. Moreover, when an operator has performed his work honestly, he can give trust to his supervisor after what he has done.

There are many instances of honesty in industries' work culture, including admitting the mistakes that have been made. The character of honesty is very important in building good reputation in workplace. It is important for machine operators to possess good reputation because it can result in the trust from their supervisor and fellow workers. On the other hand, if honesty is ignored, what will happen is that the relationship already made will be broken because it is difficult to develop since there is no trust from anyone and even the career that has been built can be destroyed.

It is a must for skillful machine operators to have integrity in their job. They should tell the truth, are honest about whatever happens, and are open-minded. In this way, the actions the do have positive impacts on the development of themselves and companies or organizations. Moreover, a machine operator can be promoted to a team leader or even a supervisor.

Collaboration

Manufacturing industries need very much operators who can collaborate in a team well. The result of the interviews shows that industries agree to prefer machine operators who can collaborate in a team well. This is not without reason because in their job description machine operators cannot work independently. In terms of responsibility, one division is interrelated with another division. However, some machine operators do not collaborate as a team. Actually, there are advantages in teamwork, one of which is in making a product, where operators may work collaboratively by sharing assembled parts to be done together, which makes the job easier.

This is in line with the research findings, which show that industries need workers who collaborate with others (Buntat et al., 2013). This is because by working in a team, all processes of work become more efficient because they can be finished simultaneously in accordance with the production target. From the management's viewpoint, managers consider team work in the workplace will also help industries' productivities and the inspiration of new ideas from group discussions. In an effective team, working in teams can also make machine operators and their fellow workers do the job from different perspectives in accordance with their background and work experience. This will be very advantageous because it can help industries to create an optimal, concrete solution.

Flexibility

The workplace environment certainly has various cultures and customs. However, cultural differences in the workplace are not a problem for workers who have good adaptability. Quickly adapting to the environment can make workers more acceptable to their work environment (Ahmed

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et al., 2012). How to adapt to the work environment can be seen from machine operators who have perseverance and high learning interests. Good machine operators do not stay in one production division. However, they can move to other divisions to learn other knowledge. The development of their employability skills can be achieved by participating in companies' training or through self-development.

Adaptation processes need self-adaptation in order to adapt to the climate of the work environment in companies. New machine operators need never-ending learning regardless of their ages. In addition, discipline with a flexible mindset and transferable skills, and dynamic adaptability with the work environment are a good key to adaptation (Bunney et al., 2015). Therefore, machine operators can show good work performance in the transition to a new environment so that they have opportunities to develop (Kamaliah et al., 2018).

Empathy

To foster a condition conducive to collaboration among workers in machine operators' environment, ideally, there is a feeling of empathy among machine operators and their supervisors. Some of the interviews and survey results show that the skills needed by workers consist of basic skills and social competence (Sermsuk et al., 2014). In the Industrial Revolution 4.0 era, it is an obligation for operators to have social skills. There are many advantages machine operators can feel when in their everyday activities they face problems which can be solved by exchanging ideas and mutually helping other machine operators. Research findings also show the best workers cannot just work alone; there need to be other people who can be a team to collaborate. The reality in the field shows that machine operators usually have to help and support other machine operators' routine work with work log, provided that the work has been finished. Therefore, the job can be worked out quickly and efficiently.

The company's success in increasing productivity must certainly start with a good sense of empathy to build better relationship with other operators. Indirectly, the personal relationship of each operator also gives a better performance. The working convenience machine operators have got will certainly give effect to the harmony among them, and it is the capital to help build relationships and pursue a better career.

Creativity

One of the measures of creativity of a machine operator is his ability to work effectively. As an example, a machine operator does his work in his own way without ignoring the quality of the product. This means that he has to save time by doing his work faster than the estimated time. Sometimes a worker does not have to follow the procedure but he can find new procedure which does not jeopardize his own safety.

This is in line with the statement that creativity is an important dimension for a worker (Yang et al., 2015). The invention of a new way to save time very much affects the selling price of a product; the longer the time spent on making it, the higher the price will be. Therefore, an operator is allowed to find a new way as long as the product is good and the same, and it does not jeopardize his own safety. For example, the machinery parameter process can be done in a shorter time by burying it deeper, faster than spindle rotation.

Solving Problems

In their workplace, machine operators are always faced with concrete problems. This is important for them so that they can solve the problems in their work well. Research findings prove that machine operators must work in multicultural environments such as manufacturing industries (Spinks et al., 2007). A multicultural environment such as manufacturing industries is very complex, starting from problems of cultural differences, which certainly trigger conflicts among the workers. Therefore, machine operators must solve their problems by themselves, and differences in individuals' opinions must be responded to wisely.

In addition, when receiving various orders from customers, such as different materials, complex shapes, and meticulous tolerance sizes, a machine operator must scrutinize how to fulfill the

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various orders. There needs to be a critical reflection on developing an idea to play an active role in solving the problem (de Schepper & Sotiriadou, 2018). Most importantly, a machine operator must be able to analyze an effective way to make a product according to consumers' desire. In this way, the product is in accordance with consumers' desire and the production target is achieved.

Self-Management

For a worker, especially a machine operator, self-management is not an additional skill anymore; it is a skill that is essential in nature. Research findings show the need for discipline to improve a company's advancement development (Boahin & Hofman, 2013). One of the ways that a company can develop well is by having machine operators manage themselves with their discipline of time in working. Therefore, there needs to be a binding rule to discipline work time.

Some companies consider Self-management skills as the most important indicator, and many industries look for them (Sermsuk et al., 2014). Supervisors and managers consider the specific self-management skill needed is time management skill. The most essential thing is time, i.e., how machine operators can manage time well. For example, the obligation of coming to work and going home on time, i.e., neither coming late nor going home earlier. Although it looks simple, it is often difficult for some operators to do. By coming to the office and going home on time, they get used to finishing their job in accordance with the deadline.

Management of Planning

Another important attribute is planning and works performance improvement (Bridgstock, 2009). Good planning for machine operators gives a focused direction to achieve goals according to the plan made. In addition, with the scheduled plan, machine operators can know what objective must be achieved and what must be done to achieve it. Furthermore, the machine operators who have planning management ability can plan and organize the time regularly so that they can accomplish the job and prioritize which job must be finished first.

Machine operators should determine the main and earlier-to-complete work to manage the time easily. Specific job priorities will help machine operators to be more disciplined and will minimize the risk of work being neglected. With the target schedule, they can quickly finish the work by maximizing the available time. In addition, a target schedule will encourage them to maximize their ability (de Guzman & Choi, 2013).

Production Flow System

There is a production flow from raw materials to finished materials in the manufacturing process. It is very important for machine operators to know the production flow system from raw material - production process - quality control (Drange et al., 2018). The production process function can make a raw metal product to become a value-added product. Technically in the field, machine operators have to understand the overview of production flow because it impacts the quality of the product. By understanding a production flow, they can estimate the product they made to be assembled to the next section.

Research findings show that by understanding the production flow, for example, in the aviation industries, machine operators understand the detailed production flow. The product can be customized according to its function, and if it is fixed in the vital part, it will take a high tolerance. On the other hand, if it is fixed in the part which is not vital and just a compliment, tolerance can be reduced, and fineness can be adjusted. For this rationalization, production operators can save production time, and production is quicker and more efficient so that it will be faster than the production target (Okunuga & Ajeyalemi, 2018).

Mastery of Job Field Concept

The mastery of the job field concept will impact the ease of getting a job and staying in the job (Ćurić Dražić et al., 2018). A machine operator must be able to master his job field concept. The field concept of machine operators includes manufacturing. More specifically, they must oper-

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ate production machinery, design and examine a product, and operate computer numerically controlled (CNC) machine (Markes, 2006; Motyl et al., 2017). The qualitative finding also shows that machine operators must be able to use manual tools and powered tools, use precision mechanical measurement instruments, operate conventional machines, and operate CNC machines.

The important job field for machine operators is the mastery of the basic concept of machine operators' field. Therefore, what must be emphasized is the mastery of concept first, and then they just develop themselves in their workplace. In addition, their understanding of machinery logic related to functions, actions, and machine instruction is deepened. Furthermore, they have to increase their work experience by doing many practices, because by doing so, they will get used to their job and thus increase their technical mastery.

Anticipating technological change, machine operators must have sensitivity by adapting themselves to new jobs with good learning interests. Therefore, despite the rapid change in technology, they can be open and learn to change employability skills. For this reason, their flexibility is highly required. In this way, supervisors can appreciate the performance supporting sustainable technological development (Ali et al., 2018).

CONCLUSION

The research findings show that there are 14 attributes of essential employability skills which serve as the framework for machine operators. The employability skills are identified and ordered according to the priority by manufacturing industries of metal and machinery as follows: (1) basic skills: communicating, listening; (2) self-quality: attendance, collaboration, responsibility, honesty, flexibility, empathy; (3) thinking skills: creativeness, problem solving; (4) management: self-management, planning; (5) system and technology: production flow system, mastery of job field concept, and production flow system. Overall, industries prioritize basic skills as the main obligation and self-quality as the priority for recruitment. Furthermore, thinking skill, managerial skill, and system and technology skill will be developed later in the workplace.

The implication of this study is that, for the stakeholders of manufacturing industries of metal and machinery, employability skills can be the reference for their companies when recruiting prospective machine operators and that evaluating machine operators' work performance is important to support the long-term sustainability of their industries. The framework of employability skills can become the basis for practical arrangements for the curriculum or competency development programs at mechanical engineering vocational high schools. This research finding can help teachers to identify the gap between industries and schools. Therefore, the understanding of employability skills can contribute to the career development of their graduates, in order to be able to compete in the dynamically changing labor market.

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DEVELOPING GERIATRIC FACE MAKEUP ENRICHMENT BOOK FOR STUDENTS OF SKIN BEAUTY PROGRAM IN VOCATIONAL HIGH SCHOOL

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Abstract

This study aims to produce a proper and effective Geriatric Makeup book as enrichment material for beauty students at Vocational School. This study used a research and development approach with a Four-D model. This model consists of four steps of development; they are Define, Design, Develop, and Disseminate. The product feasibility test was carried out by two material experts and two media experts. The feasibility test results were subsequently tested for agreement between experts through Cohen's Kappa coefficient test. The book's effectiveness was seen by the gain score when implemented using a quasi-experimental design with a one-group case study. The research subjects were 28 students of the XI beauty class of SMK N 3 Purworejo. The data collection instrument were observation guidelines, interview guidelines, expert validation sheets, student response questionnaires, and ability tests. The study results show that the enrichment book fulfills the eligibility criteria based on the expert material with a score of 3.59 (very good). According to the expert, there was an agreement between experts of 0.64 (good) and fulfilled the eligible criteria with a score of 3.70 (very good). There was an agreement between expert 1.00 (very good). The developing enrichment book was effective to be used by beauty class XI students SMK Negeri 3 Purworejo with an understanding gain score of 0.5 (moderate) and with a skill gain score of 0.71 (high).

Keywords*: enrichment book, geriatric face make up, skin beauty students*

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INTRODUCTION

Economic development in life has influenced human life, including the way people think about how people can work and survive. The same with the development of people's purchasing power which makes new business ventures grow rapidly. Not only the need for food and clothing, the need to look beautiful and stunning seems to be a necessity for modern society.

Makeup is an art that aims to beautify the face by accentuating parts that are already beautiful and disguising or covering up flaws in the face. Make-up also aims to support one's self-confidence (Tilaar, 1999). The use of makeup cannot be separated from women of all age to keep their appearance beautiful. Makeup services are very much needed at certain events, such as weddings, graduations, or attending formal events. The need make-up for women aged 40 years and over is not as much as for young people, but these needs will remain and cannot be ignored.

Human resources are expected to have special competences to face the competitive world of work. Therefore, they need to acquire knowledge, understanding, and also skills in order to keep up with the demands of the world of work. One of the efforts to improve human resources quality is through vocational education.

Vocational school is a school level that directs students to have certain skills. Accroding to the Regulation of the Minister of National Education of the Republic of Indonesia No. 23 of 2006, vocational school aims to improve intelligence, knowledge, personality, noble character, and skills of students so that they are ready to face the world of work or follow further education in accordance with their vocational program. To work effectively and efficiently, and develop expertise and skills, they are expected to have high stamina, master their field and the basics of science and technology, have a high work ethic and be able to communicate in accordance with the demands of their work, and have the ability to develop (Regulation of Minister of National Education No. 22 of 2006). The business world does not only demand skills, but also a good work ethic for its workers. With these demands, students must instill a good work ethic in themselves from an early age.

In the decree of the minister of manpower and transmigration, Indonesian national working competence standard or *standar kompetensi kerja nasional* Indonesia (SKKNI) is one of the requirements so that training or education and assessment can produce a workforce that is in accordance with industry needs (Decree of the Minister of Manpower and Transmigration No. KEP.248/ MEN/XII/2008). Thus, the competencies taught at vocational secondary school (*sekolah menengah kejuruan* (SMK) or *Madrasah Aliyah Kejuruan* (MAK)) vary widely according to their fields of expertise. One of them is the Beauty Expertise area with the Hair and Skin Beauty Expertise Program. The skin beauty program has six skill competencies, namely competence in the care of hands, feet, nail art, special make-up, and creativity. One of the basic competencies in special makeup subjects that SMK/MAK students majoring in skin beauty must master is geriatric makeup (makeup for elderly women or 40 years and over). However, the results of observations at SMK Negeri 3 Purworejo showed that many students are less interested in practicing geriatric makeup. Students had difficulty in applying cosmetics and correcting facial conditions in learning geriatric makeup practice so that learning geriatric makeup in class became ineffective.

The results of the interview with the beauty teacher at SMK Negeri 3 Purworejo stated that the low understanding and value of geriatric makeup practice was influenced by the low knowledge of students about geriatric makeup techniques, students lacking geriatric makeup practice, students were less innovative in finding out geriatric makeup techniques. It can be caused by several things, such as the learning media used by the teacher that is very few and not varied. Resources for learning geriatric makeup are still very limited. The Library of SMK Negeri 3 Purworejo only has beauty books volume 1, volume 2, volume 3, and geriatric makeup modules which have not been used for a long time because they are no longer relevant to current developments. Meanwhile, the makeup learning module does not contain geriatric makeup technique material.

Learning to use various types of learning resources provides benefits to students, including: finding hidden talents in someone who have not been visible so far, allowing learning to take place continuously so that learning becomes easily absorbed and more ready to be applied, and students can learn according to the available time (Abdullah, 2012). Learning resources can be in the form of data, people or certain forms used by students in learning. Learning resources can be used sepa-

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rately or in combination to make it easier for students to achieve their learning goals (Darmono, 2010). Learning resources are all sources including messages, people, materials, tools, techniques, and backgrounds that are used singly or in combination to facilitate learning activities and improve learning performance (Januszewski & Molenda, 2008).

Textbooks are part of the teaching materials used by teachers and students to help the learning process run well. Teaching materials are textbooks which one of the factors that can determine success in learning. Without adequate teaching materials, it is difficult to realize a learning process that leads to optimal learning outcomes (Basuki et al., 2015). This is in line with Muslich (2010) who defined that textbooks are books that contain descriptions of subject matter in a field of study that are systematically arranged and have been selected based on objectives, learning orientation, and student development for assimilated.

Textbooks have many functions and benefits for students. Textbooks provide facilities for students in independent learning activities. Lau et al. (2018) said that textbooks can serve as a means for users as work guidelines to be studied so as to direct and stimulate students in facilitating the teaching and learning process. The function of textbooks is to help achieve competency learning objectives through experiences, exercises, and information presented in textbooks.

Textbooks are one of the supporting factors in learning activities at school. Textbooks consist of five components, namely: (1) titles; (2) basic competence or main material; (3) supporting information; (4) training; and (5) assessment (Prastowo, 2015). Based on the classification by the Bookkeeping Centre of Yogyakarta Municipality Education Office, there are four types of educational books, namely textbooks, enrichment books, reference books, and educator manuals (Office of Education of Yogyakarta Municipality, 2019). Regulation of the Minister of National Education of the Republic of Indonesia No. 2 of 2008 article 6 (2) also states that in addition to textbooks, educators can use educators' manuals, enrichment books, and reference books in the learning process. Muslich (2010b) defines a textbook as a book that contains a description of the subject matter of a field of study that is systematically arranged and has been selected based on objectives, learning orientation, and student development to be assimilated.

Textbook is teacher guides in guiding the learning material contained in the book. It is considered a means to achieve educational goals (Milligan et al., 2017). It represents a source of information structured and sequentially based in a particular field of study. Textbooks are essentially an operational description of the curriculum content (Sitepu, 2012). Textbooks are student handbooks as instructional media (Effendi, 2009). Textbook is used as a learning tool in learning activities, both in class and outside the classroom. This is in accordance with the opinion of Nikonovaa et al. (2016), that textbooks are a type of information from educational books that represent the basis of scientific knowledge on a particular subject, in accordance with state educational standards and didactic requirements and officially approved.

Non-text textbooks include all enrichment books that support the learning process at every level of education and other types of books that develop knowledge so that a proper school library can see the book. The Regulation of the Minister of Education and Culture No. 8 of 2016 states that non-textbooks are not equipped with Student Worksheets, such as in the form of question sheets to test students' understanding of book content (Dewayani, 2018).

In the Regulation of the Minister of National Education of the Republic of Indonesia No. 2 of 2008 in chapter 1, enrichment books are books containing material that can enrich textbooks at the primary and secondary education levels. In addition to a good content, enrichment books must also be presented in a fun manner so that it can foster students' interest in reading. Enrichment books serve to improve students' thinking skills and broaden their horizons towards the environment based on current knowledge. Specifically, enrichment books can increase knowledge, skills, and personality insights for students.

According to Butcher et al. (2008), enrichment books are included in the category of learning resources in the form of materials. Materials are everything in the form of written text, printed, electronic records, web, and others that can be used for learning. Meanwhile, according to Kustandi and Sutjipto (2011), enrichment books are included in learning media (printed media). Learning media is a tool that can help the learning process and serves to clarify the message conveyed so that it can achieve better and perfect learning goals (Kustandi & Sutjipto, 2011).

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Based on the need of the research and limitations of the problems, the problems in this study can be formulated as follows: (1) How is the development of an enrichment book for geriatric makeup as a teaching material for geriatric makeup for Beauty program students of SMK Negeri 3 Purworejo? (2) What is the feasibility of the Geriatric Makeup enrichment book for Beauty program students of SMK Negeri 3 Purworejo? (3) How effective is the Geriatric Makeup enrichment book for Beauty students of SMK Negeri 3 Purworejo?.

RESEARCH METHOD

The research and development (R&D) approach with a Four-D development model from Thiagarajan et al. (1974) was used to produce a certain product and test its effectiveness (Sugiyono, 2013). The development procedure is elaborated as follows.

The Define Stage consists of (a) Front-end Analysis, in which facts and alternative solutions are presented to determine the initial steps in development. (b) Student Analysis (Learner Analysis), analyzing students including the media, learning topics, language, and formats to be selected and developed to achieve learning objectives. (c) Task Analysis, analyzing basic competencies and indicators related to the material to be developed. (d) Concept Analysis helps to obtain a set of examples and not examples. (e) Analysis of Learning Objectives (specifying instructional objectives), to analyze the learning objectives to determine indicators based on material analysis and competency analysis. This set of objectives forms the basis for constructing test and instructional designs.

The Design Stage consists of: (a) Constructing Criterion Referenced Tests. Criteria-based tests change the objectives in outline for the development of learning tools. (b) Media Selection, selected according to student analysis, concept analysis and task analysis, characteristics of target users, and deployment plans. (c) Format Selection Designing learning content, selecting learning approaches and sources, organizing and designing learning material content in the development of Geriatric Makeup enrichment books including design, layout, pictures, and writing. (d) Initial Design, in which the design of instructional media for the Geriatric Makeup enrichment book that has been made by the researchers is then given input by the supervisor. This design is in the form of draft I of the instructional media for Geriatric Makeup enrichment books

The Development Stage consists of: (a) Expert Appraisal, where the instructional media for the geriatric makeup enrichment book that has been compiled (draft I) is assessed by material and media experts. After the learning media for the draft I was declared feasible and revised, the learning media for the geriatric makeup textbook draft II was produced. (b) Product Testing (Development Testing), the results of testing on this product become a reference in improving the learning media developed. Thus, the learning media developed are becoming increasingly relevant to needs.

The Dissemination stage includes disseminating and testing the effectiveness of the final product learning media for limited geriatric makeup enrichment books to Beauty program teachers and students at SMK Negeri 3 Purworejo.

Product Trial Design

In the prroduct feasibility test, the product developed goes through a due diligence process by experts before being tested in the field. The feasibility trial involved two experts: media experts and material experts. In the preliminary trial, it is conducted to determine the response of teachers and students to the Geriatric Makeup enrichment book that was developed to get suggestions in the development of the Geriatric Makeup enrichment book. This initial trial involved a teacher of geriatric makeup subject and 15 students of class XII beauty program at SMK Negeri 3 Purworejo. In the product effectiveness test, the trial was carried out to determine the level of attractiveness and improvement of student learning outcomes by using the Geriatric Makeup enrichment book. Product testing was carried out using the one-group pretest and posttest case study technique done by comparing the students' pre-test and post-test scores, as presented in Formula (1), where X is the treatment, O_1 is pre-test, and O_2 is post-test.

$$O_1 \quad X \quad O_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. (1)$$

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Data Collection Technique

The data were collected by uisng several techniques, elaborated as follows. (1) Observation was conducted to observe the school's situation directly about the condition of the school used as the place for implementing the learning media product. (2) Interviewing aims to collect the data about the teacher learning model and students' characteristics from the school that will be used as the implementation place of learning media product. The interview was done by two parties, they are interviewer who give the question and interviewee who answer the question (Kamdi, 2007; Moelong, 2014). (3) Testing was done to observe the quality of the enrichment book that was developed. It was done by measuring the skill, knowledge, and intelligence.

Data Analysis Technique

Techniques of analyzing data used in this research consist of: (1) qualitative analysis, in which it describes the results of observations, interviews, lecturer suggestions, validation, and documentation notes when implemented. Some suggestions will be used for product improvement while documentation notes are described to determine the usefulness of the product being developed. (2) Quantitative analysis is used to process numerical data obtained through a product assessment questionnaire using a Likert scale with four-level criteria. A questionnaire contains of questions that are used to obtain information or responses regarding the Geriatric Makeup enrichment book that has been developed. (3) Feasibility analysis, in which there are two expert validation assessment instruments, they are material experts and media experts. The determination of the range of scores and the eligibility criteria for the Geriatric Makeup enrichment book developed in this study refers to Table 1 (Wagiran, 2013), in which Mi is the Mean ideal, SD is the standard deviation. Meanwhile, Mi can be gained by calculating $\frac{Highest\ score + Lowest\ score}{2}$, and SD is obtained by calculating $\frac{Higest\ score - Lowest\ score}{6}$.

Table 1. Product Eligibility Criteria

No	Interval	Criteria
1	(Mi+1.5 SD) > X ≤ (Mi+3 SD)	Very good
2	Mi > X ≤ Mi + 1.5 SD	Good
3	Mi – 1.5 SD > X ≤ Mi	Bad
4	Mi – 3 SD ≥ X ≤ Mi – 1.5 SD	Very bad

Based on the results of expert judgment in the development of an enrichment book for geriatric makeup, an agreement was obtained through the calculation of Cohen's Kappa coefficient test using SPPS version 16.0 as shown in Table 2.

Table 2. Product Eligibility Criteria

No	Kappa Index	Category
1	<0.40	Low
2	0.40 – 0.60	Moderate
3	0.61 – 0.75	Good
4	>0.75	Very good

RESULTS AND DISCUSSION

Preliminary Analysis

The analysis was done with interview and observation. The interview was done by involving the teacher as the interviewees. From the interview's result showed that teacher experienced problems in delivering material related to geriatric make-up because of the difficulty of finding references to geriatric makeup. The references used in the learning process still use very limited books and modules. The printed books used are not in accordance with the material presented, the printed

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books are presented with text without pictures, such as it was not in accordance with the current trend. From the preliminary analysis it can be concluded that more references are needed for learning geriatric makeup.

Learning Analysis

This analysis was done by interview and observation. Interviews involve teachers and students as resource persons. The results of the interview show that students are less enthusiastic about geriatric makeup lessons because they are assigned to learn independently from PowerPoint in English. According to the students in the interview, learning with such methods and media felt boring because they do not understand the language used. The absence of a turorial or geriatric makeup demonstration is also the reason students have difficulty in practicing.

The results of the learning analysis showed that the learning media used were not effective in increasing interest and learning outcomes of geriatric makeup. From the results of the learner's analysis, it can be concluded that there is a need for the development of instructional media that can help students in learning geriatric make-up, especially when practicing.

Task Analysis

The material used in the development of this enrichment book is geriatric make-up. It outlines about the skills and knowledge that required to do the face makeup for elderly women.

Concepts Analysis

The material used in the development of this enrichment book is geriatric make-up material with basic competencies, they are describing special makeup (geriatric makeup) and doing special makeup (geriatric makeup) according to the curriculum and syllabus of beauty vocational high schools. The main materials written in the geriatric makeup syllabus are: (1) various kinds of special makeup tools (geriatric makeup); (2) the benefits of special makeup tools and materials (geriatric makeup); (3) special makeup materials according to purpose (geriatric makeup); (4) benefits of makeup ingredients (geriatric makeup); (5) various geriatric makeup cosmetic products; (6) various geriatric makeup cosmetic products; (7) special cosmetic functions for makeup (geriatric makeup); (8) definition and purpose of geriatric makeup; (9) diagnosis of facial shapes and abnormalities based on the analysis sheet; (10) techniques for applying basic cosmetics; (11) techniques to camouflage wrinkles and facial abnormalities with makeup cosmetics according to the procedure; and (12) color selection in geriatric makeup.

Analysis of Learning Objectives

The final stage of the definition is to formulate learning objectives. The analysis of learning objectives in developing this enrichment book is in accordance with the curriculum and syllabus of beauty vocational high schools, namely: (1) students can understand the meaning of geriatric makeup; (2) students can understand the purpose of geriatric makeup; (3) students can understand the characteristics and conditions of geriatric facial skin; (4) students can diagnose facial skin types; (5) students can understand geriatric makeup techniques; (6) students can prepare work areas, personal needs, and customers according to standards; (7) students can prepare tools, materials, and cosmetics according to hygiene sanitation procedures; (8) students can do geriatric make-up according to the procedure; and (9) students can make corrections to geriatric facial skin.

Design

The second stage in developing this enrichment book aims to design an enrichment book that can be used in learning geriatric makeup. This design stage is done in four processes, elaborated as follows. (1) Constructing the test based on criteria, in which it is the assessment of the appropriateness of the geriatric makeup enrichment book for material and media experts, teacher and student responses, and questions. (2) Selecting media, where in the design stage, this teaching material was developed using Microsoft Word, Adobe PhotoShop CS6, and Corel Draw X7. The making of this

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textbook used the services of an illusator to design layouts, views, and illustrations in accordance with the concepts designed by the researchers. (3) Format selection, which consists of designing the learning content, selecting learning approaches and resources, organizing and designing book contents, and making book designs. The format of the geriatric makeup enrichment book was adapted from the standard assessment of textbooks by the National Board for Educational Standard, namely textbooks with a size of b5 (176 mm x 250 mm). The material is divided into five chapters, they are the definition of geriatric makeup, makeup tools and materials, facial diagnosis, facial correction, and geriatric makeup work steps. This enrichment book displays more pictures with the aim of making it easier for students to understand geriatric makeup material and can help in practicing geriatric makeup. (4) Initial design, in which the design of the Geriatric Makeup enrichment book can be described as follows. (a) The cover page contains the material title, UNY symbol, thesis title, and the author's name. (b) The book's spine contains the author's name, graphic design name, photographer's name, makeup name, and model name. (c) The foreword contains an outline of the making of an enrichment book for geriatric makeup, as well as thanks to those who have helped. (d) The table of contents contains the location of the entire content of the geriatric makeup enrichment book. (e) The material in the geriatric makeup enrichment book contains five chapters of material consisting of definition of geriatric makeup, tools and materials, facial diagnosis, facial correction, and work steps. (f) The makeup sheet contains photos of geriatric makeup.

Development Stage

The development stage begins with the preparation of draft I of the Geriatric Makeup enrichment book, expert validation (media experts and material experts). The validation results are used for revision so that it becomes the second draft of the geriatric makeup enrichment book that is ready to be tested on students. After being tested and revised again, an enrichment book for geriatric makeup lessons is ready to be distributed.

Expert Appraisal

Material Expert Validation

The results of the material validation for the geriatric makeup enrichment book for each aspect are (1) the content feasibility aspect obtains a score of 3.68. (2) The presentation feasibility aspect obtains a score of 3.55. (3) The language assessment aspect gets a score of 3.5. Overall, the results of the material expert's assessment of the geriatric makeup enrichment book show a score of 3.59 with an A. The score is in the Very Good category. It is concluded that the developed geriatric makeup enrichment book is feasible to be tested in the field according to the material expert. Test results of the Cohen's Kappa coefficient on the results of the material expert's assessment of the geriatric makeup enrichment book obtained a Cohen's Kappa coefficient of 0.64 which means that there is an agreement between material expert 1 and material expert 2 in the Good criteria.

Validation of Media Experts

The results of media validation for the geriatric makeup enrichment book for each aspect are (a) the size of the book gets a score of 4.00. (b) The cover design aspect receives a score of 3.9. (c) The aspects of the content design aspect obtains a score of 3.6. Overall, the results of the media expert's assessment of the geriatric makeup enrichment book show an overall score of 3.7 with an A in the Very Good category. It is concluded that the geriatric makeup enrichment book developed is feasible to be tested in the field according to media experts. The results of the Cohen's Kappa coefficient test on the results of the media expert's assessment of the geriatric makeup enrichment book obtain a Cohen's Kappa coefficient value of 1.00, which means that there is an agreement between media expert 1 and media expert 2 in Very Good criteria.

ProductTesting (Development Testing)

Product testing in this study involved one geriatric makeup subject teacher and 15 students of class XII Beauty. This trial was conducted on January 10, 2019 at SMK Negeri 3 Purworejo.

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Teacher Response Assessment

Based on the test results of the teacher's response to the geriatric makeup enrichment book that was developed, it showed an average score of 3.9 with a value of A. The score is in the very good category. Based on the results of this assessment, it shows that the Geriatric Makeup enrichment book is in accordance with the needs in the field.

Assessment of Student Responses

The results of testing the responses of students to the geriatric makeup enrichment book that were developed showed an average score, it is 3.6 with an A. The score was in the Very Good category. Based on the results of this assessment, it shows that the geriatric makeup enrichment book is in accordance with the needs of the students.

Product Revision

Revision Based on The Expert Suggestion

After the Geriatric Makeup enrichment book has been assessed, the next stage is a revision based on the assessment, evaluation, and suggestions given by the material expert. Inputs and suggestions from material experts on the development of an enrichment book for geriatric makeup are (1) changing the image of the eyebrow tweezers that are not suitable, (2) changing the image using the foundation. In the previous picture, the use of foundation directly from the foundation without being transferred to the plate first, this shows a lack of hygiene. (3) Changing the usage image tinting. In the previous picture using tinting directly from the place tinting without being moved to the plate first, this shows less hygiene. (4) Creating an evaluation sheet.

Revision Based on Media Experts

After geriatric makeup enrichment book get an assessment, the next stage is a revision based on the assessment, evaluation, and suggestions given by media experts. Inputs and suggestions from media experts on the development of an enrichment book for geriatric makeup are as follows: (1) changing the cover design so that there is a UNY logo, and (2) including a statement that this book is the result of research.

Disemination

After trial, the next stage is the dissemination stage. The aim of this stage is to disseminate an enrichment book for geriatric makeup. The distribution of the geriatric makeup enrichment book was carried out by giving geriatric makeup enrichment books to Beauty program teachers and libraries at SMK Negeri 3 Purworejo with the hope that the geriatric makeup enrichment book could be used as a learning medium. In the dissemination stage of this study, implementation was carried out to determine the effectiveness of the product being developed. The technique used to test the effectiveness of this product is atechnique one-group pre-test and post-test case study involving all students of class XI majoring in Beauty at SMK Negeri 3 Purworejo totaling 28 students. The effectiveness is evidenced by the increase in the pre-test and post-test student learning outcomes (scores ofgain score).

Based on the analysis of the value of understanding carried out, it is known that the gain value of the pre-test average value and the post-test average value is 0.5, in the medium category. Based on the skill value analysis that has been carried out, it is known that the gain score from the average value of the pre-test mean and the post-test mean score was 0.71, in the medium category and was declared effective for use in class XI of beauty program at SMK Negeri 3 Purworejo.

Discussion

Product Feasibility Study

Enrichment book of the geriatric makeup in this study is a development of the existing geriatric makeup textbooks. The development of it lies in additional components that have not been

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contained in the previous geriatric makeup enrichment book. These components include the work steps of geriatric makeup through pictures descriptions coherently so that they can be illustrated more realistically. In addition, in the development of the geriatric makeup enrichment book, geriatric makeup material is explained more broadly, starting from tools and materials to work steps and practice questions.

The appropriateness of it as a learning medium that aims to improve the students' geriatric makeup skills is determined based on expert judgment. The experts who gave the assessment were geriatric makeup material and media experts. The geriatric makeup enrichment book is deemed fit to be used as a learning medium if the material expert and media expert's assessment meets the minimum criteria, namely getting a good category score.

Feasibility Study of Material Experts

The results of the validation analysis of the geriatric makeup enrichment book by material experts in terms of the aspects of content feasibility, presentation feasibility, and language assessment showed a score of 3.59 in the Very Good category. Based on the results of the analysis, it shows that the development of the geriatric makeup enrichment book meets the eligibility requirements and is declared feasible by the material expert. Thus, the geriatric makeup enrichment book can be used as a learning medium for geriatric makeup.

Feasibility Study of Media Experts

The results of the validation analysis of the geriatric makeup enrichment book by media experts in terms of book size, book cover design, and book content design showed a score of 3.70 in the Very Good category. Based on the results of the analysis, the development of an enrichment book for geriatric makeup has the eligibility requirements and is declared feasible by media experts, so the developed enrichment book can be used as a learning medium for geriatric makeup.

Product Effectiveness

The effectiveness of the geriatric makeup enrichment book consists of the effectiveness of improving the learning outcomes of geriatric facial enrichment knowledge and the effectiveness of improving the learning outcomes of students' geriatric makeup practice. The effectiveness of the geriatric makeup enrichment book can be seen based on the increase between the pre-test and post-test scores of the learning outcomes of geriatric makeup knowledge and the learning outcomes of geriatric makeup practice.

Comprehension Value of Geriatric Makeup

The learning result of students' knowledge of geriatric makeup got the pre-test average score of 2.36 and the mean post-test is 3.18. The score from the average value of the pre-test and the mean post-test score is 0.5. Based on the analysis of the value of understanding that has been carried out, the geriatric makeup enrichment book developed is in the moderate category and is declared effective for use in class XI Beauty program of SMK Negeri 3 Purworejo.

Value of Geriatric Makeup Skills

The pre-test average value of the learning outcomes of students knowledge of geriatric makeup is 2.67 and the average value of the post-test is 3.62, and the average value of pre-test and the mean post-test score is 0.71. Based on the analysis of the value of understanding that has been carried out, it can be concluded that the Geriatric Makeup enrichment book developed is in the high category and it is effective to use in class XI Beauty program of SMK Negeri 3 Purworejo.

Relevant Research Studies

This research is inseparable from relevant previous research studies used as a reference in determining the research position, one of which is by Novita and Yuswati (2013). The study used the R and D cycle research method by Borg and Gall. It shows the success in making media as an

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increase in student success in learning geriatric makeup. The similarity with this research is the material used in media development. The difference with this research is the media developed and the method of development.

Another similarity is found in the product assessment in their research, about the development of geriatric makeup video media for vocational school students, such as validating by material experts and media experts to get revision suggestions. The difference is that this research is assessed by (1) material experts, in terms of the feasibility of content, presentation feasibility, and language assessment. (2) The results of the validation analysis of the geriatric makeup enrichment book by media experts are reviewed from the aspects of book size, book cover design, and book content design. (3) The effectiveness of the geriatric makeup enrichment book consists of the effectiveness of improving the learning outcomes of geriatric facial enrichment knowledge and the effectiveness of improving the learning outcomes of students' geriatric makeup practice. Whereas in the research on the development of geriatric makeup video media for vocational school students, the assessment of the products developed was carried out by students, among others (1) assessing the quality of the display of the developed media according to their needs and interests in following audio-visual learning. (2) the results of the evaluation carried out by students to show success in making media as an increase in student success in learning.

CONCLUSION

Based on the results of the analysis and discussion that has been carried out, this research can be concluded as follows. (1) The appropriateness of the geriatric makeup enrichment book developed in this study was assessed according to material experts in terms of the aspects of content feasibility, presentation feasibility, and language assessment. It is shown that the development of a geriatric makeup enrichment book had the eligibility requirements and was declared feasible by the expert. Thus, the geriatric makeup enrichment book can be used as a learning medium for geriatric makeup. (2) The effectiveness of the book developed in this study is in accordance with the calculation of the gain score. It can be concluded that the geriatric makeup enrichment book developed is in the medium category for understanding values and high categories for skill values and declared effective for use in class XI of Beauty program students at SMK Negeri 3 Purworejo.

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IMPLEMENTATION OF SOFT SKILLS ON AUTOMOTIVE ENGINEERING PRACTICUM OF STATE VOCATIONAL HIGH SCHOOLS IN WEST LOMBOK REGENCY

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Abstract

This research aims to reveal the implementation of soft skills in the expertise program of automotive workshop at vocational high schools (VHS) in West Lombok Regency in terms of (1) student condition and practicum lesson planning, and (2) level of soft skills in automotive technology practicum of VHS students. This research is quantitative research with a descriptive approach. The research population is all state vocational high schools (SVHS) of light vehicle technology in West Lombok. The sample is four vocational high schools with 84 grade XII students and four teachers established using the purposive sampling technique. The research finding shows that (1) the student condition in the implementation of soft skills is in a good category with the achievement percentage of 46.43% and the lesson plan condition is in a good category with the achievement percentage of 58.33%; (2) the achievement level of soft skill is in a good category with the achievement percentage of 49%.

Keywords*: implementation, soft skills, vocational high school*

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INTRODUCTION

Education is everyone's need to guarantee a better life. Therefore, the state is obliged to facilitate every citizen without exception to get the opportunity to enjoy equal education service. This is written in article 31, paragraph 1 of Constitution 1945 which states that every citizen has the right to get education.

The quality improvement of education in Indonesia is included in the Government Regulation No. 19 of 2005 on the National Standard of Education which is the minimum criteria. The components of national standard of education consists of the standards of (1) graduate competence, (2) content, (3) teachers and school officials, (4) processes, (5) facilities and infrastructures, (6) financing, (7) management, and (8) assessment. This regulation indicates that vocational high school (VHS) is expected to produce quality graduates competitive and competent at their fields, so they can be employed in business and industrial sectors, where the local government also plays an important role in managing vocational education in accordance with regional autonomy which emphasizes the development of vocational education providers of VHS and vocational *madrasah aliyah*.

However, the real condition in the field is contradictory; VHS as the producer of skilled labour does not show the optimal employability of its graduates. This can be seen in the total workforce of 131.01 million in August 2018, an increase of 2.95 million compared to that in August 2017. In line with this, Labour Force Participation Rate (LFPR) also increased by 0.59 %. At the end of 2019, the number of the unemployed decreased by 40.000, in line with the TPT decrease of 5.34 % in August 2018. Viewed from the level of education, the TPT of VHS was dominated by the other education levels, by 11.24 %. This phenomenon shows that vocational high school (VHS) expected to bridge the link and match is in fact cannot meet the expectation. The high unemployment of VHS graduates also shows that the relevance level of VHS education to their lives needs improvement. On the other hand, the graduates' unemployment is due to the fact that most VHS graduates in Indonesia are unable not only to adapt themselves to the development of science and technology but also to develop themselves and their careers in their workplace (Department of National Education, 2004, p. 1). This indicates that employability skills play an important role in workplace, so that every VHS graduate has to produce productive work.

Basically, employability skills are the skills which play an important role in doing a job effectively in the workplace with various competencies and knowledge that must be possessed to ensure that a person has the ability that matches the needs of his job (Chaita, 2017). They are basic skills that must be possessed by every worker in order to get, maintain, and do their work well and efficiently. They consist of two categories: hard skill and soft skill (Omar et al., 2012).

Hard skills are the skills in a field in the form of more technical abilities, which in this case tend to be the ability to create, repair, arrange, and form something. Hard skills are also known as competency-based knowledge (Dahlan, 2009). Therefore, they are more related to one's abilities acquired through learning and training related to expertise competence in certain fields in a certain period and duration, after undergoing which one is considered competent proven by a certificate in a certain expertise. Dell'Aquila et al. (2017, p. 1) write that the term soft skills or "people skill" is the attribute or a list of personality traits which can optimize and improve one's interaction with others, can be used every day by most people with different levels of existence, and in general, are considered as the combination of the competence in how one knows and manages oneself and his relationship with others. Soft skills refer to a set of competencies, skills, behaviours, attitudes, and qualities on an individual which enable him to make good relationship effectively with others, navigate his environment, work well, and achieve goals in life (Lippman et al., 2015, p. 11), where soft skills are one's skills in having relationship with other people (interpersonal skills) and the skills in managing himself (intrapersonal skills) that can develop to work maximally (Panuju, 2018, p. 58).

Most corporate owners nowadays look for employees competent in technical skill only but they need those who have additional skills in the form of soft skills such as communication skill, discipline, interpersonal skill, teamwork ability, problem solving ability, technological skill, continual learning skill, and positive work ethics to improve productivity and competitiveness (Esa et al., 2014). It shows that soft skills play a key role in determining the quality needed by business and industrial sectors.

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The need for and role of soft skills really determine one's success in business and industrial sectors. The research by Neff and Citrin (2010) found that 80% of one's career is determined by soft skills and 20% by hardskills. Widarto et al. (2012) on the analysis of the needs of business and industrial sectors show that the aspects of soft skills such as the motivation, personality and leadership of employees are very dominant requirements which are very important in business and industrial sectors. Therefore, it can be concluded that soft skills become the main aspect or ability needed by employers, and jobseekers should consider this when starting their careers.

Developing soft skills in VHS education has to be based on real life, higher order thinking, the students' applicative activities, problem-based learning, authentic instruction, relevance-based teaching, project-based learning, service-based learning, and comparative learning (Johnson et al., 2008). In addition, soft skills play a very important role in VHS education beside hard skills. Soft skills become important parts of students' competence to be successful in their lives (Directorate General of Higher Education, 2008, p. 3), because they are related to work performance and career development of how to manage their interaction and emotion to interact effectively in their workplace (Dell'Aquila et al., 2017, p. 7). In other words, in soft skills, there are job character as the complementary competence which students must have, which can facilitate them to be effective and successful (Bhatnagar & Bhatnagar, 2012, p. 6), particularly for vocational schools, which is very important to be given to their students as the provision for them to involve in business and industrial sectors which emphasize the mastery of soft skills.

Hendricksen (2012, p. 2) mentions there are 12 soft skills needed by the world of work, all of which are classified into three areas: relationship skills (leadership, politics, gracious behavior, communications, negotiations); personal skills (context switching, transparency, passion); and business skills (pragmatism, vision, business knowledge, and innovation). Helena and Thomas (2016) point out that there are 20 soft skills which are most preferred by recruiters of employees and expected from every jobseekers at the recruitment processes. The polling result of five companies of the IDCZ (Industrial Depelopment Corporation of Zimbabwe) group shows that the 10 soft skills expected from school graduates are the skills in critical thinking, morality, team work, ethics, self-control, communication, integrity and professionalism, belief, self-confidence, and work culture understanding. The summary of the 20 soft skills which become the consideration of competence in the process of recruiting employees is shown in Table 1.

Table 1. The Atributes of Soft Skills Needed in Employee Recruitment

No	Attribute	% of Respondents
1	Problem-solving skills	82.9%
2	Ability to work in team	82.9%
3	Communication skills (written)	80.3%
4	Leadership	72.6%
5	Strong work ethic	68.4%
6	Analytical skills	67.5%
7	Communication skills (verbal)	67.5%
8	Initiative	67.5%
9	Detail-oriented	64.1%
10	Flexibility	60.7%
11	Technical skills	59.8%
12	Interpersonal skills (relates well to others)	54.7%
13	Computer skills	48.7%
14	Organiziational ability	48.7%
15	Strategtc planning skills	39.3%
16	Creativity	29.1%
17	Friendly	27.4%
18	Tactfulness	22.2%
19	Entrepreneurial skills	19.7%
20	Fluency in a foreign language	4.3%

(Source: National Association of Colleges and Employers, 2018)

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Based on Table 1, the field of education should realize the needs for the change in the VHS graduate quality which has so far been oriented to hard skills. It is time to include the development of the soft skills most needed by business and industrial sectors. This is due to the fact that school graduates are expected not only expert academically but also successful in soft skills in order to be able to compete in the world of work (Hinchliffe & Jolly, 2011). The components of soft skills must be implemented in all school subjects, each of which has to adapt to and emphasize soft skills aspects (Adisusilo, 2012, p. 72).

Soft skills-oriented teaching needs strategies and careful planning from teachers so that the attributes of soft skills in the subjects are implemented optimally. Instructional planning involves the development of systematically organized strategies for teaching, so that teachers must be able to determine everything and technique to be taught before they do it (Santrock, 2014). The instructional planning made by teachers is designed in the form of a syllabus and lesson plans. A syllabus is the reference for preparing teaching framework for every teaching material while lesson plans are developed from the syllabus to direct the students' learning activities in an effort to achieve basic competence (Ministry of Education and Culture, 2016).

Judiani (2010) explains that developing soft skills values in the syllabus is done through: (1) analysing the standard of competence (SoC) dan basic competence (BC) in the content standard (CS) to determine that the soft skills value stated has been included in it; (2) showing the relationship between SC and BC with scores and indicators in order to determine the value to develop; (3) including the soft skills values in the syllabus; (4) including the values included in the syllabus in the lesson plans; (5) developing the processes of student active learning instruction which enables students to have opportunities to internalize values and show them in suitable behaviours; and (6) giving assistance to the students who have difficulties internalizing values and who want to show them in their behaviours. Vocational education refers to the program managed to train and improve employability skills with skills, attitudes, and knowledge so that the students are able to adapt themselves to the world of work (Sudira, 2016, p. 8). In this case, vocational education provides students not only with knowledge but also with employability skill in certain expertise.

One of the expertise programs needed by industries nowadays is the automotive engineering expertise program. The graduates of this program have a big chance to be employed in industrial sectors, because in Indonesia, many local and foreign companies and industries are engaged in transportation, so that almost all industries in Indonesia require the graduates of the automotive engineering expertise program. The teaching activities in this program are classified into three kinds of teaching: (1) theory teaching, (2) practicum teaching, and (3) practice teaching. Both practice teaching and practicum teaching are the application of the theories the students have learned. Viewed from the emphasis, there is a difference between theory teaching and practice teaching. Technical theory teaching puts more emphasis on cognitive training, while practice teaching puts more emphasis on psychomotor training, although both teachings are mutually related and supporting (Kartowagiran, 2018).

The result of the interviews done in one of the vocational high schools in West Lombok, whose resource person is the principal of VHS 2 Kuripan, shows that the implementation of soft skills has constraints with the subjects in the classroom and also practicum in workshop, but it is still tried to run in the subject taught in the classroom because soft skills are very important to teach to students in school. Besides, the result of the interview with the principal of VHS 1 Gunungsari shows that the implementation of soft skills in teaching is still difficult to do because many teachers do not quite understand about soft skills, and soft skills for them are character education which is taught in theoretical subjects.

Furthermore, the observation conducted in the implementation of practice teaching at the automotive workshop of the expertise of automotive light vehicle technology is not quite optimal, so it can be said that: (1) the lab, equipment and environment of the practicum workshop is not very clean, the condition of practice teaching is not conducive, and there is a lack of supporting equipment such as practicum tables − all of which are the problems found − so that the students have to work on the floor or outside the workshop, the practicum equipment is not well kept in the workshop, and in one of the schools the practicum workshop is also used for theoretical teaching due to the lack of classrooms; (2) students are not very enthusiastic about doing practicum in the

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workshop; many students do not come on time and prefer to play truant when there is a workshop activity. This can be seen in the students' attendance which shows less than 20% of them come on time, while the rest come late, or in the presence list of grade XII students which shows: leave permission 21 times, sick leave 25 times, absence 192 times, truancy 2 times, coming late 22 times, and the list of students' problems shows that many students seldom attend classes, they play their mobile phone during the lesson, and they often play truant; (3) there is a lack of facilities that encourage students to think creatively.

The problems such as the abovementioned can of course cause VHS graduates' competence quality which is not productive. Based on this problem and the growing importance of the role of soft skills, there needs to be a study on the implementation of soft skills in the automotive workshop practicum at VHS's in West Lombok Regency.

In addition, there has so far been no research on the implementation of soft skills in the teaching of automotive workshop practicum at state VHS's in West Lombok Regency. Therefore, the result of this research can be the information and guide for schools in the implementation of soft skills in the workshop practicum at the department of automotive light vehicle technology of state VHS is West Lombok Regency, West Nusa Tenggara Province.

RESEARCH METHOD

This research is a quantitative descriptive study applying the quantitative approach, in which the research object is the implementation of soft skill in the students doing practicum at the automotive light vehicle technology VHS's in West Lombok Regency. The research population is all state vocational high schools (SVHS) in West Lombok Regency which have the automotive light vehicle expertise program. Based on the data from the Branch Office of Education, 10 state vocational high schools in West Lombok Regency, Nusa Tenggara Barat Province run the automotive light vehicle expertise program.

Table 2. School Population

No	Schools	Address
1	SVHS 1 Lingsar	Batu kumbung, Lingsar, West Lombok Regency, Nusa Tenggara Barat
2	SVHS 1 Gunungsari	Jln. Raya Sesele, Gunungsari, West Lombok Regency, Nusa Tenggara Barat
3	SVHS 2 Lingsar	Dasan Gria, Lingsar, West Lombok Regency, Nusa Tenggara Barat
4	SVHS 2 Kuripan	Jln. Tgh. Ibrahim A.H., Kuripan Utara, West Lombok Regency, Nusa Tenggara Barat
5	SVHS 1 Narmada	Jl. Raya Mantang, Peresak, Narmada, West Lombok Regency, Nusa Tenggara Barat
6	SVHS 1 Kuripan	Jln. Tgh Abdul Hafiz Kediri, West Lombok Regency, Nusa Tenggara Barat
7	SVHS 1 Lembar	Jln. Gatot Subroto, Lembar, West Lombok Regency, Nusa Tenggara Barat
8	SVHS 1 Sekotong	Jln. Sekotong, West Lombok Regency, Nusa Tenggara Barat
9	SVHS 1 Tanjung	Jln. Karang Sobar, Tanjung, West Lombok Regency, Nusa Tenggara Barat
10	SVHS 2 Sekotong	Jln. Sekotong, West Lombok Regency, Nusa Tenggara Barat

Table 2 shows the school sample, established using the purposive sampling technique. This is based on the consideration that the sample schools have automotive expertise program with the expertise competence of automotive light vehicle technology. Another reason for this is the limitation of time, fund, human resources, and permission from the schools. Thus, this research was conducted only in four schools, each of which was represented by one class, year 12 class. The number of the students in the sample schools, as the respondents in this research, is presented in Table 3.

Table 3. School Population

No	Schools	Respondents
1	SVHS 1 Lingsar	27 Respondents
2	SVHS 1 Gunungsari	16 Respondents
3	SVHS 2 Lingsar	16 Respondents
4	SVHS 2 Kuripan	25 Respondents

(Source:primary data, 2019)

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In this research, the data were in the form of the description of the implementation of soft skills in workshop practicum of light vehicle technology at state vocational high schools. The data were collected by using a questionnaire and through observation, and the supporting data were collected through interviews and documentation. The following are the steps of the data collection and analysis: (1) collecting data from respondents, (2) describing the data collected, and (3) presenting the data visually.

The data on the readiness of soft skills was viewed from the readiness of the students and review of the lesson plans. In addition, the data on the level of soft skills competence were collected using a questionnaire with five main indicators, namely: (1) discipline, (2) responsibility, (3) collaboration, (4) creative thinking, and (5) communication ability.

RESULTS AND DISCUSSION

Findings

The result of the analysis of the data on the soft skill competence level of the students of automotive light vehicle technology in each vocational high school in West Lombok Regency is presented in Table 4. The total mean score of student condition is 28.13 with the total standard of deviation (SD) of 3.18. Table 4 explains that there are 31students (36.9%) having a condition that is in a very good category, 39 students (46.43%) having a condition in a good category, 13 students (15.48%) having a condition that is included in a sufficient category, one student (1.19%) has a condition included in a poor category, and none of the students has a condition included in a very poor category.

Table 4. Result of Analysis of Student Condition Component

Interval	Criteria	Total	Percentage
$X > 29.25$	Very good	31	36.90%
$24.75 < X \leq 29.25$	Good	39	46.43%
$20.25 < X \leq 24.75$	Sufficient	13	15.48%
$15.75 < X \leq 20.25$	Poor	1	1.19%
$X \leq 15.75$	Very poor	0	0.00%
Total		**12**	**100.00%**

Table 5. Readiness and Activeness Components

Category	Percentage	
	Readiness	**Activeness**
Very good	33.33%	39.29%
Good	38.10%	41.67%
Sufficient	21.43%	16.67%
Poor	5.95%	2.38%
Very poor	1.19%	0.00%
Total	**100%**	**100%**

Table 5 shows that the percentage of students with learning readiness is 33.33% in a very good criterion, and 38.10% in a good criterion. This means that the total percentage of students with learning readiness in very good and good criteria is 71.43%. On the contraty, the percentage of students with learning readiness in sufficient, poor, and very poor criteria is 28.57%. Therefore, it can be said that the total average of the students is in a good criterion of readiness. Meanwhile, in terms of students' activeness, 39.29% are in a very good criterion, and 41.67% in a good criterion. Therefore, the total percentage of the students in the very good and good activeness criteria is 80.96%. On the other hand, the total percentage of the students in the sufficient, poor, and very poor activeness criteria is 19.04%. Therefore, it can be said that the total average related to student' activeness is in a good criterion.

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Table 6. Result of Analysis of Lesson Plan Condition

Interval	Criteria	Total	Percentage
X > 65	Very good	1	8.33%
55 < X ≤ 65	Good	7	58.33%
45< X ≤ 55	Sufficient	3	25.00%
35 < X ≤ 45	Poor	1	8.33%
X ≤ 35	Very poor	0	0.00%
Total		**12**	**100.00%**

The total mean score of lesson plan condition is 58.73 with the SD of 8.57. Table 6 shows that the percentage of lesson plans in a very good criterion is 8.33%, in a good criterion is 58.33%, and in a sufficient criterion is 25.00%. Furthermore, the percentage of lesson plans in a poor criterion is 8.33%, and in a very poor criterion is 0%. At this stage of analysis, the description of the result is viewed from students' soft skill competence level through a questionnaire. A description of the students' soft skill is presented in Table 7.

Table 7. Analysis of the Soft Skill Competence Level of Students of VHS's in West Lombok Regency

Interval	Category	Total	Percentage
X > 133.25	Very good	14	17%
112.75< X ≤ 133.25	Good	41	49%
92.25 < X ≤ 112.75	Sufficient	24	29%
71.75 < X ≤ 92.25	Poor	5	6%
X ≤ 71.75	Very poor	0	0%
Total		**84**	**100%**

The total mean score of students' soft skill competence level is 118.76 with the SD of 15.34. Table 7 shows that the percentage of students whose soft skill competence is in a very good category is 17%, those whose soft skill competence is in a good category is 49%, and those whose soft skill competence is in a sufficient category is 24%. Besides, students whose soft skill competence is in a poor category is 6%, and none has soft skill competence in a very poor category.

Table 8. Soft Skills Competence Level of Students of LVT VHS 1 Lingsar

Interval	Criteria	Total	Percentage
X > 133.25	Very good	6	22%
112.75< X ≤ 133.25	Good	15	56%
92.25 < X ≤ 112.75	Sufficient	6	22%
71.75 < X ≤ 92.25	Poor	0	0%
X ≤ 71.75	Very poor	0	0%
Total		**27**	**100%**

Table 8 shows the soft skill competence level of the students of SVHS 1 Lingsar, where six students (22%) are in a very good criterion, 15 students (56%) in a good criterion, six students (22%) in a sufficient criterion, and none of the students is in neither poor nor very poor criteria.

Table 9. Soft Skills Competence Level of Students of LVT VHS 2 Kuripan

Interval	Criteria	Total	Percentage
X > 133.25	Very good	6	24%
112.75< X ≤ 133.25	Good	10	40%
92.25 < X ≤ 112.75	Sufficient	6	24%
71.75 < X ≤ 92.25	Poor	3	12%
X ≤ 71.75	Very poor	0	0%
Total		**25**	**100%**

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Table 9 shows the soft skill competence level of the students of SVHS 2 Kuripan, where six students (24%) are in a very good criterion, 10 students (40%) in a good criterion, six students (24%) in a sufficient criterion, three students (12%) in a poor criterion, and none of the students is in a very poor criterion.

Table 10. Soft Skills Competence Level of Students of LVT VHS 1 Gunungsari

Interval	Criteria	Total	Percentage
X > 133.25	Very good	0	0%
112.75< X ≤ 133.25	Good	11	69%
92.25 < X ≤ 112.75	Sufficient	4	25%
71.75 < X ≤ 92.25	Poor	1	6%
X ≤ 71.75	Very poor	0	0%
Total		**16**	**100%**

Table 10 shows the soft skill competence level of the students of SVHS 1 Gunungsari, where none of the students (0%) is in a very good criterion, 11 students (69%) in a good criterion, four students (25%) in a sufficient criterion, one student (6%) in a poor criterion, and none of the students is in a very poor criterion.

Table 11. Soft Skills Competence Level of Students of LVT VHS 2 Lingsar

Interval	Criteria	Total	Percentage
X > 133.25	Very good	2	13%
112.75< X ≤ 133.25	Good	5	31%
92.25 < X ≤ 112.75	Sufficient	8	50%
71.75 < X ≤ 92.25	Poor	1	6%
X ≤ 71.75	Very poor	0	0%
Total		**16**	**100%**

Table 11 shows the soft skill competence level of the students of SVHS 2 Lingsar, where two students (13%) are in a very good criterion, five students (31%) in a good criterion, eight students (50%) in a sufficient criterion, one student (6%) in a poor criterion, and none of the students is in a very poor criterion.

Table 12. Soft Skills Competence Level of Students of LVT VHS in West Lombok Regency

Criteria	Percentage				
	Discipline	**Responsibility**	**Collaboration**	**Creative Thinking**	**Communication**
Very good	54.76%	48.81%	13.10%	7.14%	8.33%
Good	33.33%	33.33%	34.52%	30.95%	29.76%
Sufficient	8.33%	13.10%	33.33%	36.90%	33.33%
Poor	3.57%	4.76%	15.48%	22.62%	20.24%
Very poor	0.00%	0.00%	3.57%	2.38%	8.33%
Total	100%	100%	100%	100%	100%

Table 12 shows the condition of students' soft skills, where in terms of discipline, 54.76% of the students are in a very good criterion; in terms of responsibility, 48.81% are in a very good criterion; in terms of collaboration, 34.52% are in a good criterion; in terms of activeness, 36.9% are in sufficient criterion; and in terms of communication, 33.33% are in a sufficient criterion.

Discussion

Student condition in this research consists of student readiness and activeness in attending classes. The analysis result shows that 36.90% of the students have the condition in a very good category and 46.43% are in a good category. Viewed from each indicator – readiness and activeness,

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the description is as follows. The percentage of the students having readiness in a very good category is 33.33% and in a good category is 38.10%. In contrast, the students having readiness in sufficient, poor, and very poor categories is 28.57%. Thus, in average, the students have readiness in a good category. Viewed from students' activeness, 39.29% of them are in a very good category, and 41.67% in a good category. In contrast, 19.04% of them are in sufficient, poor, and very poor categories. Thus, in average, the students are in a good category in terms of activeness. The discrepancy of the field data with what was expected is due to some problems in the students, both in terms of their readiness and activeness in teaching-learning processes. In the readiness aspect, students still tend to be so doubtful about their ability to follow the practice lesson that make some of them tend to be quiet although there are learning materials that they do not understand, and furthermore, it made some students feel not very interested in participating in practical lesson. This is in line with the finding that students' level of readiness has impact on their activeness in learning automative engineering. In the aspect of activeness, some students are passive in communicating their opinions or ideas in responding to their teachers' questions. One of the factors causing the lack of student activeness intensity is teachers' unoptimal sensitivity in understanding students' characteristics, from the perspectives of cognitive ability, learning style, learning motivation, and attitudes.

Instructional planning is the activity of formulating the action to be implemented in teaching processes, which simultaneously becomes an important guide for teachers and students in the classroom. This means that instructional planning can facilitate teachers to identify whether the teaching components designed or developed has been implemented in the teaching-learning processes. In this research, the description of the achievement of the lesson plans made by the teachers was evaluated through document review. The result of the analysis shows that as a whole the lesson plans made by the teachers are in a good criterion, with the achievement percentage of 58.33%. The problems related to lesson plans is that the indicators developed by the teachers are not in line with the aspect of attitudes measured. In addition, the choice of learning resources the teacher wrote in the lesson plans is not very suitable with the students' characteristics, and in the teaching scenario are found the teaching activities not suitable with the approach used. However, overall the percentage of the achievement of the lesson plans made by the teachers has been good. Therefore, it can be concluded that the condition of the lesson plans made by the teachers is in a good criterion despite some consideration. The consideration is that in making lesson plans, the teachers must pay attention to the parts related to indicator formulation, choice of learning resources, and teaching model.

Soft skills competence in this research refers to VHS students' soft skill achievement as an impact of the integration of soft skills in teaching. The students' observable soft skill attributes are five aspects, including discipline, responsibility, collaboration, creative thinking, and communication. From the five aspects are found the achievement percentage of 49%, which means that overall the soft skill achievement of the students is in a good criterion. This achievement shows there is a problem or a lack related to students' soft skill achievement. As to the percentage of the students achieving soft skill competence, the percentage of the students achieving the attribute of discipline is 54.76% (very good category), that of those achieving the attribute of responsibility is 48.81% (very good category), that of those achieving the attribute of collaboration is 34.52% (good category), that of those achieving the attribute of creative thinking is 36.90% (sufficient category), and that of those achieving the attribute of communication is 33.33% (sufficient category).

Overall, the percentage of the students achieving each attribute is in very good and sufficient criteria. The problem found is in the attribute of collaboration, creative thinking, and communication. In the attribute of collaboration, the problem considered not optimal is related to students' involvement in discussions about the group problems, in the sufficient criterion, which means that the students show a passive attitude to conveying their ideas. This problem has impacts on the attribute of students' creative thinking. The problem with this attribute, which teachers have to pay attention to, is that the students are still lacking in thinking to produce ideas or opinions fast. In addition, another problem observed during the teaching process related to the attribute of creative thinking is that the students looked reluctant to ask questions when there was an unclear explanation from the teacher, which then spread to another problem in this attribute, where some students cannot practise the planned solution already made when they encountered constraints when machine practicum was in progress. The problem with the attribute of collaboration and creative thinking is considered in

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line with the problem with the attribute of communication. In other words, the students are not very active communicating well with both their teacher and peers. This is shown by the problem occurring in the attribute of communication, where the problem found is that the students were not self-confident in expressing their ideas well in speaking and writing. These problems can be said to be the impact of the problems in the learning process, which have been described previously. The aspects of the level of students' soft skills when viewed separately from the level of soft skills of each SVHS in West Lombok Regency are described as follows. The analysis result of the percentage of students' soft skills competence level of LVE SVHS 1 Lingsar is in a good category with the percentage 56.00%, while in LVE SVHS 2 Kuripan, they are in a good category with the percentage of 40.00%, in LVE SVHS 1 Gunungsari, they are in a good category with the percentage of 69.00%, and in LVE SVHS 2 Lingsar, they are a sufficient category with the percentage of 50.00%.

Sutrisno (2016) conducted a study whose findings are as follows. (1) The collaboration between VHS and industries should include the needs of the curriculum adopted in VHS. The curriculum includes hard skills and soft skills, where the hard skills should consist of knowledge (25%) and skill (35%), while the soft skills consist of character (24%) and physical condition (16%). (2) The teaching of soft skills can be conducted through two models: integrated model (integrated with hard skills in teaching) and complementary model (the implementation is in the curricular education). The similarity of Sutrisno's research and this research is that both studies deal with the aspect of soft skills in the teaching in VHS by considering the skills needed in the world of work.

The result of this research shows that there is a problem or lack in the mastery of soft skills of the students. In the attributes of discipline and responsibility, the percentage of achievement in each trait is in a very good criterion, and thus it can be said that it has met the expectation. The problems that are found are in the attributes of collaboration, creative thinking, and communication, whose overall achievement percentage is still in a sufficient criterion.

CONCLUSION

Teachers need to pay more attention to the components that have been designed or developed in the lesson plans so that the teaching can be carried out systematically and schematically as planned. Planning the practice teaching still has to be improved, especially in teaching strategies that must be adapted to the conditions of the practicum workshop so that the teaching activity can be more productive. Teachers must pay attention to the attributes of students' soft skill, particularly the attributes of collaboration, creative thinking, and also communication. This improvement can be made by teachers by giving more stimuli in the teaching process so that students can explore opinions and ideas.

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