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DIFFERENCES IN THE COMPETENCY RESULTS OF MIPA TEACHERS IN WEST SERAM AND EAST SERAM DISTRICTS TO INCREASE THE QUALITY OF EDUCATION IN MALUKU

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Abstract

Teachers are one of the most important competences in an education system. Therefore, teacher competence can affect the quality of education. This study aims to determine the differences in the results of the mapping of professional and pedagogical competencies of Mathematics and Natural Sciences teachers in West Seram and East Seram Districts in improving the quality of education in Maluku through questionnaire data. This study used a survey research method with a sample of 25% of the MIPA teacher population in SBB and SBT districts, namely 42 Mathematics and Natural Sciences teachers in West Seram Regency and 25 Mathematics and Natural Sciences teachers in East Seram Regency. The results showed that: a) Professional competence of Mathematics and Natural Sciences teachers in SBB district is not different from the SBT district which is indicated by F count <F table, namely 0.202 <4.001 or sig. > 0.05, which is sig. Value = 0.655 > 0.05; b) The pedagogical competence of Mathematics and Natural Sciences teachers in SBB Regency is not different from SBT Regency which is indicated by F count <F table which is 1,200 < 6,001 or the sig value. > 0.05, which is sig. Value = 0.262> 0.05.

Keywords: mapping, the competence of MIPA teachers, Quality of Education

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INTRODUCTION

One of the important components in the attainment of the quality of education is teachers. This means that the quality of education can only be answered by the quality of teachers. But ironically, UNESCO data in the Global Education Monitoring (GEM) Report 2016 shows that education in Indonesia ranks only 10th out of 14 developing countries. While an important component in

education is that teachers rank 14th out of 14 developing countries in the world (Syarifudin, 2018). Therefore the quality of teachers needs to be considered. Furthermore, in terms of Education, quality refers to the process and results of Education. Due to the importance of the role of teachers in Education, so many experts state that in schools there will be no change or improvement in quality without changes and improvement of teacher quality.

Furthermore, the Quality of Education is also heavily influenced by the competence of teachers. Based on UKG's 2018 results, Maluku province is in the last position. According to the chairman of commission D of the Parliament of Maluku province "From 34 provinces in Indonesia, Maluku was ranked last UKG national level in 2018," as released by https://ambon.antaranews.com on August 25, 2018. This indicates that the quality of Education in Maluku province is deteriorating in Indonesia. Therefore, the attention of all parties in Maluku needs to be directed to the competence of teachers. The competence of the teacher can be interpreted as the roundness of knowledge, skills, and attitudes in the form of intelligent and responsible actions in carrying out tasks as learning agents.

According to law no. 14 of 2005, teachers and lecturers have hinted at teacher competencies including pedagogical competencies, personality competencies, social competencies, and professional competencies obtained through professional education (Depdiknas, 2005). The competence of the teacher is explained as follows: 1) pedagogic competency is the ability of a teacher in managing the learning of students and classroom management, 2) professional competencies namely material mastery skills in a broad and deep, 3) personality competency (personal) which is a steady personal ability, noble, arif, and authoritative and becomes an example for students, and 4) social communication namely the ability of teachers to communicate and interact effectively and efficiently with students, fellow teachers, parents or guardians, and the surrounding community (Depdiknas, 2005).

This study has also been studied by (Taruna, 2011); (Suhandani & Kartawinata, 2014); Cahyotlogo, et al, namely pedagogical, professional,

personality, and social mapping of high school physics teachers in Kulon Progo District post-certification (Cahyotlogo & Jumadi, 2017). Analysis of UKG results, Hamzah Yunus, et al (2015). Analysis of UKG results of IPS subjects in Gorontalo (Bakri & Budi Raharjo, 2017). In Maluku province itself, no one has researched the teacher competency map as a component of improving the quality of education. Whereas in reality the competence of teachers in Maluku is in a category of concern, so it is worth questioning why the quality of Maluku teachers in such categories. Therefore, this research will be aimed at mapping the competency of teachers in improving the quality of education starting from Seram West and Seram Eastern Districts, assuming that there are differences in the competence of MIPA teachers in SBB and SBT districts.

METHOD

Because the purpose of this research is to know the competency map of MIPA teachers in SBB and SBT districts, the method used in this study is the survey research method. In this study, researchers quantitatively described the trends, behaviors, or opinions of a population by examining the population sample. Next from the sample, researchers will generalize or make claims about the population (Creswell, J. W., 2014). This study scored trends, behaviors, and opinions found from MIPA teachers in SBB and SBT districts.

Surveys or questionnaires are the main tools or instruments used to collect data in descriptive-survey research studies. Because survey researchers typically study problems and behaviors that change over time, they usually develop new instruments or improve the existing ones. Survey design and development requires a huge amount of knowledge, planning, and skills to be executed properly.

1. Select a sample

   Of all quantitative approaches, survey research tries to use as many samples as possible. In many cases, survey research is conducted with census populations,

which means sampling the entire population, or randomly selected samples for larger populations (Spuck, D. W., Hubert, L. J., & Lufler, H. S., 1975).

The population used in this study is all MIPA teachers in SBT Regency as many as approximately 101 people spread over 16 sub-districts and 198 villages and SBB approximately 168 people spread across 11 sub-districts and 92 villages as well as 112 hamlets. Based on the population, the sample is taken by a random sampling method assuming that all samples are distributed normally or homogeneously. According to Creswell that if the research population ≥ 100 then the sample is taken between 20% - 25%. Based on this opinion, the sample of MIPA teachers in the SBB district is approximately 25% x 168 = 42 people, while the sample from MIPA teachers in the SBT district is approximately 101 x 25% = 25 people.

2. Test the survey

   This research will create a survey trial of a small group of people similar to those who will be the final sample before the actual survey research.

3. Manage final surveys and collect data

   Management of surveys and data collection in this study through:

   a. Observation

      Observations were made to address the problem of the learning behavior of MIPA junior high school teachers and SMA/MA in Seram West and Seram Eastern districts. Observation data is taken through observation sheets obtained during the learning process. Observation sheet in the form of a statement containing the performance of teachers in the learning process as many as 10 statements filled by researchers as observers.

   b. Survey questionnaire

      Survey questionnaire data was conducted to answer the problem of competence map of MIPA Junior High School/MTs and SMA/MA teachers in Seram West and Seram Eastern districts and differences in teacher competency in Seram West and Seram Eastern districts based on their districts. The survey questionnaire statement of 40 points on

professionalism and professional development, pedagogical competence, social competence, and personality competency was formulated by a team of researchers by adopting teacher competency indicators in PP No. 19 of 2005 and has been validated.

c. Interview

Interviews in this study were conducted to support research data (observation and survey questionnaires) in the form of FGD between teachers, researchers, and principals. Interviews are also conducted to clarify the findings of the study through survey questionnaire data as well as observation sheets. Interviews take place unstructured with the aim of clarifying questions from respondents so as to stimulate respondents to give full answers to supervisors (Cohen, Manion, & Morrison, 2017: 218).

4. Analyze the data

a. Analysis of the difference between the competencies of MIPA teachers in SBB and SBT districts is to compare the competencies of MIPA teachers in both districts. The data analysis in this study used statistical tests because the data obtained in the form of figures, mainly to answer the problem of differences in teacher competency in The West Seram and Seram Eastern districts based on their districts. This research analysis uses a comparison test through test F. Provided that the data homogeneity test with the formula:

$$F = \frac{Varians\ besar}{Varians\ kecil}$$

Here are the analysis steps.

The steps use a one-lane Anova (One Way Anova).

1. Before the ANOVA is calculated, assume that the data is randomly selected and has met the homogeneity test
2. Make a research hypothesis in sentences
3. Calculate the sum of squares between groups (JKA) with the formula:

$$JK_A = \sum \frac{(\sum X_{Ai})^2}{n_{Ai}} - \frac{(\sum X_T)^2}{N}$$

$$= \left[\frac{(\sum X_{A1})^2}{n_{A1}} + \frac{(\sum X_{A2})^2}{n_{A2}} + \frac{(\sum X_{A3})^2}{n_{A3}} + \cdots + \frac{(\sum X_{An})^2}{n_{An}}\right] - \frac{(\sum X_T)^2}{N}$$

a) Calculate the free degrees between groups with the formula dbA = A – 1 where A is the number of groups.

b) Calculate the average sum of squares between groups (JKRA) with the formula: $KR_A = \frac{JK_A}{db_A}$

c) Calculate the number of squares in a group (JKD) with the formula:

$$,JK_D = \sum X_T^2 - \sum \frac{(\sum X_{Ai})^2}{n_{Ai}}$$
$$= (\sum X_{A1}^2 + \sum X_{A2}^2 + \ldots + \sum X_{An}^2) - \left[\frac{(\sum X_{A1})^2}{n_{A1}} + \frac{(\sum X_{A2})^2}{n_{A2}} + \cdots + \frac{(\sum X_{An})^2}{n_{An}}\right]$$

d) Count free degrees in a group with formula dbD =N – A

e) Calculate the average number of squares in a group (KRD) with the formula:

f) Calculate F_{count} with the formula:

$$F_{Hitung} = \frac{JKR_A}{JKR_D}$$

g) Find F_{table} with Formula $F_{table} = F(1-\alpha)(dbA,dbD)$

The data obtained is calculated using SPSS.

RESULTS AND DISCUSSION

Teachers of MIPA SBB district who participated in seIf assessment as many as 42 people, consisting of several schools in Huamual front sub-district, Piru sub-district, and Kairatu sub-district. Meanwhile, teachers of MIPA SBT district who follow self-assessment as many as 25 people, consisting of several schools in the Geser sub-district, Bula sub-district, Siritaun sub-district, Kian Darat sub-district, and Atiahu sub-district. The results of the teacher performance assessment survey data are as follows.

Table 1. Preparation of Comparative Results of MIPA Teacher Competency SBB and SBT Scores Through Self-Assessment

Teacher Performance Achievement		Amount	Average
Performance			
Professional Competencies	$\sum X_1$	1686	40,1
	$\sum X_1^2$	68832	1638,9
	$\sum Y_1$	1019	40,8
	$\sum Y_1^2$	42303	1692,1
Pedagogical Competencies	$\sum X_2$	1611	38,4
	$\sum X_2^2$	62259	1482,4
	$\sum Y_2$	981	39,2
	$\sum Y_3^2$	38649	1546,0
Social Competence	$\sum X_3$	931	20791
	$\sum X_3^2$	22,2	495,0
	$\sum Y_3$	549	22,0
	$\sum Y_3^2$	12135	485,4
Personality Competencies	$\sum X_4$	1314	31,3
	$\sum X_4^2$	41336	984,2
	$\sum Y_4$	750	30,0
	$\sum Y_4^2$	22778	911,1

information:
X: Regency of SBB
Y: Regency of SBT

Analysis of competency data between MIPA teachers in SBB and SBT districts calculated using SPSS in this study is classified over 4 parts namely professional, pedagogical, social, and personality competencies. The data results before testing the differences first carried out a homogeneity test intending to know if both data have the same variance or homogeneous. The test < is 0.05 then the variance > of the data group is not the same. Furthermore, homogeneity test results can be presented as follows.

Table 2. Test of Homogeneity of Variances Professional Competencies

Levene Statistic	df1	df2	Sig.
,000	1	65	,983

Table 3. Test of Homogeneity of Variances Pedagogical Competencies

Levene Statistic	df1	df2	Sig.
3,620	1	65	,062

Table 4. Test of Homogeneity of Variances Social Competencies

Levene Statistic	df1	df2	Sig.
1,523	1	65	,222

Table 5. Test of Homogeneity of Variances Personality Competencies

Levene Statistic	df1	df2	Sig.
,029	1	65	,866

Based on the homogeneity test table of the four competencies between the two districts obtained that all sig>0.05 values among them for professional competency value sig = 0.983>0.05; pedagogical competency value of sig = 0.062> 0.05; social competency sig value = 0.222 > 0.05; and competency personality value of sig = 0.866 > 0.05. This indicates that the variance of the four data between the two districts in the same then it can be said that it has fulfilled the basic assumptions.

Next, a difference analysis is performed. The differentiation test is conducted using the ANOVA test to find out if there are differences in each competency, namely professional, pedagogical, social, and personality competencies between the two districts namely SBB and SBT.

Based on the results of the analysis using SPSS 24, differentiation tests can be presented in the following table.

Table 6. ANOVA Professional Competencies

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	5,969	1	5,969	,202	,655
Within Groups	1919,703	65	29,534		
Total	1925,672	66			

Table 4.4 ANOVA shows that the value F calculates 0.202 with df 1 (number of data-1 groups) = 1 and df 2 (n-2) or 67-2 = 65 so that based on table F is obtained F table value of 4,001. This indicates that $F_{account} < F_{table}$ or sig value > 0.05 which means H0 is accepted. This means that there is no difference in professional competency between SBB and SBT districts. This is in line with the research conducted by (Cahyotlogo & Jumadi, 2017).

Furthermore, for pedagogical competencies, the difference test between the two districts can be presented in the following table.

Table 7. ANOVA Pedagogical Competencies

	Sum Squares	ofDf	Mean Square	F	Sig.
Between Groups	12,215	1	12,215	1,280	,262
Within Groups	620,203	65	9,542		
Total	632,418	66			

In Table 4.5 ANOVA shows that the value of F counts 1,280 with df 1 (number of data-1 groups) = 1 and df 2 (n-2) or 67-2 = 65 so that based on table F is obtained a Ftabel value of 4,001. This indicates that $F_{account} < F_{table}$ or sig value > 0.05 which means H0 is accepted. This means that there is no difference in pedagogical competency between SBB and SBT districts. This is in line with the research conducted by (Dudung, 2018), that there is no significant difference between science teachers of SMPN Ternate city and teachers of SMPN Se-Kecamatan Loa Kulu Kutai Kartanegara Regency

Then for social competence, the difference test between the two districts can be presented in the following table.

Table 8. ANOVA Social Competencies

	Sum Squares	ofDf	Mean Square	F	Sig.
Between Groups	,669	1	,669	,187	,667
Within Groups	232,793	65	3,581		
Total	233,463	66			

Table 4.6 ANOVA shows that the value of F_{counts} 0.187 with df 1 (number of data-1 groups) = 1 and df 2 (n-2) or 67-2 = 65 so that based on table F is obtained F_{table}

value of 4,001. This indicates that $F_{count} < F_{table}$ or sig value > 0.05 which means H_0 is accepted. This means that there is no difference in Social competence between SBB and SBT districts. This is in line with the research conducted by (Cahyotlogo & Jumadi, 2017).

As for Personality competency, the difference test between the two districts can be presented in the following table.

Table 9. ANOVA Personality Competencies

	Sum Squares	ofDf	Mean Square	F	Sig.
Between Groups	25,906	1	25,906	3,337	,072
Within Groups	504,571	65	7,763		
Total	530,478	66			

Table 4.7 ANOVA shows that the value of F counts 3,337 with df 1 (number of data groups-1) = 1 and df 2 (n-2) or 67-2 = 65 so that based on table F is obtained a Ftabel value of 4,001. This indicates that F< Ftabel or sig value. = 0.072 > 0.05 which means H0 is accepted. This means that there is no difference in Personality competency between SBB and SBT districts. This is in line with the research conducted by (Cahyotlogo & Jumadi, 2017).

Professional competence (professionalism and professional development) is the lowest competency that MIPA teachers have in SBB and SBT districts with less significant percentages. Regency of SBB (40.1 points) and SBT (40.8 points) from the ideal score of 90 on 4 competencies are hinted at, namely professional competency, pedagogical competency, social competence, and personality competency. The findings of this study are supported by research conducted by Hamzah Yunus, et al, which is compared to pedagogical competence (Hamzah Yunus, et al.2015).

Furthermore, according to calculations through the SPSS program as the results of the study using test F it appears that in professional competencies shows that F calculates < F table or sig value > 0.05, i.e. 0.202 < 4.001 or sig value = 0.655 > 0.05 which means H0 is accepted. This means that there is no difference in professional competency between SBB and SBT districts. As well as

professional competencies, differences in pedagogical competencies between MIPA teachers in SBB and SBT districts, also use test F with $F_{ccount} < F_{table}$ or sig value > 0.05, i.e. 1,200 < 6,001 or sig value = 0.262 > 0.05, meaning that Ho is accepted, meaning that there is no difference in pedagogic competency between SBB and SBT districts.

Furthermore, the social competence of SBB and SBT districts shows that $F_{ccount} < F_{table}$ or sig value > 0.05, which is 0.187 < 4,001 or sig value = 0.667 > 0.05 which means H0 is accepted. This means that there is no difference in social competence between SBB and SBT districts. While like the other 3 competencies, Differences in personality competency between MIPA teachers in SBB and SBT districts, also using F test with $F_{ccount} < F_{table}$ or sig value > 0.05, i.e. 3,337 < 4,001 or sig value = 0.072 > 0.05, means that H0 is accepted, meaning that there is no difference in personality competency between SBB and SBT districts. Thus, the competence of MIPA teachers in the SBB district is not significantly different from that of MIPA teachers in the SBT district.

CONCLUSION

Based on the results of research and discussion, it can be concluded that the competence of MIPA teachers in SBB district is not different from the competency of MIPA teachers in SBT district, it is shown based on test F, as follows: 1) The professional competency of MIPA teachers in SBB district is no different from the SBT district indicated by $F_{ccount} < F_{table}$, namely 0.202 < 4,001 or sig value. > 0.05 which is the sig value.= 0.655 > 0.05; 2) The pedagogic competency of mipa teachers in SBB district is no different from the SBT district indicated by $F_{ccount} < F_{table}$, which is 1,200 < 6,001 or sig value. > 0.05 namely sig value.= 0.262 > 0.05; c) Social competence of SBB district MIPA teachers is no different from the SBT district indicated by $F_{ccount} < F_{table}$, which is 0.202 < 4,001 or sig value. > 0.05 which is sig value.= 0.655 > 0.05; and d) The personality competency of mipa teachers in SBB district is no different from the SBT district

indicated by $F_{ccount} < F_{table}$, which is 0.202 < 4,001 or sig value. > 0.05 which is sig value.= 0.655 > 0.05.

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