Research Article

Synergy Analysis of Pedagogical Competence and Managerial Competence in Fish Preservation Industry Management Training in Maluku Province

Abednego*, and Ferdinanda S. Noya

Universitas Pattimura Ambon, Indonesia

ORCID
Abednego: https://orcid.org/0009-0003-1987-7689

Abstract.

This study aims to obtain and analyze data regarding: 1) The effect of pedagogical competence on learning outcomes of fish preservation industry management training in Maluku Province. 2) The effect of managerial competence on learning outcomes of fish preservation industry management training in Maluku Province. 3) The effect of a synergy of pedagogical competence and managerial competence in the process of industrial management training for fish preservation in Maluku Province. With a population of 40 people and a sample of 15 employees. The instrument used to collect data in this study is a questionnaire. This study uses multiple regression analysis. The data were then subjected to descriptive analysis, classical assumption testing, and hypothesis testing. The results showed that: 1) There is an influence of pedagogical competence on learning outcomes of fish preservation industry management training in Maluku Province, meaning H1 is accepted. 2) There is an influence of managerial competence on learning outcomes of fish preservation industry management training in Maluku Province, meaning H2 is accepted. 3) There is an influence of the synergy of pedagogical competence and managerial competence in the process of fish preservation industry management training in Maluku Province, meaning H3 is accepted.

Keywords: pedagogical competence, managerial competence, training

1. INTRODUCTION

Utilization of Maluku's natural resources and local environment, which still relies on results from an economic perspective, and its utilization as media, learning resources, and island-sea based learning strategies to support island-sea based learning, (FKIP Unpatti Research Roadmap for Island-sea Based Learning in 2023). In accordance with the objectives of this research, managers and employees are involved in training situations using non-formal education training methods.

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Managers, as a source of learning in training, need to have good pedagogical and managerial competence. Through continuous training, employees can improve their managerial competencies through the training process.

Managerial competence is a source of competitive advantage for companies. Managerial competence is the ability or impairment of a person to manage and utilize all resources productively [1]. Competent managers must produce performance that is different or better than that of competitors. Therefore, managerial competence is closely related to performance. The results showed that managerial competence possessed by West Sumatra creative industry managers affects the company's competitive advantage [2]. Furthermore, the results of Krisnawati and Bagia's research found that work competence has a positive and significant effect on employee performance [3]. The shortcut to developing managerial competence is only through training. Training programs are the stimulants needed to improve the performance and abilities of workers or employees, which can increase organizational productivity.

Learning issues in training are closely related to the application of pedagogical competence; therefore, managers need to master pedagogical competence. In other words, managers who have mastered managerial competencies need to synergize with pedagogical competencies in the learning process and industrial management training. Pedagogical competence refers to a number of teacher abilities related to the science and art of teaching students [4]. Pedagogical competence is also important in training, as it is important in the learning process in schools. Pedagogical competence must be possessed by a facilitator in training so that, in training, the facilitator can extend and implement learning effectively.

2. METHOD

2.1. Types of Research

This study used quantitative research methods. This study was conducted to analyze the synergy of pedagogical competence and managerial competence in the management training of the fish preservation industry in Maluku.

2.2. Population and Research Sample

The population studied in this study were 40 employees of the fish preservation industry. From the calculation using the Slovin formula, a sample of 15 employees was obtained, which will then be used to represent a population of 40 people.

2.3. Research Variables

The research variables used in this study are two independent variables and one dependent variable. In this study, there are two independent variables (X), namely pedagogical competence (X1) and managerial competence (X2). The dependent variable is the learning outcomes of fish preservation industry management training (Y). The relationship between the variables in this study can be seen in the following figure:
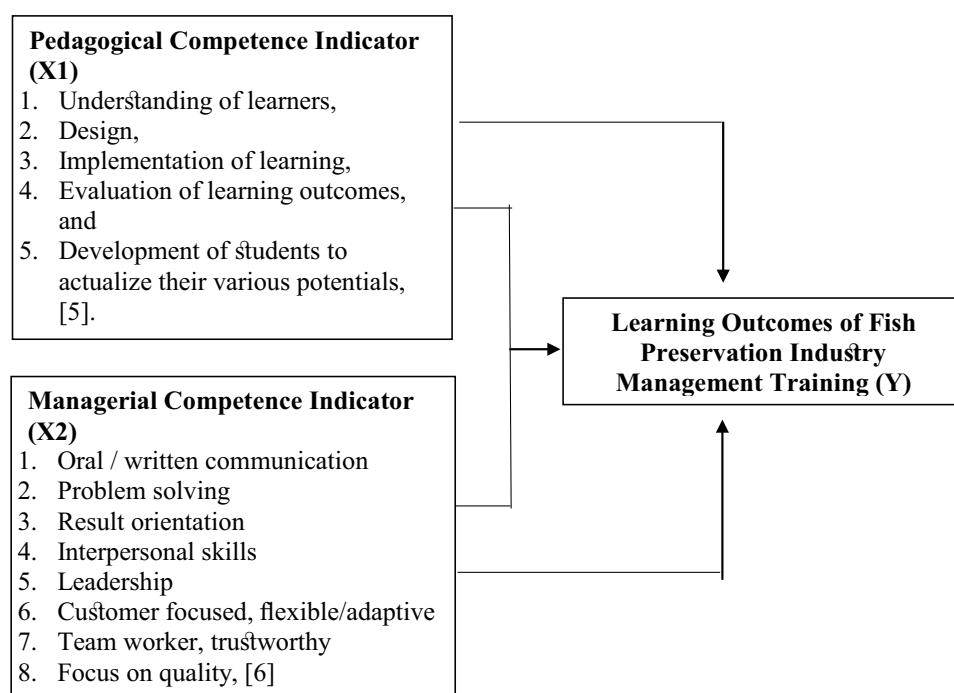
Pedagogical Competence Indicator (X1)
1. Understanding of learners,
2. Design,
3. Implementation of learning,
4. Evaluation of learning outcomes, and
5. Development of students to actualize their various potentials, [5].

Managerial Competence Indicator (X2)
1. Oral / written communication
2. Problem solving
3. Result orientation
4. Interpersonal skills
5. Leadership
6. Customer focused, flexible/adaptive
7. Team worker, trustworthy
8. Focus on quality, [6]

Learning Outcomes of Fish Preservation Industry Management Training (Y)

Figure 1:

2.4. Instrument of Research

The instrument used to collect data in this study is a questionnaire to measure pedagogical competence, which consists of 5 indicators, namely understanding of students, designing, implementing learning, evaluating learning outcomes, and developing students to actualize their various potentials, and managerial competence, which consists of 8 indicators, namely oral and written communication, problem solving, results orientation, interpersonal skills, leadership, customer focus, flexibility and adaptability, trustworthy teamwork, and a focus on quality.

2.5. Data Analysis Technique

This research uses multiple regression analyses. The collected data were then subjected to descriptive analysis, classical assumption tests, and hypothesis testing. Hypothesis testing is carried out using a significance level of 5%, or α = 0.05. This statistical analysis was carried out with the help of the SPSS 20 for Windows program. The hypotheses in this study are:

H1: There is an effect of pedagogical competence on the learning outcomes of fish preservation industry management training in Maluku Province.

H2: There is an effect of managerial competence on the learning outcomes of fish preservation industry management training in Maluku Province.

H3: There is a synergistic effect of pedagogical competence and managerial competence in the process of training in the industrial management of fish preservation in Maluku Province

3. RESULTS AND DISCUSSION

3.1. Results

This study discusses 3 variables, namely pedagogical competence (X1) and managerial competence (X2) as independent variables and training learning outcomes (Y) as the dependent variable.

3.2. Data Description

The description of the research results of the three variables is as follows:

TABLE 1: Statistical Description of Research Data.

Statistics	Pedagogical Competence (X_1)	Managerial Competence (X_2)	Training Learning Outcomes (Y)
Number of Samples	15	15	15
Mean	55,60	56,00	81,60
Median	59,00	56,00	80,00
Std.deviation	9,508	7,378	6,905
Variance	90,400	54,429	47,686
Minimum	32	45	70
Maximum	67	68	90

Source: SPSS 20 for windows

Based on the statistical test results from the table above, it can be seen that the pedagogical competence data (X1) with a sample size of 15 people obtained a minimum value of 32, a maximum value of 67, a mean of 55.60, a median of 59.00, a Std.deviation of 9.508, and a Variance of 90.400. Management competence (X2) with a sample size of 15 people obtained a minimum value of 45, a maximum value of 68, a mean of 56.00, a median of 56.00, a Std.deviation of 7.378, and a Variance of 54.429. While the data on the learning outcomes of fish preservation industry management training with a sample size of 15 people obtained a minimum value of 70, a maximum value of 90, a mean of 81.60, a median of 80.00, a Std.deviation of 6.905, and a Variance of 47.686.

3.3. Classical Assumption Test

3.3.1. Normality Test

Normality assumption testing aims to determine whether the research data is normally distributed or not. carried out using the Shapiro-Wilk test. The assumption of normality is said to be normally distributed if the test obtained a significance value> 0.05. Conversely, if the significance value of the results <0.05, then the assumption of normality is not normally distributed. The results of the normality test can be seen in the following table:

TABLE 2: Normalcy Test Results.

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pedagogy Competent	.173	15	. 200*	.908	15	.128
Management Competent	.128	15	. 200*	.954	15	.583
Learning Outcomes	.258	15	.008	.845	15	.015

Source: SPSS 20 for windows

The data in table 3 are the results of data testing using the SPSS Shapiro Wilk application, which shows that the results of the normality test of pedagogical competence data and managerial competence on training learning outcomes sequentially obtained a significance value of 0.128, 0.583 and 0.015. The significance value of Asymp. Sig. (2-tailed) significance values are all three greater than the significance level of 5% (0.05). So, it can be concluded that the data on pedagogical competence and managerial competence on training learning outcomes are normally distributed.

3.3.2. Multicollinearity Test

Decision making on the multicollinearity test is based on the basis of decision making that if the VIF value <10 or the Tolerance value> 0.10 then there is no multicollinearity, otherwise if the VIF value> 10 or the Tolerance value <0.10 then there is multicollinearity.

TABLE 3: Multicollinearity Test Results.

Model		Collinearity Statistics	
		Tolerance	VIF
1	Pedagogy Competent	.963	1.039
	Management Competent	.963	1.039
a. Dependent Variable: Hasil Belajar			

Based on the results of the multocollinearity analysis test, the VIF value of the pedagogical ability variable (X1) is < 10 or 1.039 < 10 and the Tolerance value is more than 0.10, namely 0.963. While the managerial competency variable (X2) has the same value, namely < 10 or 1.039 < 10 and the Tolerance value is more than 0.10, namely 0.963. So, from the above results it can be concluded that there is no significant multicollinearity between the two independent variables.

3.3.3. Heteroscedasticity Test

Decision making on the heteroscedasticity test is if the significance value> 0.05 then the data does not occur heteroscedasticity, otherwise if the significance value <0.05 then the data occurs heteroscedasticity.

TABLE 4: Heteroscedasticity Test Results.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.970ᵃ	.941	.931	1.94098	1.734
a. Predictors: (Constant), LAG_X2, LAG_X1					
b. Dependent Variable: LAG_Y					

n = 15

dL = 0,9455

dU = 1,5432

dW = 1,734

4-dL = 4-0,9455= 3,0545

4-dU= 4-1,5432= 2,4568

Based on the data from the spss test results above, the Durbin-Watson value is 1.734, which means it is greater than dU 1.5432, and 4 - dU = 2.4568 is greater than the dw value. So, dU < dW < 4-dU, this indicates that the research data is free from auto correlation or there is no autocorrelation.

3.3.4. Linearity Test

The linearity test was conducted using the Test for Linearity and the results can be seen in the Anova Table.

TABLE 5: Linearity Test Results of Learning Outcomes and Pedagogical Ability.

			Sum of Squares	df	Mean Square	F	Sig.
Learning Outcomes * Pedagogical Ability	Between Groups	(Combined)	505.100	12	42.092	.518	.812
		Linearity	290.742	1	290.742	3.578	.199
		Deviation from Linearity	214.358	11	19.487	.240	.955
	Within Groups		162.500	2	81.250		
	Total		667.600	14			

Based on the results of the linearity test based on the data above, it shows that the pedagogical ability variable (X1) with learning outcomes (Y) in Deviation from Linearity has a significant value of ,0.955> 0.05. This means that it shows that the learning outcomes variable (Y) has a linear relationship with pedagogical ability (X1).

TABLE 6: Linearity Test Results of Learning Outcomes and Managerial Ability.

			Sum of Squares	df	Mean Square	F	Sig.
Learning Outcomes * Management Skills	Between Groups	(Combined)	655.100	11	59.555	14.293	.025
		Linearity	349.417	1	349.417	83.860	.003
		Deviation from Linearity	305.683	10	30.568	7.336	.064
	Within Groups		12.500	3	4.167		
	Total		667.600	14			

Based on the results of the linearity test based on the data above, it shows that the managerial ability variable (X2) with learning outcomes (Y) in Deviation from Linearity a significant value of 0.064> 0.05, thus between the learning outcomes variable (Y) has a linear relationship with managerial ability (X2).

3.4. Hypothesis Test

3.4.1. T test

The T test is carried out on the basis of decision making, namely:

If the sig value <0.05, or t count> t table then there is an influence of variable X on variable Y. If the sig value> 0.05, or t count <t table then there is no effect of variable X on variable Y. The results of the T test using SPSS 20 can be seen in the following table:

TABLE 7: T Test Results of Pedagogical Ability and Managerial Ability on Learning Outcomes.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	27.344	7.813		3.500	.004
	Pedagogy Competent	.392	.095	.540	4.150	.001
	Management Competent	.579	.122	.619	4.755	.000
a. Dependent Variable: Learning outcomes						

3.4.2. Testing the First Hypothesis (H1)

Based on the results of the t test, it is known that the Sig. value for the effect of pedagogical competence (X1) on the learning outcomes of fish preservation industry management training (Y) in Maluku Province is 0.001 <0.05 and the t value is 4.150> t table 2.179, so it can be concluded that H1 is accepted, which means that there is an effect of pedagogical competence on the learning outcomes of fish preservation industry management training in Maluku Province.

3.4.3. Second Hypothesis Testing (H2)

Based on the results of the t test, it is known that the Sig. value for the effect of managerial competence (X2) on the learning outcomes of fish preservation industry management training (Y) in Maluku Province is 0.000 <0.05 and the t value is 4.755> t table 2.179, so it can be concluded that H2 is accepted, which means that there is an effect of managerial competence on the learning outcomes of fish preservation ndustry management training in Maluku Province.

3.4.4. F test

The F test is conducted to test the significance or not of the influence of the independent variable on the dependent variable. Data processing is done using SPSS 20. The following is a table of F test results:

TABLE 8: F Test Results Pedagogical Ability and Managerial Ability on Learning Outcomes.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	536.924	2	268.462	24.653	$.000^b$
	Residual	130.676	12	10.890		
	Total	667.600	14			
a. Dependent Variable: Hasil Belajar						
b. Predictors: (Constant), Kemampuan Manajemen, Kemampuan Pedagogi						

Based on the above output, it is known that the significance value for the effect of the synergy of pedagogical competence and managerial competence in the process of training the management of the fish preservation industry in Maluku Province is 0.000 <0.05 and the calculated F value is 24.653>F table 3.81, so it can be concluded that H3 is accepted which means that there is a simultaneous influence of X1 and X2 on Y.

TABLE 9: Correlation Coefficient Results Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	$.897^a$	.804	.772	3.300
a. Predictors: (Constant), Management Competent, Pedagogy Competent				

Based on the table above, the result or R Square value of 0.804 is obtained, this means that the influence of the management ability variable (X1) and pedagogical ability (X2) simultaneously on the training outcome variable (Y) is 80.4%.

4. Discussion

Based on the research results of three hypotheses, namely H1: there is an effect of pedagogical competence on the learning outcomes of fish preservation industry management training in Maluku Province. The results of the data analysis show that H1 is accepted. This is in accordance with the results of Rubianto's research, which found that pedagogical competence has a positive effect on student learning outcomes, [7]. This means that there is an influence of pedagogical competence on the learning outcomes of fish preservation industry management training in Maluku Province.

The results of the data analysis H2: There is an effect of managerial competence on the learning outcomes of fish preservation industry management training in Maluku Province, showing that H2 is accepted. In line with this, the results of research by Irmawanti et al show that the management system has an influence on the learning outcomes of students at Madrasah Ibtidaiyah in Bulukumpa District, Bulukumba Regency, [8]. This means that there is an influence of managerial competence on the learning outcomes of fish preservation industry management training in Maluku Province. So, the management skills possessed by a facilitator can also affect the learning outcomes of the training.

While the test results of H3 show that there is an effect of synergy of pedagogical competence and managerial competence in the process of management training of the fish preservation industry in Maluku Province, it is known that there is an effect of synergy of pedagogical competence and managerial competence in the process of management training of the fish preservation industry in Maluku Province, meaning that H3 is accepted.

5. CONCLUSIONS

Based on the findings of the research results and the discussion that has been described, it can be concluded as follows:

There is an influence of pedagogical competence on the learning outcomes of fish preservation industry management training in Maluku Province, meaning that H1 is accepted.

There is an influence of managerial competence on the learning outcomes of fish preservation industry management training in Maluku Province, meaning H2 is accepted.

There is a synergistic effect of pedagogical competence and managerial competence in the process of fish preservation industry management training in Maluku Province, meaning H3 is accepted.

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