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THE ROLE OF ENGLISH LANGUAGE SKILLS IN AGRICULTURAL TECHNOLOGY TRANSFER: A STUDY OF FARMERS AND EXTENSION AGENTS IN IMPROVING RICE SELF-SUFFICIENCY IN LABUHANBATU SELATAN

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Abstract

This research aims to analyze the extent to which English language proficiency influences the success of agricultural technology transfer in Labuhanbatu Selatan Regency, and how this supports increased rice productivity and local food security. The research also aims to identify barriers and formulate strategies for strengthening English language capacity among farmers and extension workers. This research was used a mixed-methods approach, combining qualitative and quantitative methods with survey and observation designs. The qualitative method was conducted using the NVivo application to determine the most frequently occurring words in the data word frequency search, displaying data analysis in the form of tables, Hierarchy Charts, Mind Maps, and Hierarchy Chart Project Maps. The quantitative method used SPSS through classical assumption test, multiple linear regression, and hypothesis testing. Data was collected through interviews and the distribution of questionnaires to 215 respondents, consisting of rice farmers and agricultural extension workers, which was calculated using Slovin's formula, resulting in a research sample of 140 people. The results of this study indicate that English language proficiency has a significant influence on the transfer of agricultural technology. Quantitative findings show that 90.4% of the variation in technology transfer can be explained by English language proficiency, while qualitative results highlight the constraints of understanding technical terms and the role of extension workers as mediators in transferring new agricultural technologies to farmers. As for the relationship between the two, it shows that improving English language skills is a key strategy in accelerating the adoption of agricultural technology to support increased rice self-sufficiency in Labuhanbatu Selatan Regency.

Keywords: ***Technology; Rice Self-Sufficiency; Agriculture; Farmers***

INTRODUCTION

English is an international language that plays a strategic role in the transfer of knowledge, including in the agricultural sector. In the era of globalization that we are currently facing, modern agricultural innovations such as smart farming, precision agriculture, and the use of digital-based technology are mostly developed in developed countries with publications and documentation in English (Patel et al., 2024). Thus, limited English language skills have the potential to become an obstacle for farmers and extension workers in understanding and adopting agricultural technology innovations. English language proficiency serves as a knowledge filter that enables extension workers to translate international technical information into local languages. Extension workers with better English literacy tend to have faster access to scientific publications, technical guidelines, and manuals on the use of digital agricultural tools, especially in the field of agricultural extension (Savitri & Rafani, 2024). This is in line with findings that digital literacy and English proficiency are key factors in the effectiveness of modern agricultural extension, especially in the era of the 4.0 industrial revolution (Hidayati et al., 2023). For farmers, even though English proficiency is not always deep, basic skills such as understanding product labels, fertilizer usage instructions, or terms in digital agricultural applications are very helpful in increasing independence. According to Farmvina (2024), farmers who are able to access information in English are more adaptive in adopting innovations and find it easier to connect with the global agricultural community. In other words, English language skills can be considered a form of human capital that contributes to increased agricultural productivity (Bronson, 2018). The situation in Labuhanbatu Selatan Regency provides a concrete illustration of this issue. Rice

production data from 2018 to 2024 shows significant fluctuations, with the highest production in 2020 (377.69 tons) and a decline in 2022 (235.67 tons). This instability indicates limitations in productivity consistency, which may be influenced by delays in the adoption of modern agricultural technology. In fact, technologies that can improve efficiency are available, but their use is not optimal due to limited understanding, both of the technology itself and the language in which it is presented. English language proficiency, in other words, is not merely a linguistic skill, but also a form of human capital that supports agricultural productivity. The better the English language skills of farmers and extension workers, the greater their opportunities to access, understand, and apply agricultural technology innovations. Ultimately, this can accelerate the achievement of rice self-sufficiency at the local and national levels. Therefore, this study focuses on examining the extent to which English language skills are related to the effectiveness of agricultural technology transfer in Labuhanbatu Selatan, as well as how this factor contributes to the achievement of rice self-sufficiency. Innovative solutions for national economic growth and improved social welfare can be realized through the optimization of the role of English language skills in the agricultural technology transfer process, particularly in efforts to increase rice self-sufficiency (Kumar and Singh 2019). Global agricultural technology continues to develop rapidly, but access to the latest information and technology remains a major challenge for farmers in Indonesia, especially in rural areas such as Labuhanbatu Selatan. One of the obstacles that is often overlooked in the process of agricultural technology transfer is the limited English language skills of both extension workers and farmers (Eicher and Rukuni, 2017). In fact, most references and innovations in modern agricultural technology originate from English-language literature (Nehen, 1984).

In today's era of globalization and digitalization, many modern agricultural technologies originate from English-speaking countries, making proficiency in this language a key factor for farmers and extension workers to understand, adopt, and implement these technologies effectively (Sharma and Rao, 2021). In rice self-sufficiency, the role of agricultural extension workers as a bridge between science and practice is very important (Patel, et. al, 2018). However, when extension workers or farmers have difficulty understanding technical documents, tool manuals, or digitally-based information that is generally available in English, the effectiveness of technology transfer becomes suboptimal (Aremu, et. al, 2015). As a result, innovation adoption is slow and dependence on traditional methods remains high, thereby hampering productivity and the achievement of food self-sufficiency at the local level (Talb, 2018). The following is the development of rice production in Labuhanbatu Selatan Regency from 2018 to 2024:

Table 1. Rice Production Development 2018 – 2024 in Labuhanbatu Selatan Regency (Tons)

No	Year	Rice Production
1	2018	239,66
2	2019	147,5
3	2020	377,69
4	2021	284,64
5	2022	235,67
6	2023	254,28
7	2024	241,81

Source: www.bps.go.id

Based on the data in Table 1, it shows that rice production in Labuhanbatu Selatan Regency fluctuated throughout 2018 to 2024. The highest production occurred in 2020 at 377.69 tons, which then declined sharply in 2021 to 284.64 tons and continued to decline to 235.67 tons in 2022. Although it increased in 2023 to 254.28 tons, production declined again in 2024 to 241.81 tons. On the other hand, the lowest production was recorded in 2019 at 147.5 tons. This unstable pattern indicates inconsistency in agricultural sector productivity, which is likely influenced by factors such as weather, technology use, agricultural policies, and human resource capacity, including the role of extension workers and farmers in adopting the latest agricultural technologies. English language proficiency is becoming an increasingly important aspect in the modern agricultural sector, especially in accessing and understanding the latest technological information, which is mostly sourced from international literature. In Labuhanbatu Selatan Regency, which has great potential in supporting the national rice self-

sufficiency program, limitations in English comprehension among farmers and extension workers can be an obstacle in the process of agricultural technology transfer. In fact, mastery of the latest technology is needed to increase the productivity and efficiency of farming. Therefore, this study is important to examine the extent to which English language skills play a role in facilitating the technology transfer process, as well as its impact on efforts to increase rice self-sufficiency in the region. The novelty of this study is a mixed methods approach, combining quantitative methods using SPSS software and qualitative methods using Nvivo software. The aim is to obtain a more complete picture of how English language skills play a role in the process of agricultural technology transfer. This differs from previous studies, which usually focused more on quantitative approaches alone. For example, Lutfianasari Hasanah (2022) applied a multiple linear regression method with an Autoregressive Distributed Lag (ARDL) model, with rice imports as the dependent variable. Furthermore, Wajar Mey Handani et al. (2021) used the Location Quotient (LQ) method and found that, economically, rice is not a base commodity in East Kalimantan Province. Research by Vania Virgiani et al. (2023) applied the Autoregressive Integrated Moving Average (ARIMA) model and panel data regression analysis, while Agus Supriatna Somantri (2020) used a dynamic system approach through Causal Loop Diagram (CLD) to map the main systems and subsystems that affect rice self-sufficiency, including the demand system and target achievement. Meanwhile, a purely qualitative approach was also found in the research by Ermawati Dewi (2019), who used qualitative descriptive methods to explore issues related to rice self-sufficiency. The main objective of this study is to analyze the extent to which English language proficiency influences the success of agricultural technology transfer in Labuhanbatu Selatan Regency, as well as how it supports increased rice productivity and local food security. The study also aims to identify obstacles and formulate strategies for strengthening English language capacity among farmers and extension workers.

METHOD

This study uses a mixed method, combining quantitative and qualitative methods in a single study to obtain a comprehensive understanding of the role of English language skills in agricultural technology transfer. The quantitative approach was used to measure the English language proficiency of farmers and extension workers, as well as to analyze the statistical relationship between this proficiency and the effectiveness of agricultural technology adoption, using a questionnaire instrument and processed through Statistical Product and Service Solutions (SPSS) software through classical assumption tests, including (normality test, multicollinearity test, and heteroscedasticity test), simple linear regression, and hypothesis testing (t-test, correlation test, R2 test). Meanwhile, a qualitative approach was used to explore in depth the experiences, perceptions, and obstacles encountered in the technology transfer process through in-depth interviews and observations, which were then analyzed using Nvivo software frequency query and word cloud to identify the main themes and patterns that emerged from the narrative data. Data was collected through interviews and questionnaires distributed to 215 respondents consisting of rice farmers and agricultural extension workers. Using the Slovin formula, the final sample selected for this study was 140 people.

RESULTS AND DISCUSSION

Qualitative Test Results

Referring to the findings obtained from the analysis of data on the role of English language skills in agricultural technology transfer among farmers and extension workers in increasing rice self-sufficiency in Labuhanbatu Selatan, the most dominant words that appeared using Nvivo software in the frequency query and word cloud were language, English, terminology, technology, agriculture, farmers, information, extension workers, and training. This indicates that the respondents' main focus was on the relationship between English comprehension and agricultural technology. From the results of the qualitative data analysis, four major themes were found, namely:

1. **Agricultural Information and Technical Terms**
   Farmers often have difficulty understanding technical terms on fertilizer and pesticide packaging, as well as agricultural machinery brochures written in English. This hinders them from adopting technology appropriately.
2. **The Role of Extension Workers as Language Mediators**
   Extension workers serve as an important bridge between English-language information and farmers' needs. However, limited time and training resources often prevent them from fulfilling this role optimally.
3. **Barriers to English Proficiency**

Low English literacy, lack of training, and limited access to learning resources are major obstacles for farmers and extension workers in adopting new agricultural technologies.

4. **Strategies and Solutions**

Many proposed solutions include: short training courses in English for Agriculture, compiling a glossary of technical terms commonly found on product packaging and agricultural tools, and using WhatsApp-based learning media to make it more flexible and accessible to farmers and extension workers.

Word Cloud and Word Frequency

The word cloud visualization in Figure 1 shows the dominance of Indonesian and English words, indicating the importance of this issue in agricultural technology transfer. The word cloud image from this study is as follows:

Figure 1. Word Cloud of NVivo Analysis Results
Source: NVivo Data Processing Results

Furthermore, the results of the word frequency query in Table 1 also reinforce these findings by showing that the words technology, information, farmer, extension worker, and training have a high frequency.

Table 2. Word Frequency Query Results Nvivo

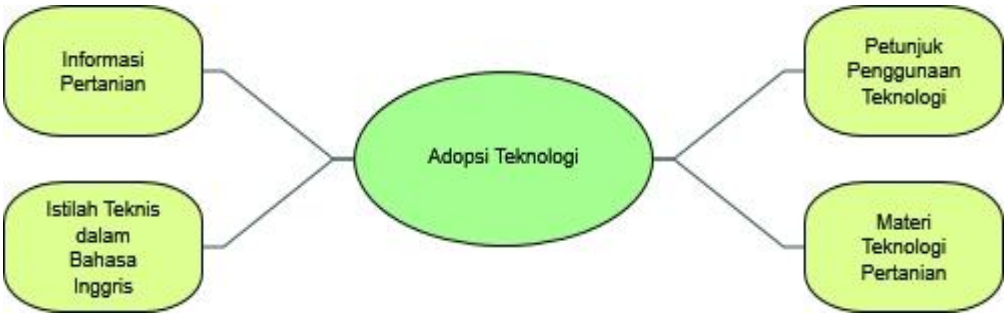
Word	*Length*	Count	Weighted Percentage (%)
language	6	2551	5.72
English	7	2491	5.58
technology	9	1046	2.34
terms	7	1012	2.27
agriculture	9	1013	2.27
farmers	6	594	1.33
training	9	476	1.07
extension workers	8	381	0.85
packaging	7	286	0.64
questions	10	280	0.63
instructions	8	278	0.62
tools	4	247	0.55
brochures	6	240	0.54
information	9	236	0.53
fertilizer	5	219	0.49
seeds	5	185	0.41
internet	8	173	0.39
technical	6	150	0.34

success	12	140	0.31
optional	8	140	0.31
personal	7	140	0.31
interviews	9	140	0.31
barriers	8	129	0.29
adoption	6	115	0.26
direct	8	116	0.26
materials	6	110	0.25
language	9	107	0.24
topics	5	107	0.24
extension	10	100	0.22
strategies	8	100	0.22
challenges	7	95	0.21
difficulties	9	95	0.21
understanding	5	95	0.21
assistance	7	90	0.20
facilities	9	90	0.20
work	5	90	0.20
media	5	90	0.20
Google	6	83	0.19
translate	9	74	0.17
experience	10	61	0.14
transfer	8	60	0.13
material	9	55	0.12
reading	7	53	0.12
rice	5	50	0.11
impact	9	50	0.11
format	6	50	0.11
manual	6	50	0.11
work	9	50	0.11
role	5	50	0.11
production	8	50	0.11
program	7	50	0.11
solution	6	50	0.11
learning	7	45	0.10
translation	10	39	0.09
insight	7	38	0.09

Source: NVivo Data Processing Results

The Theme Mapping (Mind Map and Project Map)

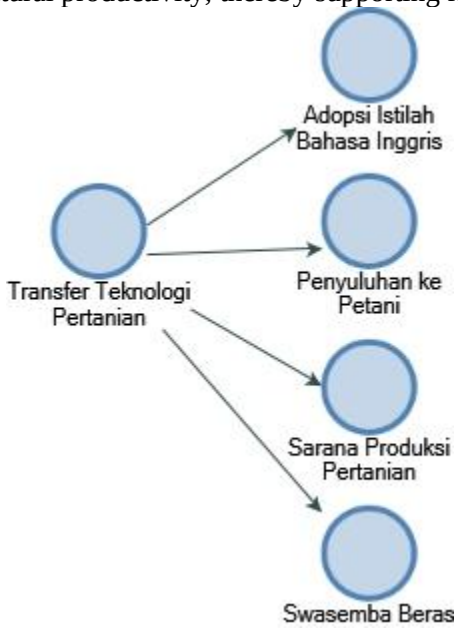
The next feature used is Mind Map (Figure 2), which shows the relationship between the main themes, namely: English language skills, technology transfer, the role of extension workers, and obstacles and solutions. Meanwhile, the project map (Figure 3) shows the relationship between the code categories that appeared in the interviews. The Hierarchy Chart Mind Map feature produces a visualization of the technology adoption by farmers and extension workers in improving rice self-sufficiency in Labuhanbatu Selatan. The figure below shows that technology adoption in agriculture involves several aspects, namely agricultural information, technical terms in English, instructions for using technology, and agricultural technology materials. Effective adoption of agricultural technology requires a good understanding of agricultural information, technical terms, instructions for use, and technological materials. If one of these aspects is not well understood, technology adoption can be ineffective. Good English language skills can help farmers and extension workers understand technical terms, instructions for use, and agricultural technology materials originating from foreign countries that use English.



Source: NVivo Data Processing Results

Figure 2. Hierarchy Chart Mind Map NVivo Results

The next feature is the Hierarchy Chart Project Map. This feature generates a graph about agricultural technology transfer closely related to the adoption of English terms, extension services to farmers, agricultural production facilities, and rice self-sufficiency. The adoption of English terms can help farmers and extension workers understand and adopt new technologies, thereby increasing agricultural productivity and efficiency. Extension services to farmers and good access to agricultural production facilities can also help increase technology adoption and agricultural productivity, thereby supporting rice self-sufficiency.



Source: NVivo Data Processing Results

Figure 3. Hierarchy Chart Project Map NVivo Results

Quantitative Test Results

Validity Test

A validity test is used to determine whether the data collected from an instrument is valid or not. The following are the validity test results:

Table 3. Results of the Validity Test of English Language Proficiency Variable

No Item	r count	r table 5 %	Sign	Criteria calculated r > table r	Sign Value Criteria (<0.05)
1	0.902	0.3610	0.000	valid	valid
2	0.668	0.3610	0.000	valid	valid
3	0.902	0.3610	0.000	valid	valid
4	0.668	0.3610	0.000	valid	valid
5	0.902	0.3610	0.000	valid	valid
6	0.902	0.3610	0.000	valid	valid
7	0.668	0.3610	0.000	valid	valid
8	0.902	0.3610	0.000	valid	valid
9	0.902	0.3610	0.000	valid	valid
10	0.668	0.3610	0.000	valid	valid

Source: SPSS Data Processing Results

Table 4. Results of the Validity Test of Agricultural Technology Transfer Variables

No Item	r count	r table 5 %	Sign	Criteria calculated r > table r	Sign Value Criteria (<0.05)
1	0.733	0.3610	0.000	valid	valid
2	0.768	0.3610	0.000	valid	valid
3	0.744	0.3610	0.000	valid	valid
4	0.733	0.3610	0.000	valid	valid
5	0.768	0.3610	0.000	valid	valid
6	0.541	0.3610	0.000	valid	valid
7	0.744	0.3610	0.000	valid	valid
8	0.744	0.3610	0.000	valid	valid
9	0.733	0.3610	0.000	valid	valid
10	0.768	0.3610	0.000	valid	valid

Source: SPSS Data Processing Results

The validity test results in Table 2 and Table 3 show that all items in the English language proficiency variable and agricultural technology transfer variable are valid because rcount > rtable.

Reliability Test

A validity test is used to determine whether the data collected from an instrument is reliable or not. The following are the results of the reliability test:

Tabel 5. Reliability Statistics

Cronbach's Alpha	N of Items
.944	10

Source: SPSS Data Processing Results

Based on Table 5, Cronbach's Alpha value is 0.944. Since Cronbach's Alpha value of 0.944 > 0.60, it can be concluded that all questionnaire items for this variable are reliable or consistent.

Tabel 6. Reliability Statistics

Cronbach's Alpha	N of Items
.885	10

Source: SPSS Data Processing Results

Classical Assumption Test

Normality Test

The normality test is used to determine whether the distribution of research data is normal or not. The method used to test normality is the One-Sample Kolmogorov-Smirnov Test. The output results are:

Tabel 7. One-Sample Kolmogorov-Smirnov Test

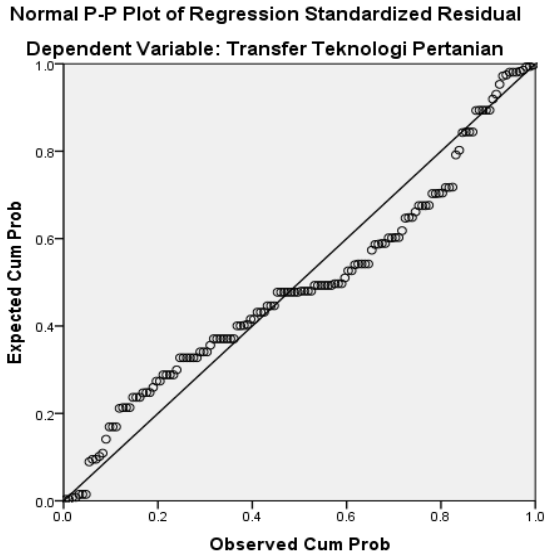
		Unstandardized Residual
N		140
Normal Parameters[a,b]	Mean	0E-7
	Std. Deviation	3.16922775
Most Extreme Differences	Absolute	.112
	Positive	.112
	Negative	-.097
Kolmogorov-Smirnov Z		1.320
Asymp. Sig. (2-tailed)		.061

a. Test distribution is Normal.

b. Calculated from data.

Source: SPSS Data Processing Results

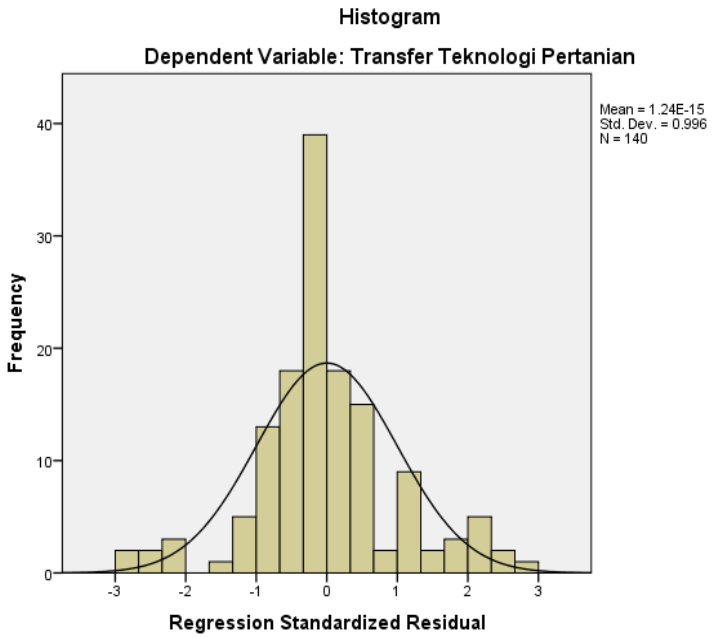
Based on Table 7, it can be seen that the asymp. sig (2-tailed) value is 0.061 > 0.05. Therefore, it can be concluded that the data is normally distributed. This condition can also be confirmed through data visualization in histograms and PP Plots that graphically describe the data distribution, as follows.



Source: SPSS Data Processing Results

Figure 4. PP Plot chart

Based on Figure 4, it can be seen that the data is scattered around the diagonal line and follows the pattern of that line, thus fulfilling the assumption of normal distribution.



Source: SPSS Data Processing Results

Figure 5. Histogram chart

Based on Figure 5, it can be concluded that the data is normally distributed because it has a bell-shaped curve and follows a diagonal pattern on the graph.

Multicollinearity Test

The multicollinearity test is used to determine whether multicollinearity occurs in the regression equation. If it does, it means that the independent variables are correlated. The output results are:

Tabel 8. Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Kemampuan Bahasa Inggris	1.000	1.000

a. Dependent Variable: Transfer Teknologi Pertanian

Source: SPSS Data Processing Results

Based on Table 8, it is known that the English language ability variable has a tolerance value of 1 > 0.1 and a VIF of 1 < 10, so it can be concluded that this variable does not exhibit multicollinearity.

Heteroscedasticity Test

The heteroscedasticity test is used to test whether there is variance inequality in the regression model from one observation to another. The heteroscedasticity test can be performed using the Glejser test. The output results are:

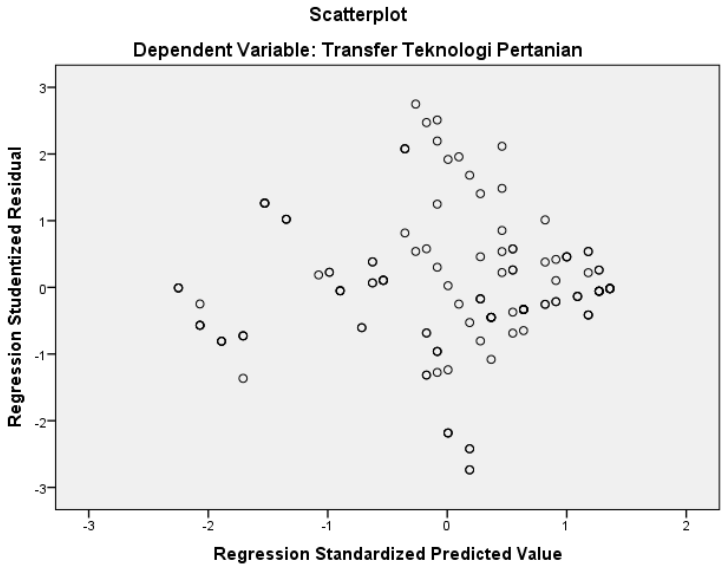
Tabel.9 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.389	.626		5.419	.000
	Kemampuan Bahasa Inggris	-.033	.017	-.164	-1.959	.052

a. Dependent Variable: ABS_RES

Source: SPSS Data Processing Results

Based on Table 9, it is known that the significance value of the English language ability variable is 0.052 > 0.05, so it can be concluded that there is no heteroscedasticity. In addition to the Glejser test, scatterplots were also used to detect heteroscedasticity. The results are as follows:



Source: SPSS Data Processing Results

Figure 6. Scatterplot chart

Based on Figure 6, it can be concluded that there is no clear pattern and the points are scattered above and below or around the number 0, so it can be concluded that the data does not exhibit heteroscedasticity.

Hypothesis Testing

Simple Linear Regression Test

The simple linear regression test is used to test the effect of one independent variable on one dependent variable. The output results are:

Tabel 10. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13083.026	1	13083.026	1293.200	.000[b]
	Residual	1396.117	138	10.117		
	Total	14479.143	139			

a. Dependent Variable: Transfer Teknologi Pertanian
b. Predictors: (Constant), Kemampuan Bahasa Inggris

Based on Table 10, it can be seen that the Fcount value is 1293.200 and the Ftable value is 3.91, so Fcount > Ftable (1293.200 > 3.91). From these results, it can be concluded that the English language ability variable has a significant effect on the agricultural technology transfer variable.

Correlation Test

The correlation test is used to measure the strength and direction of the relationship between two variables. The output results are:

Tabel 11. Correlations

		English Language Skills	Agricultural Technology Transfer
Kemampuan Bahasa Inggris	Pearson Correlation	1	.951**
	Sig. (2-tailed)		.000
	N	140	140
Transfer Teknologi Pertanian	Pearson Correlation	.951**	1
	Sig. (2-tailed)	.000	
	N	140	140

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Data Processing Results

Based on Table 11, it is known that the sig. (2-tailed) result shows a value of 0.000 < 0.05, indicating that there is a correlation between the English language ability variable and the agricultural technology transfer variable, which is 0.951. A positive value determines the direction of the relationship, meaning that the higher the English language proficiency, the higher the agricultural technology transfer process that can be carried out, with a correlation coefficient of 0.951, which is classified as very strong.

Partial Test (t-test)

The partial test is used to determine whether or not there is an effect of the independent variable on the dependent variable partially. The output results are:

Tabel 12. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.267	.892		7.025	.000
	English Language Skills	.876	.024	.951	35.961	.000

a. Dependent Variable: Agricultural Technology Transfer

Source: SPSS Data Processing Results

Based on Table 12, it is known that the t-value of the English language proficiency variable is 35.961 and the t-table is 2.0481, so the t-value is > t-table (35.961 > 2.0481). When viewed from the significance of the interlanguage error type variable of 0.022, 0.000 < 0.05 percent. This indicates that the English language proficiency variable has a significant partial effect on the agricultural technology transfer variable.

Determination Coefficient Test (R2)

The determination coefficient test is used to determine the percentage of influence of the independent variable on the dependent variable. The output results are:

Tabel 13. Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.951[a]	.904	.903	3.18069

a. Predictors: (Constant), English Language Skills

b. Dependent Variable: Agricultural Technology Transfer

Mixed-Methods Integration

Integrative analysis was conducted using a weaving integration approach, which combines quantitative and qualitative results in accordance with the research questions in this study. The results are presented in the following description:

1. Research Question 1: Level of English Proficiency

a. Quantitative: Data shows that the English proficiency of farmers and extension workers is directly related to the success of technology transfer (R^2 = 90.4%).
b. Qualitative: Farmers admit to having difficulty understanding technical terms such as herbicide, dosage, and seed treatment.
c. Integration: Quantitative and qualitative results consistently show that English proficiency is still relatively low and is a major obstacle.

2. Problem Statement 2: The Role of English Proficiency in Technology Transfer

a. Quantitative: Very strong correlation ($r = 0.951$, $p < 0.01$).
b. Qualitative: Extension workers serve as the main translators of technical material for farmers.
c. Integration: English acts as the main mediator in the agricultural technology transfer process.

3. Problem Statement 3: The Influence of English Proficiency on the Adoption of Agricultural Technology

a. Quantitative: Regression shows a significant influence with a positive coefficient of 0.876.
b. Qualitative: Farmers who understand English better tend to adopt innovations more quickly.
c. Integration: English language proficiency has been proven to accelerate technology adoption.

4. Problem Statement 4: Strategies, Constraints, and Solutions

a. Qualitative: Short training sessions, a glossary of technical terms, and WhatsApp learning are the proposed solutions.
b. Quantitative: The high influence of English (R^2 = 90.4%) shows the urgency of intervention.
c. Integration: Strategies to improve English are a key factor for the success of rice self-sufficiency.

The results of the mixed method in the discussion above can be seen in the following joint display:

Problem Statement	Quantitative Results	Qualitative Findings	Integrated Interpretation
PS 1 Level of ability	Level of ability 90.4% of technology transfer explained by English language ability	Difficulty with technical terms (herbicide, dosage)	Low to moderate ability is the main obstacle
PS 2 Role of ability	r=0.951 significant	Extension workers as translators of terms	English mediates technology transfer
PS 3 Influence of adoption	β=0.876, p<0.001	Understanding packaging labels accelerates adoption	Statistically and practically significant influence
PS 4 Strategies, constraints, solutions	---	Short training, glossary, WhatsApp learning	Context-based English language intervention is needed

Discussion

The results of this study are in line with the English for Specific Purposes (ESP) theory, which states that language learning must be contextualized according to the field of expertise (Hutchinson & Waters, 1987). The ability to understand technical terms in English is very important to support technology transfer. These findings are consistent with the results of previous studies showing that English language skills play an important role in the adoption of agricultural innovations (Mulyadi, 2021; Fitriani & Siregar, 2022). Research by Li et al. (2020) also found that foreign language skills support farmers' understanding of global technology. In addition, the results of this study are also relevant to the findings of Affiah & Syera (2023), who identified interlanguage errors in pronunciation, grammar, and vocabulary among traders in the Lake Toba tourist area. These errors were found to have a significant effect on tourist perceptions. Similar conditions have the potential to occur in agriculture, especially when farmers or extension workers must understand technological instructions, equipment manuals, or agricultural innovation information, most of which are available in English. For example, errors in understanding technical terms such as fertilizer application rate, irrigation scheduling, or pest resistance can lead to errors in application in the field. Therefore, assistance (English language training) is needed to minimize errors in understanding agricultural terms among all farmers and extension workers in Labuhanbatu Selatan.

From a qualitative perspective, the role of extension workers as language mediators reinforces Vygotsky's sociocultural theory, which emphasizes the importance of "scaffolding" in learning English for agriculture. In this case, extension workers function as linguistic bridges that help farmers understand and adopt new technologies. Thus, the results of this study confirm that improving English language skills is not only important in the field of education, but also has direct implications for productivity and food self-sufficiency.

CONCLUSION

Based on the results of this study, it can be concluded that English language proficiency has a significant and substantive influence on agricultural technology transfer. Quantitative results show that 90.4% of the variation in technology transfer can be explained by English language proficiency, while qualitative results highlight the obstacles of understanding technical terms and the role of extension workers as mediators in transferring new agricultural technologies to farmers. The relationship between the two shows that improving English language proficiency is a key strategy in accelerating the adoption of agricultural technology to support rice self-sufficiency in Labuhanbatu Selatan Regency.

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