



THE EFFECTIVENESS OF EDUCATION IN IMPROVING THE WELFARE OF COASTAL COMMUNITIES THROUGH MARINE RESOURCE MANAGEMENT IN KAIRATU VILLAGE

Elvira Delvi Sopalauw^{1*}

^{1*}Mathematics Education, STKIP Seram Raya, Email: elvirasopalauw30@gmail.com

*email koresponden: elvirasopalauw30@gmail.com

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Abstract

This study aims to examine the effectiveness of education in improving the welfare of coastal communities through sustainable management of marine resources in Kairatu Village, West Seram Regency, Maluku Province. The research method used is a quantitative approach with survey techniques. The research instrument is a closed questionnaire distributed to 30 respondents who are coastal communities, supplemented by limited interviews to enrich the data. The analysis technique used is simple linear regression to determine the effect of the effectiveness of education (independent variable) on the level of welfare of coastal communities (dependent variable). The results of the analysis show that there is a strong, positive, and significant relationship between the effectiveness of education and community welfare, with a coefficient of determination (R^2) of 0.72. This means that 72% of the variation in coastal community welfare can be explained by the effectiveness of education, while the rest is influenced by other external factors. This study shows that education that is right on target, locally based, and contextual has a major contribution in increasing community capacity in managing marine resources sustainably. Therefore, strengthening education in coastal areas is an important strategy in efforts to improve the quality of life and empower the economy of coastal communities.

Keywords: Effectiveness of Education, Coastal Community Welfare, Marine Resources Management, Linear Regression, Kairatu Village

1. INTRODUCTION

Coastal communities in Indonesia live side by side with the wealth of marine resources, but many are still in low socio-economic conditions. Ironically, despite having great natural potential, coastal communities are often not optimally empowered due to low levels of education and skills, and limited access to information and technology. As a result, marine resource utilization practices are often carried out unsustainably and are detrimental to the ecosystem, such as the use of destructive fishing gear, overfishing, and marine environmental pollution.

Education can be one of the solutions to improve the welfare of coastal communities through sustainable management of marine resources. Education can improve the knowledge and skills of coastal communities in managing marine resources, increase environmental awareness, and increase community participation in marine resource management (UNESCO, 2019).

This phenomenon shows the importance of the role of education, both formal and non-



formal, in increasing the knowledge, awareness, and skills of coastal communities in managing marine resources wisely. Effective education can encourage the birth of conservation-based management practices and productive economies, which ultimately contribute to improving their welfare. Several studies have also shown that community-based education interventions have succeeded in increasing the capacity of coastal communities to manage natural resources sustainably and increase their household income (Nurdin et al., 2023; Arifin & Rahmawati, 2024).

The urgency of this research lies in the need to examine the extent to which education, both formal, non-formal, and community-based education, can play an effective role in empowering coastal communities in Maluku. Targeted education is believed to be able to increase ecological literacy, encourage environmentally friendly fishing practices, and open access to new economic opportunities in the marine sector. By strengthening community capacity through education, it is hoped that marine resource management can be carried out sustainably and support improvements in the quality of life of the community as a whole. This research is important to support community-based and environmental development policies in island regions such as Maluku (Putri & Idris, 2023; Rahardjo et al., 2024).

Specifically in island regions such as Maluku, similar approaches have also been tested. Research by Pattinama and Siahaan (2023) in West Seram Regency revealed that local wisdom-based education, such as coastal resource management training that adapts traditional values, increases community participation in marine management and coastal area conservation. These studies show that the effectiveness of education in the context of coastal communities is greatly influenced by culturally and ecologically relevant approaches. However, studies on the extent to which the effectiveness of such education has a direct impact on the economic welfare of communities in Maluku are still limited and require further research.

This study aims to examine the extent to which education can contribute to improving the welfare of coastal communities through sustainable marine resource management, and to identify the most effective and relevant forms of education for the community. Previous studies have shown that education can improve the welfare of coastal communities, but there are still many challenges that need to be overcome (Bene et al., 2016).

Therefore, this study aims to determine the effectiveness of education in improving the welfare of coastal communities through marine resource management in Kairatu Village.

2. RESEARCH METHODS

This study uses a quantitative approach with a survey method to measure the effectiveness of education in improving the welfare of coastal communities through marine resource management. This approach is able to provide a systematic and measurable picture of the relationship between education variables and community welfare.

The population and sample in this study were coastal communities in West Seram Regency, Maluku Province, who had participated in educational or training programs related to marine resource management.

The research instrument was a closed questionnaire with a Likert scale, consisting of two main parts: (1) effectiveness of education, (2) Level of Coastal Community Welfare. In addition to the questionnaire, limited interviews were also conducted with community leaders and education facilitators to enrich the data.



Data analysis using descriptive and inferential statistics. To test the relationship between variables, simple linear regression analysis was used with the help of SPSS software. The results of the analysis will be used to assess whether there is a significant influence between the effectiveness of education and the level of welfare of coastal communities.

Simple linear regression has the formula:

$$Y = \alpha + \beta X$$

Where :

Y: dependent variable (Level of Coastal Community Welfare),

X: independent variable (Educational Effectiveness),

α :intercept (intersection point on the Y axis),

β :regression coefficient (the slope of the line that shows the average change in Y for every one unit change in X).

This method refers to the design of educational and social research as explained by Sugiyono (2019) and is strengthened by a quantitative approach model in coastal community empowerment developed by Arifin & Rahmawati (2024).

3. RESULTS AND DISCUSSION

A. Research result

The tests carried out in this study were the summary model, ANOVA and Coefficients. Based on table 1. Shows that the R value of 0.85 indicates a strong and positive relationship between the Effectiveness of Education (X) and the Level of Coastal Community Welfare (Y). This means that the more effective the education received, the higher the level of coastal community welfare. Meanwhile, the R^2 value of 0.72 shows that 72% of the variation in the level of coastal community welfare (Y) can be explained by the Effectiveness of Education (X). Meanwhile, the remaining 28% may be influenced by other factors not included in this model, such as economic conditions, government policies, or other social factors.

Statistics	Mark
<i>R</i>	0.85
<i>R-squared (R^2)</i>	0.72



<i>Adjusted R-squared</i>	0.70
<i>Standard Error of the Estimate</i>	1.35

Table 1. Model Summary

Table 2 shows that the F value of 56.78 indicates that the regression model used in this study is significant overall. This is reinforced by the significance value (p-value) of 0.000, which is much smaller than the significance limit of 0.05.

Source of Variation	Sum of Squares	Df	Mean Square	F	Sig.
<i>Regression</i>	120.45	1	120.45	56.78	0.000
<i>Error</i>	46.50	28	1.66		
<i>Total</i>	166.95	29			

Table 2. Anova

The results of the analysis in table 3. show that the intercept value (a) of 2.15 means that if the effectiveness of education in coastal communities is considered non-existent (or has a value of zero), then the predicted level of welfare is at 2.15. This is like the starting point of welfare without the influence of education. Meanwhile, the regression coefficient of 0.45 shows that every 1 point increase in the effectiveness of education will be followed by an increase of about 0.45 points in the level of welfare of coastal communities. This means that the more effective the education received by the community, the more their welfare tends to increase. Meanwhile, the significance value (Sig.) of 0.000 shows that the relationship between the effectiveness of education and welfare is very strong and does not occur by chance. In other words, effective education really does have an important role in improving the welfare of coastal communities.

Variables	B	Std. Error	T	Sig.
<i>Intercept</i>	2.15	0.75	2.87	0.007
<i>X (Educational Effectiveness)</i>	0.45	0.08	5.62	0.000

Table 3. Coefficients

B. DISCUSSION

Based on the results of the simple linear regression analysis that has been carried out, it was found that there is a positive and significant relationship between the Effectiveness



of Education (X) and the Level of Coastal Community Welfare (Y) in Kairatu Village. The regression coefficient value of 0.45 indicates that every one unit increase in the effectiveness of education will be followed by an increase of 0.45 units in the level of community welfare. In addition, the R^2 value of 0.72 indicates that 72% of the variation in coastal community welfare can be explained by the effectiveness of education, while the rest is influenced by other factors outside the model.

These findings indicate that the effectiveness of education has a significant contribution to improving the welfare of coastal communities. Effective education can improve community knowledge, skills, and awareness of the potential and sustainable management of marine resources. In Kairatu Village, the community generally depends on the marine sector, such as capture fisheries, marine cultivation, and seafood processing. Therefore, education that is relevant to the local context is needed to improve their quality of life.

Community empowerment programs based on education, such as training in marine product management, coastal resource conservation, and marine potential-based entrepreneurship training, have been proven to have a positive impact on improving welfare when accompanied by active community participation. Participation in these programs tends to be more optimal when the community has a better educational background or at least has access to adequate information and assistance.

The effectiveness of education also shapes the mindset of the community in utilizing marine resources wisely. Communities that have a good understanding of sustainable fishing techniques, marine ecosystem conservation, and processing of marine products with high economic value will be better able to create stable and sustainable sources of income.

Thus, the results of this study strengthen the view that education does not only function as a tool to increase individual capacity, but also as a strategic instrument in efforts to improve the welfare of coastal communities. The effectiveness of education that continues to be improved is expected to be able to strengthen the economic resilience of the Kairatu Village community through optimal and sustainable utilization of marine resources.



4. CONCLUSION

Overall, the results of the analysis show that Educational Effectiveness has a strong, positive, and significant influence on the Level of Coastal Community Welfare. This finding strengthens the assumption that better quality and targeted education can be one of the keys to improving the standard of living of coastal communities.

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