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EFFECT OF HUMAN RESOURCE CAPACITY ON VILLAGE FUND MANAGEMENT VIA ANTI-CORRUPTION NUMERACY MEDIATION VARIABLE

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Abstract

This study examines how improvements in human resource capacity affect the performance of village fund management, with anti-corruption numeracy as a mediating variable. Three hypotheses are tested: the direct effect of human resource capacity on village fund management, the indirect effect through anti-corruption numeracy, and the direct effect of anti-corruption numeracy on fund management performance. The research uses a quantitative approach with a survey method. The study was conducted in North Tolitoli District, Central Sulawesi, involving 121 village officials from six randomly selected villages. Data were analyzed using path analysis and the Sobel test. The results confirm that all hypotheses are statistically supported. Human resource capacity has a significant direct effect ($\beta = 0.677$; $p < 0.001$) and an indirect effect through anti-corruption numeracy (Sobel = 3.109; $p = 0.001$). Anti-corruption numeracy also shows a direct influence on village fund management ($\beta = 0.303$; $p < 0.001$). These findings suggest that enhancing capacity and anti-corruption awareness are key to improving transparent and accountable village fund governance.

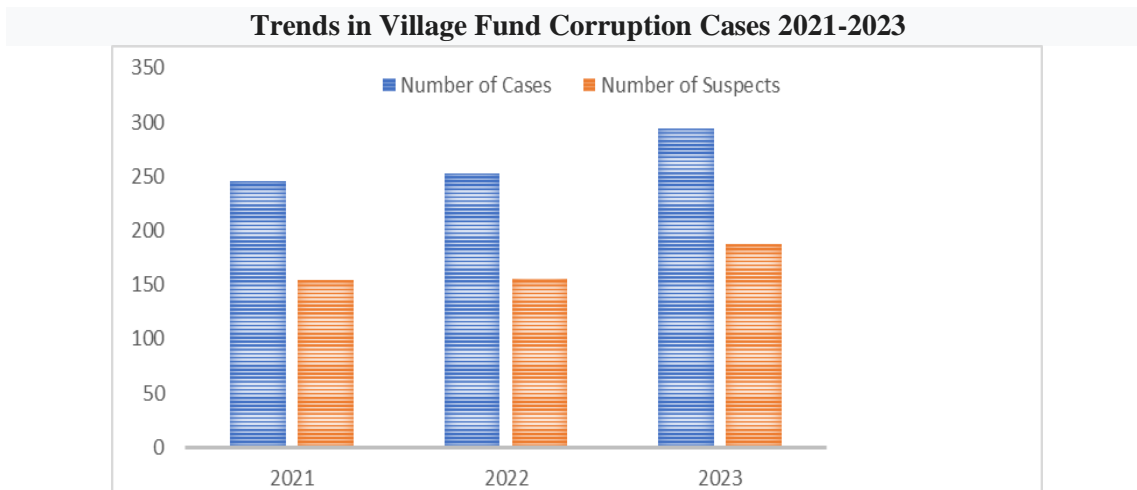
Keywords: *Human Resource Capacity, Anti-corruption Numeracy, Village Funds, Governance*

INTRODUCTION

Village fund governance is one of Indonesia's core strategic initiatives to promote independent and sustainable rural development (Permatasari et al., 2021); (Arifin et al., 2020); (Saputra et al., 2021). Since the implementation of Village Law No. 6/2014, the government has continuously allocated significant resources to villages in support of community welfare, infrastructure development, and local economic empowerment. Under President Prabowo Subianto's administration, this commitment continues through the Asta Cita program, which emphasizes balanced development and equitable economic growth across the archipelago. This program builds on earlier government policies such as the "one billion per village" fund allocation, aimed at accelerating local development (Wibowo, 2021); (Dewi, 2021).

Nevertheless, several implementation challenges threaten the effectiveness of this program. Misuse of village funds driven by non-compliance with regulations and limited literacy in financial management among village officials continues to be a critical issue (Taftiyan et al., 2024). A major contributing factor to such misuse is the insufficient capacity of human resources

(HR) at the village level, which correlates with the growing number of corruption cases across the country (Rahmatullah et al., 2022). According to the Theory of Good Governance, effective public sector governance relies on accountability, transparency, responsiveness, and the capacity of institutional actors (Poniatowicz et al., 2020). These principles, if absent, significantly increase the risk of fiscal mismanagement, especially in decentralized governance settings such as villages.



Source: ICW, 2024

Figure 1. Corruption Case Trend Diagram

Data released by Indonesia Corruption Watch (ICW) reinforce this concern. The village sector recorded the highest number of corruption cases: 154 in 2021 with 245 suspects; 155 cases in 2022 involving 252 suspects; and a sharp increase in 2023 with 187 cases and 294 suspects, causing state losses exceeding IDR 162 billion (Saptohutomo, 2024). These cases highlight systemic weaknesses in both regulatory enforcement and local institutional integrity.

A key issue lies in the general lack of understanding among both the public and village authorities regarding effective fund governance. In Central Sulawesi Province alone, 22 cases of village fund corruption were reported between 2018 and 2019, spanning nearly all districts (Suararakyatnews, 2019). Tolitoli Regency reported six separate cases from 2018 to 2023, and in 2025, another incident resulted in a state loss of over IDR 912 million (PosRakyat, 2025). These patterns underscore the urgency of institutional reform and capacity building at the village level. Common modes of misuse include budget inflation, fund embezzlement, and financial reporting manipulation. Kumombong's research identified a lack of oversight and transparency as major contributors to corruption in village fund management (Kumombong, 2022). Rizky's study in Bangkalan Regency found five common techniques in fund misuse, including abuse of authority, document forgery, and fund diversion for personal benefit (Gustiansyah, 2023).

According to Gary S. Becker, the Human Capital Theory explains that education, training, and work experience are forms of investment in individuals that enhance their productivity, efficiency, and contributions within an organization or institution. This theory assumes that improving human resource capacity has a direct impact on work performance and the achievement of development goal (Sapayeva, 2024). The capability of village government officials

encompasses technical knowledge, managerial skills, and financial competence. Strengthening these capacities is essential to achieve effective public service delivery, as emphasized in the literature on capacity development (Annan-Prah & Andoh, 2023). The Institutional Capacity Theory highlights that effective governance relies on human, technical, and structural competence that enables institutions to carry out their duties responsibly (Domorenok et al., 2021). Without sufficient human capital, even well-designed policies such as village fund allocations can fail during implementation due to inadequate planning and administrative inefficiency.

Village fund programs represent one of the Indonesian government's core strategies for promoting inclusive and independent rural development, particularly after the implementation of Law No. 6/2014 (Permatasari et al., 2021). Empirical studies, such as those by (Udjianto et al., 2025) indicate that effective village fund management contributes to local welfare when conducted under principles of inclusivity, transparency, and accountability. According to the Good Governance Theory, transparency, accountability, public participation, and responsiveness are key pillars in preventing mismanagement and corruption in the use of public funds (Agu et al., 2024). Furthermore, the concept of Collaborative Governance becomes particularly relevant in the village context, where community involvement can enhance trust and accountability in managing public resources (Jeddawi et al., 2025).

Anti-corruption numeracy can be defined as a combination of financial literacy and ethical awareness, enabling village officials to understand, supervise, and implement transparent and accountable budgeting practices (Suteki; Jalil Aga; Nasution, Angelica Vanessa Audrey, 2024). According to (Coll et al., 2005) research indicates that improving numeracy and financial understanding among government officials has a direct impact on reducing corruption and improving financial governance outcome. In many documented cases, the misuse of village funds stems not only from intention but also from poor understanding of regulatory frameworks and the ethical consequences of non-compliance. To understand these issues from a capacity-building perspective, Institutional Capacity Theory offers a relevant framework. This theory posits that the effectiveness of governance institutions depends on their technical, human, and organizational capacities. When village officials lack financial literacy, regulatory knowledge, and the ability to implement anti-corruption norms, governance outcomes deteriorate. In this context, financial literacy and anti-corruption numeracy are critical skills that form the foundation for transparent, efficient, and accountable budget management (Kamila, 2022).

Although previous studies have emphasized the importance of human resource capacity (Leoni, 2025) and financial literacy in public governance (Guerini et al., 2024) none have explicitly examined anti-corruption numeracy as a mediating variable linking human resource capacity to village fund management. Moreover, research conducted at the village level particularly within the context of Tolitoli Regency remains scarce. Therefore, this study provides a novel contribution both theoretically and practically by enriching the literature on transparent and accountable village fund governance.

Previous studies have consistently emphasized that human resource (HR) capacity and financial literacy play a crucial role in promoting effective and accountable public governance. For instance, (Intan et al., 2024) found that strengthening the capacity of village officials

positively influences the transparency and accountability of public fund management. Similarly, (Kyeyune & Ntayi, 2025) highlighted that the financial literacy of village officials serves as a key factor in preventing mismanagement of village funds. Meanwhile, (Amelia et al., 2024) revealed that weak numerical competence among village administrators can increase the risk of corruption and inefficiency in budget management.

However, most of these studies have not explicitly examined the mediating role of anti-corruption numeracy in the relationship between HR capacity and village fund management. Previous research has generally focused on technical and administrative competencies, overlooking the numerical dimension associated with integrity and anti-corruption values. Furthermore, existing studies have been largely concentrated in urban or developed regions of Java Island, while empirical investigations on village fund governance in eastern Indonesia particularly in Tolitoli Regency remain limited.

This study addresses the following core question, to what extent does anti-corruption numeracy mediate the effect of human resource capacity on village fund management?

This research contributes both theoretical and practical insights and may guide policymakers particularly in Tolitoli Regency in formulating strategies to strengthen village institutions through capacity building and anti-corruption education programs.

RESEARCH METHOD

This study employed a quantitative research approach with a causal design to examine the influence of human resource capacity on the performance of village fund management, mediated by anti-corruption numeracy (Alkhawaldah et al., 2025). Data were collected through a structured survey using a standardized questionnaire distributed to village officials. The research was conducted in North Tolitoli District, located in Tolitoli Regency, Central Sulawesi Province. Considering the broad geographic scope and the potential variation among villages, a cluster sampling method was applied by treating all 10 villages in the district as clusters (Hakizimana et al., 2024). From these, six villages were selected randomly using simple random sampling to ensure the representativeness of the sample (Ahmed, 2024). The total sample consisted of 121 respondents, comprising all village officials within the selected clusters. The instrument used in the survey was developed based on validated indicators relevant to each variable: human resource capacity, anti-corruption numeracy, and village fund management performance. Data were analyzed using path analysis to test by using SPSS software version 26.0 direct and indirect effects among variables analysed, while the Sobel test was applied to assess the significance of the mediating role of anti-corruption numeracy. This method allowed the researcher to evaluate the strength and significance of causal relationships among the studied variables within a structured model.

RESULTS AND DISCUSSION

3.1 Results

This section outlines the research results obtained from the sample by employing various data analysis techniques. The study applies SPSS version 26.0 to carry out path analysis and sobel test, validate the research instruments, test classical assumptions, and conduct hypothesis testing based on the collected dataset.

3.1.1 Validity and Reliability Test

Instrument testing serves as a fundamental step to determine the feasibility and consistency of each statement in accurately capturing the issues observed in the field. In this study, the instrument was tested on all village apparatus in Luok Manipi Village, Dondo Subdistrict, involving a total of 16 respondents. The analysis was conducted using SPSS version 26.0. Based on the results of the instrument testing for the statements related to the variables of Human Resource Capacity Improvement, Village Fund Management, and Anti-Corruption Numeracy, the findings are presented in the following table.

Table 1. Validity Test Results

	Instrument	r-count	r-table	Remarks
Human Resource Capacity Improvement (X)	HRC1	0.821	0.497	Valid
	HRC2	0.598	0.497	Valid
	HRC3	0.830	0.497	Valid
	HRC4	0.818	0.497	Valid
	HRC5	0.630	0.497	Valid
	HRC6	0.707	0.497	Valid
	HRC7	0.634	0.497	Valid
	HRC8	0.555	0.497	Valid
Village Fund Management (Y)	VFM1	0.824	0.497	Valid
	VFM2	0.776	0.497	Valid
	VFM3	0.735	0.497	Valid
	VFM4	0.627	0.497	Valid
	VFM5	0.776	0.497	Valid
	VFM6	0.878	0.497	Valid
	VFM7	0.806	0.497	Valid
	VFM8	0.797	0.497	Valid
Anti-Corruption Numeracy (Z)	ACN1	0.962	0.497	Valid
	ACN2	0.966	0.497	Valid
	ACN3	0.962	0.497	Valid
	ACN4	0.863	0.497	Valid
	ACN5	0.832	0.497	Valid
	ACN6	0.978	0.497	Valid
	ACN7	0.847	0.497	Valid
	ACN8	0.890	0.497	Valid

Source: Primary Data (Processed), 2025

Based on the validity testing results, all statement items across the three variables were confirmed to be valid, as each showed a correlation coefficient (r-count) exceeding the critical value (r-table) of 0.497. This indicates that the instrument applied in this study demonstrates strong measurement reliability and effectively captures the intended constructs. Specifically, the r-count values for the Human Resource Capacity Improvement variable ranged from 0.555 to 0.830; for the Village Fund Management variable, from 0.627 to 0.878; and for the Anti-Corruption Numeracy variable, from 0.832 to 0.978. These findings affirm that every item in the research instrument is both statistically valid and appropriate for consistently measuring the respective variables.

In conducting the reliability assessment, the researcher applied the Cronbach's Alpha formula to evaluate the internal consistency among the items in the research instrument. This step was carried out after the validity test to further ensure the reliability of the collected data. As stated by (Izah et al., 2023), a dataset is generally considered reliable when the Cronbach's Alpha (α) coefficient exceeds 0.7. The analysis was performed using SPSS statistical software, which generated results that provided essential insights into the level of reliability of the examined data.

Table 2. Reliability Test Results

	Cronbach Alpha	Standart
Human Resource Capacity Improvement	0.847	0.7
Village Fund Management	0.902	0.7
Anti-Corruption Numeracy	0.966	0.7

Source: Primary Data (Processed), 2025

The reliability test in this study was conducted using the Cronbach's Alpha coefficient through SPSS software to assess the internal consistency of the research instruments. Based on the results, all three variables met the acceptable reliability threshold of 0.7. The Human Resource Capacity Improvement variable obtained an alpha value of 0.847, indicating good reliability. Village Fund Management showed a higher level of consistency with a score of 0.902, while Anti-Corruption Numeracy demonstrated excellent internal reliability with a coefficient of 0.966. These findings confirm that the instrument used in the study is statistically reliable and suitable for measuring each construct consistently.

3.1.2 Normality Test

The decision to employ the Monte Carlo method in the normality test was based on the relatively large sample size of big respondents. When working with large datasets, traditional normality tests such as Kolmogorov-Smirnov tend to be overly sensitive to minor deviations from normality deviations that may not be practically meaningful but still lead to statistically significant results (Hernandez, 2021).

Table 3. Normality Test Results

			Unstandardize d Residual
N			121
Test Statistic			.106
Monte Carlo Sig. (2- tailed)	Sig.		.120 ^d
	99% Confidence	Lower Bound	.112
	Interval	Upper Bound	.129

Source: Primary Data (Processed), 2025

In this study, the normality of the unstandardized residuals was assessed using the Kolmogorov-Smirnov test with Monte Carlo simulation. The test yielded a Monte Carlo two-tailed significance value of 0.120, with a 99% confidence interval ranging from 0.112 to 0.129. Since the obtained p-value exceeds the 0.05 threshold, it can be concluded that the residuals follow a normal distribution, thereby satisfying one of the key assumptions required for conducting parametric statistical analyses.

3.1.3 Multicollinearity Test

A multicollinearity test was conducted to determine whether a strong correlation exists between the independent variables that could compromise the reliability of the regression coefficients (Kyriazos & Poga, 2023). In this study, the independent variables Human Resource Capacity Improvement and Anti-Corruption Numeracy were analyzed in relation to the dependent variable, Village Fund Management.

Table 4. Multicollinearity Test Results

	Tolerance	VIF
Human Resource Capacity Improvement	.853	1.172
Anti-Corruption Numeracy	.853	1.172
a. Dependent Variable: Village Fund Management		

Source: Primary Data (Processed), 2025

The test results show that both independent variables have a Tolerance value of 0.853 and a Variance Inflation Factor (VIF) of 1.172. According to widely accepted statistical thresholds, multicollinearity is considered absent if the Tolerance is above 0.10 and the VIF is below 10 (Sihombing, 2022). Based on these criteria, it can be concluded that there is no indication of multicollinearity within the regression model. This implies that the independent variables are not excessively correlated, allowing the regression estimates to remain statistically reliable and the model to be considered robust for further analysis.

3.1.4 Heteroscedasticity Test

Heteroscedasticity testing is a technique in regression analysis used to determine whether the variance of the residuals (prediction errors) remains consistent across all levels

of the predictor variables (Kumar, 2023). When the residual variance varies across different levels, it indicates the presence of heteroscedasticity. In contrast, if the variance remains stable, the condition is known as homoscedasticity, which is a key assumption in classical linear regression models.

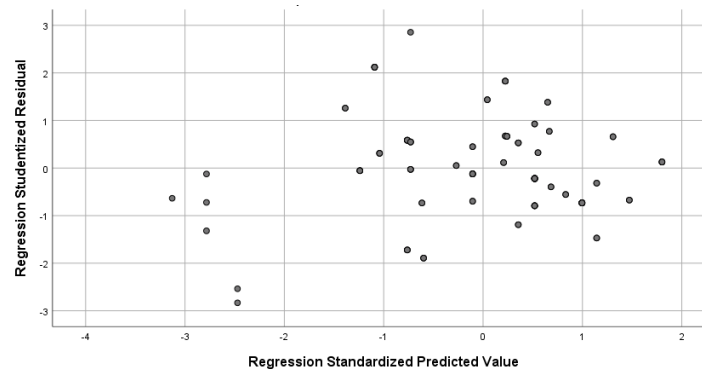


Figure 2. Heteroscedasticity Using Scatterplot
Source: Primary Data (Processed), 2025

The scatterplot displaying the standardized residuals against the standardized predicted values indicates that the residuals are randomly dispersed around the horizontal axis. There is no visible systematic pattern such as a funnel shape (widening or narrowing spread) or a curved trend. This randomness suggests that the assumption of homoscedasticity is met, meaning the variance of the residuals is constant across all levels of the predicted values. In other words, the distribution of error terms does not vary significantly as the values of the independent variables change. Consequently, this indicates that there is no evidence of heteroscedasticity in the regression model, and the linear regression assumptions are appropriately satisfied. This result supports the validity of further parametric statistical analysis on the model.

3.1.5 Path Analysis

Path analysis is a statistical technique used to examine causal relationships among variables within a predetermined theoretical framework (Chen et al., 2022). It extends the multiple linear regression approach by allowing researchers to assess both direct and indirect effects of independent variables on dependent variables, often through one or more mediating variables (Sidhu et al., 2021). This method is particularly useful in quantitative research that aims to test complex models based on well-established hypotheses or conceptual frameworks (Rafelski & Theriot, 2024).

The primary purpose of path analysis is to evaluate the strength and direction of relationships between variables by calculating path coefficients (Limberg et al., 2021). These coefficients indicate how changes in one variable influence others, either directly or through intermediate pathways. By employing this method, researchers can gain a deeper understanding of the structural connections among variables and determine which paths are statistically significant in shaping the overall outcome.

3.1.5.1 Hypothesis of the Direct Effect of Human Resource Capacity Improvement on Village Fund Management.

This section outlines the hypothesis testing results concerning the direct impact of Human Resource Capacity Development on the management of Village Funds, assessed through path analysis. The purpose of this analysis is to explore how improvements in human resource skills, knowledge, and abilities can directly affect the efficiency and accountability of village fund administration. By examining the standardized coefficients and significance levels derived from the path analysis model, this study offers empirical insights to either confirm or refute the stated hypothesis. The complete results are summarized in the table below.

Table 5. Path Analysis (X to Y)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	9.316	2.370		3.930	.000
Human Resource Capacity Improvement	.705	.070	.677	10.024	.000

a. Dependent Variable Village Fund Management

Source: Primary Data (Processed), 2025

The results of the path analysis indicate that the variable Human Resource Capacity Improvement has a significant direct effect on Village Fund Management. This is evidenced by the standardized coefficient ($\beta = 0.677$) with a significance value ($p = 0.000$), which is well below the threshold of 0.05. This finding suggests that improvements in human resource capacity contribute strongly and positively to the effectiveness of village fund management. The high beta value demonstrates a robust influence, meaning that as the competency and capacity of village officials increase, so does the efficiency and accountability in managing village funds. These results validate the hypothesis that investing in human resources is a crucial factor in achieving optimal financial governance at the village level.

3.1.5.2 Hypothesis of the Direct Effect of Human Resource Capacity Improvement and Anti-Corruption Numeracy on Village Fund Management.

The table below illustrates the results of hypothesis testing for the direct influence of Human Resource Capacity Improvement and Anti-Corruption Numeracy on Village Fund Management, using path analysis. This analysis seeks to determine the extent to which these two independent variables contribute directly to the effectiveness, transparency, and accountability of managing village funds. By examining the standardized coefficients and significance levels, this model offers empirical insight into how capacity development and anti-corruption awareness jointly shape governance outcomes at the village level. The detailed findings are presented in Table

Table 6. Path Analysis (X and Z to Y)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.918	2.513		1.559	.122
	Human Resource Capacity Improvement	.584	.071	.561	8.255	.000
	Anti-Corruption Numeracy	.307	.069	.303	4.459	.000

a. Dependent Variable: Village Fund Management

Source: Primary Data (Processed), 2025

Based on the results presented in Table, both Human Resource Capacity Improvement and Anti-Corruption Numeracy exhibit a significant direct effect on Village Fund Management. The standardized coefficient for Human Resource Capacity Improvement is $\beta = 0.561$, with a significance value (p) of 0.000, indicating a strong and statistically significant relationship. This suggests that increasing the skills, knowledge, and competencies of human resources significantly enhances the effectiveness and accountability in managing village funds.

Likewise, Anti-Corruption Numeracy also shows a significant direct influence, with a standardized coefficient of $\beta = 0.303$ and a p-value of 0.000. This finding implies that higher levels of awareness and understanding related to anti-corruption practices among village officials contribute positively to better governance and fund management. Together, these results highlight the critical role of both capacity building and anti-corruption awareness in ensuring the efficient and transparent use of public funds at the village level. The high t-values for both variables further reinforce the strength and reliability of these effects within the tested model.

The Sobel test was conducted to examine the mediating role of anti-corruption numeracy in the relationship between human resource (HR) capacity and village fund management. The main purpose of this test is to determine whether the indirect effect of HR capacity on village fund management through anti-corruption numeracy is statistically significant. In other words, this test verifies whether anti-corruption numeracy truly serves as a mediating variable that bridges the influence of village officials' capability and the overall quality of financial governance at the village level. In this study, the analysis was carried out using an online Sobel test calculator available at <https://www.danielsoper.com/sobel/>. This tool was utilized to calculate the Sobel test statistic (Z) and its corresponding p-values, based on the path coefficients (A and B) and their respective standard errors. The use of this online calculator allowed the computation process to be performed accurately and efficiently, eliminating the complexity and potential errors associated with manual calculations.

Table. 7 Sobel Analysis

Parameter	Value
Path Coefficient A (Human Resource Capacity → Anti-Corruption Numeracy)	0.677
Path Coefficient B (Anti-Corruption Numeracy → Village Fund Management)	0.303
Standard Error A (SEA)	0.070
Standard Error B (SEB)	0.069
Sobel Test Statistic (Z)	3.9984
One-tailed Probability (p_1)	0.00003188
Two-tailed Probability (p_2)	0.00006376

Source: Primary Data (Processed), 2025

The results of the computation showed that the path coefficient A (the effect of HR capacity on anti-corruption numeracy) was 0.677, with a standard error (SEA) of 0.070. This indicates a strong and positive relationship between HR capacity and anti-corruption numeracy. It implies that the higher the HR capacity of village officials—encompassing competence, integrity, and managerial skills—the higher their level of anti-corruption numeracy. Competent and integrity-driven officials tend to demonstrate stronger numerical analytical abilities and greater prudence in managing public budgets. Meanwhile, the path coefficient B (the effect of anti-corruption numeracy on village fund management) was 0.303, with a standard error (SEB) of 0.069. This finding confirms that anti-corruption numeracy plays an essential role in enhancing the effectiveness and accountability of village fund management. Officials with strong numerical skills and a heightened awareness of anti-corruption principles are more meticulous in planning, executing, and reporting financial activities, thereby minimizing the likelihood of mismanagement or irregularities in the use of public funds.

The Sobel test statistic (Z) was found to be 3.9984, which exceeds the critical value of 1.96 at the 5% significance level. Additionally, the one-tailed probability ($p_1 = 0.00003188$) and two-tailed probability ($p_2 = 0.00006376$) were both far below the significance threshold of 0.05, indicating that the mediating effect is highly significant statistically. Hence, it can be concluded that anti-corruption numeracy significantly mediates the relationship between HR capacity and village fund management. These findings provide strong empirical evidence that enhancing HR capacity not only has a direct impact on improving the quality of village fund management but also produces an indirect effect through the strengthening of anti-corruption numeracy. This suggests that village officials who are technically competent, numerically skilled, and guided by anti-corruption values are more capable of managing public funds in a transparent and accountable manner.

Therefore, the practical implication of this study is the need to strengthen the capacity of village officials not only in technical or administrative aspects but also in

the dimension of anti-corruption numeracy, which serves as the foundation of integrity in financial governance. Training and development programs that emphasize both numerical literacy and anti-corruption ethics are expected to foster a governance system for village funds that is transparent, participatory, and resistant to misuse of public resources.

3.1.5.3 Hypothesis of the Direct Effect of Anti-Corruption Numeracy on Village Fund Management.

To examine the direct influence of Anti-Corruption Numeracy on Village Fund Management, a path analysis was carried out with Anti-Corruption Numeracy serving as the predictor variable. This test aims to determine the extent to which the ability of village officials to understand and implement anti-corruption values contributes to improving the efficiency and accountability in managing village finances. The statistical outcomes, including standardized coefficients and significance levels, are detailed in Table

Table 8. Path Analysis (Z to Y)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.918	2.513		1.559	.122
	Anti-Corruption Numeracy	.307	.069	.303	4.459	.000

a. Dependent Variable: Village Fund Management

Source: Primary Data (Processed), 2025

The results of the path analysis reveal that Anti-Corruption Numeracy exerts a significant direct impact on Village Fund Management, as indicated by a standardized coefficient (β) of 0.303 and a significance value of $p = 0.000$ ($p < 0.05$). The positive beta value suggests that higher levels of anti-corruption numeracy among village officials are associated with improved performance in managing village funds. With a t-value of 4.459, the effect is statistically significant. This implies that the ability to comprehend and apply anti-corruption principles plays a direct role in enhancing the effectiveness, transparency, and accountability of village fund administration.

3.2 Discussion

3.2.1 The Direct Influence of Human Resource Capacity Improvement on Village Fund Management

The analysis results reveal that the improvement of human resource (HR) capacity has a strong and statistically significant direct impact on the management of village funds. This finding indicates that as the skills, knowledge, and competencies of village officials increase, their ability to manage village finances effectively and responsibly also improves.

This result reflects the real-world conditions observed in many rural areas of Indonesia, where the primary challenge in managing village funds often lies not in the amount of financial resources available, but in the limited administrative and technical capacity of village officials. Enhancing human resource capacity therefore involves more than just technical training it includes strengthening managerial abilities, leadership skills, and comprehension of governance principles and regulatory frameworks.

The implications of this finding are substantial, especially for rural development policies. It underscores the need for continuous investment in building and developing the capacity of village-level human resources. Both local and national governments should prioritize capacity development programs, as well-trained and knowledgeable village officials are essential in promoting transparency, accountability, and the efficient use of public funds. Moreover, strengthening human resources can reduce the risk of budget mismanagement and corruption, issues that frequently emerge in local financial governance.

In a broader context, these findings reinforce the importance of village fund management as a key variable in evaluating the performance of village governments. Effective fund management not only reflects administrative competence but also institutional integrity—both of which are fundamentally shaped by the quality of human resources. Therefore, investing in HR development should be viewed as a strategic approach that contributes significantly to the success of rural development programs, including public service delivery, infrastructure improvement, and community empowerment.

3.2.2 The Indirect Effect of Human Resource Capacity Development on Village Fund Management through Anti-Corruption Numeracy (Mediating Effect)

The results of the mediation analysis using the Sobel test reveal that anti-corruption numeracy serves as a significant mediating factor in the relationship between human resource (HR) capacity development and the management of village funds. This finding provides deeper insight into how the enhancement of HR capacity not only has a direct impact but also strengthens fund management indirectly by fostering a heightened awareness and understanding of anti-corruption principles. This phenomenon highlights a critical issue in the governance of public finances at the village level namely, the persistent challenge of maintaining integrity. Even when village officials possess strong technical skills, the absence of ethical awareness and a firm commitment to anti-corruption values can still lead to inefficiencies or misuse of public funds. In this context, anti-corruption numeracy emerges as a vital bridge between technical competency and moral integrity in executing public duties.

These findings carry important implications for policymakers and training institutions. Programs aimed at developing HR capacity should go beyond technical or administrative skills; they must also incorporate structured education on ethical standards and anti-corruption values. A more holistic approach to capacity building will help shape village officials who are not only capable in terms of administration and finance but also

uphold strong ethical standards—an essential combination for managing public resources responsibly. From a theoretical standpoint, this research reinforces the strategic role of anti-corruption numeracy as a mediating variable in studies on financial governance at the village level. It offers explanatory power in understanding how HR development can translate into more effective fund management. Therefore, any HR development initiative at the local level must place ethical literacy and integrity at its core, rather than treating them as supplementary. In summary, this study not only confirms the importance of investing in human resources but also emphasizes that successful village fund governance is fundamentally influenced by how deeply anti-corruption values are internalized by those responsible for managing public finances at the grassroots level.

3.2.3 The Direct Influence of Anti-Corruption Numeracy on Village Fund Management

This study reveals that anti-corruption numeracy reflecting awareness, comprehension, and adherence to clean governance principles has a significant direct effect on the quality of village fund management. Village officials with a strong grasp of anti-corruption values are more likely to manage public finances with greater transparency, accountability, and responsibility. This finding highlights the critical role that ethical literacy plays in strengthening the foundation of financial governance at the village level.

Such a relationship reflects a common phenomenon in local government administration, where weaknesses in personal integrity, rather than technical incompetence, often become the root of financial mismanagement. Even when village officials are technically capable, a lack of moral awareness can lead to misuse of funds or non-transparent decision-making. Thus, anti-corruption numeracy acts not only as an ethical compass but also as a cognitive skill that supports ethical judgment in financial practices. This implies that improving the moral reasoning and ethical behavior of public officials is just as important as enhancing their technical skills. Village officials who are able to identify corruption risks, recognize conflicts of interest, and evaluate decisions based on legal and moral standards are more likely to maintain public trust and uphold fiscal integrity.

Their decision-making processes become more aligned with good governance principles when grounded in both technical knowledge and ethical competence. The findings suggest that training programs for village officials must go beyond administrative procedures and include a strong emphasis on ethical education and anti-corruption awareness. By embedding these values into capacity-building efforts, the development of human resources at the village level can result in a more accountable and transparent use of public funds. Ultimately, the success of village fund management is highly dependent on the individuals who implement financial policies. Anti-corruption numeracy should be treated as a key variable in strengthening the connection between human capacity and sustainable financial governance. This underlines the importance of fostering not only professional competence but also personal integrity among public servants at the grassroots level.

3.2.4 Managerial and Theoretical Implications

The findings of this research provide significant managerial, policy, and theoretical implications that are relevant both for local government practitioners particularly within the Tolitoli Regency and generally across the Province of Central Sulawesi and for future scholars examining public financial governance in rural contexts. From a managerial and policy perspective, the study underscores that improving human resource (HR) capacity and enhancing anti-corruption numeracy are essential strategies to strengthen village fund management systems. The results clearly demonstrate that the effectiveness and accountability of fund utilization at the village level are determined not only by financial resources but, more importantly, by the competence, ethical awareness, and integrity of the officials managing them. Therefore, the Tolitoli Regency Government and the Central Sulawesi Provincial Government should prioritize integrated capacity development programs that combine technical competencies (such as financial management, budgeting, and reporting) with ethical education and anti-corruption training.

Such a dual approach will ensure that village officials not only possess administrative and financial expertise but also uphold strong moral principles and public accountability. Institutionalizing anti-corruption numeracy within official training and education programs is vital to prevent misuse of funds, promote transparency, and build community trust. By embedding ethical literacy into every stage of HR development, local governments can create a sustainable governance framework that minimizes corruption risks while enhancing administrative efficiency. Moreover, these implications align with the regional development goals of Central Sulawesi, which aim to foster transparent, participatory, and integrity-based public administration across its districts and villages. In practice, this means that strengthening human resource quality and moral accountability should be considered a strategic investment rather than a temporary policy measure. Sustainable improvement in governance performance can only be achieved when competence and integrity evolve in tandem.

From a theoretical standpoint, this study contributes to expanding the conceptual understanding of anti-corruption numeracy as a mediating variable linking HR capacity and financial governance outcomes. It demonstrates that ethical awareness and cognitive numeracy related to corruption prevention are not peripheral aspects, but core behavioral mechanisms that determine the success of governance reform at the grassroots level. This insight enhances existing theoretical models of public financial governance by integrating the dimension of ethical intelligence as an intrinsic part of human resource development.

For future researchers, these findings open pathways for deeper exploration into behavioral and contextual factors such as leadership integrity, organizational culture, digital transparency, and community participation that may influence or moderate the effectiveness of HR capacity in improving public financial governance. Future studies may adopt comparative, longitudinal, or mixed-method approaches to examine how ethical and anti-corruption education shapes fiscal behavior and accountability over time, especially in rural or underdeveloped regions.

In conclusion, this study provides both practical guidance for policymakers and theoretical direction for scholars. For local governments particularly in Tolitoli and Central Sulawesi the research offers a framework for building village governance that integrates technical competence with moral responsibility. For academic researchers, it provides empirical evidence and a theoretical foundation for expanding studies in public administration, ethics in governance, and rural development management. Ultimately, the synergy between competence and integrity, as revealed in this study, serves as a cornerstone for achieving transparent, accountable, and corruption-resistant financial management at the village level.

CONCLUSIONS

Based on the analysis and discussion, it can be concluded that the effectiveness and accountability of village fund management are significantly shaped by the synergy between human resource (HR) capacity and awareness of anti-corruption values. First, the development of HR capacity has a direct and substantial impact on the quality of village fund governance. Village officials who possess strong technical skills, administrative knowledge, and sound managerial capabilities are more likely to perform their financial duties in a responsible and professional manner.

Second, anti-corruption numeracy also plays a vital direct role in strengthening financial governance at the village level. A deep understanding and internalization of core values such as integrity, transparency, and accountability serve as critical drivers for discouraging corrupt behavior and fostering clean governance practices among village administrators.

Third, the mediation analysis reveals that anti-corruption numeracy significantly bridges the relationship between HR capacity and village fund management. This finding indicates that improvements in HR capacity not only enhance technical performance but also contribute ethically by shaping the character and integrity of village personnel. This indirect effect reinforces the critical role of anti-corruption awareness as a mediating factor in achieving sustainable village financial governance.

The implications of this study are particularly relevant for local governments in Central Sulawesi. Given the region's expansive geography and challenges in evenly distributing qualified personnel, enhancing the quality of village apparatus through integrated training combining technical competencies with ethical and anti-corruption education is essential to building public trust and boosting the effectiveness of rural development initiatives.

More broadly, these findings are also applicable to the wider Eastern Indonesia region, where limited HR capacity and weak financial oversight remain pressing concerns. Policy strategies that embed anti-corruption education as a core element of village official training can significantly contribute to the establishment of transparent, community-oriented financial management systems.

In conclusion, this study underscores that the success of village fund governance is not solely dependent on the availability of financial resources, but more critically on the competence and ethical standards of those managing the funds. Future village development strategies must prioritize the enhancement of both technical skills and moral integrity of human resources as a foundational step toward achieving fair, transparent, and service-oriented financial governance.

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