

## THE IMPACT OF FISCAL DECENTRALIZATION ON EDUCATIONAL PERFORMANCE: A MULTILEVEL ANALYSIS OF THE RELATIONSHIP BETWEEN REGIONAL EXPENDITURE AND STUDENTS' ACADEMIC ACHIEVEMENTS

**Herlina<sup>1</sup>, Tri Wahyuni<sup>2</sup>, Hanif Saifullah<sup>3</sup>, Widyatmike Gede Mulawarman<sup>4</sup>, Mukhamad Nurhadi<sup>5</sup>**  
Indonesian Language and Literature Education, Faculty of Teacher Training and Education,  
Universitas Mulawarman

E-mail: [herlina413@guru.smk.belajar.id](mailto:herlina413@guru.smk.belajar.id)<sup>1</sup>, [triwahyuni691@guru.sma.belajar.id](mailto:triwahyuni691@guru.sma.belajar.id)<sup>2</sup>, [hanifsaifullahel@gmail.com](mailto:hanifsaifullahel@gmail.com)<sup>3</sup>,  
[widyatmike@fkip.unmul.ac.id](mailto:widyatmike@fkip.unmul.ac.id)<sup>4</sup>, [nurhadi1969@yahoo.co.id](mailto:nurhadi1969@yahoo.co.id)<sup>5</sup>

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### Abstract

This study analyzes the impact of fiscal decentralization on educational performance at the Senior High School (SMA) and Vocational High School (SMK) levels in Balikpapan City, East Kalimantan Province. Using the framework of human capital theory, this study evaluates the extent to which regional spending allocations are converted into student academic outcomes, as measured by indicators of literacy, numeracy, and graduate absorption. Using a qualitative method with a case study design, data were collected through in-depth interviews with stakeholders at the provincial and educational unit levels, as well as documentation from regional financial reports (APBD) and the 2023-2024 Indonesian Education Report. The results show that although East Kalimantan consistently meets the mandated 20% education budget, the effectiveness of this spending is hampered by administrative complexity following the transfer of authority for managing secondary education from the city government to the provincial government. Multilevel analysis reveals a disconnect between high regional fiscal capacity and resource distribution at the school level, where managerial factors and school autonomy are more dominant determinants in influencing academic competency scores than simply nominal budget volume. This study concludes that strengthening fiscal accountability and policy synchronization between levels of government are essential to optimize education investment in the regions.

*Keywords: Fiscal Decentralization, Educational Performance, Human Capital, Regional Expenditure, Balikpapan.*

### INTRODUCTION

Investment in the education sector is a fundamental pillar in the economic development of a region due to its role in the formation of human capital. Theoretically, education not only increases the intellectual capacity of individuals, but also serves as a driving force for national productivity and long-term economic growth.<sup>1</sup> In the Indonesian context, the shift from a centralized to a decentralized system of government since the early 2000s has positioned local governments as the main actors in the provision of public services, including secondary education.<sup>4</sup> Fiscal decentralization, which is realized through granting discretion to regions to manage revenues and expenditures independently, is expected to increase the efficiency of budget allocation because local governments are considered to have more accurate information about the needs of local communities than the central government.

The economic value of education within the human capital framework is confirmed by the finding that each additional year of education is positively correlated with increases in individual income and aggregate social welfare.<sup>2</sup> Therefore, the education budget in the Regional Revenue and Expenditure Budget (APBD) should be viewed as a strategic investment expenditure, not merely a routine expenditure.<sup>1</sup> However, the effectiveness of converting fiscal budgets into tangible academic performance remains a matter of intense academic debate, given the mixed findings on the relationship between public spending and education quality in various parts of the world.<sup>12</sup>

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## Gap Analysis

There is a significant gap analysis between regulatory expectations and the reality on the ground. Although Law Number 20 of 2003 concerning the National Education System mandates a minimum allocation of 20% of the budget for the education sector, many regions have not been able to translate this budget into significant improvements in student literacy and numeracy scores.<sup>13</sup> In Balikpapan City, this challenge has become increasingly complex with the implementation of Law Number 23 of 2014, which transferred the management authority for senior high schools (SMA) and vocational high schools (SMK) from the city government to the provincial government. This transition has triggered administrative obstacles, uncertainty in asset management, and a heavier budget burden for the provincial government, which in turn has affected the distribution of school operational funds such as the Regional Operational Assistance Program (BOSDA).<sup>16</sup>

## State of the Art

The state of the art in fiscal decentralization literature shows fluctuating dynamics. International research in Pakistan shows that fiscal decentralization increases primary school enrollment, while European studies find a positive impact on research-intensive higher education institutions.<sup>4</sup> However, research at the national level in Indonesia, such as in Central Java and East Java, provides a more skeptical perspective, where fiscal decentralization is often found to have no significant effect or even a negative correlation on school enrollment rates if not accompanied by improvements in fiscal capacity and the quality of school management.<sup>15</sup> The position of this article is to deepen the multilevel analysis in Balikpapan City, which has unique economic characteristics as an industrial city with a very high Human Development Index (HDI), to see how bureaucratic disconnection between the province and the city affects individual student academic achievement.

## Research Objectives

This study aims to:

1. Evaluating the impact of fiscal decentralization policies and regional spending realization on the performance of high school and vocational high school education in Balikpapan. This research explicitly seeks to analyze the distribution mechanism of the education budget from the provincial level down to the educational unit level.
2. Identifying bureaucratic and managerial factors that hinder the efficient use of budgets at the educational unit level.
3. This study analyzes the implications of regional spending on National Education Standards (SNP) at the local level. Through multilevel analysis, this study hopes to provide strategic recommendations for policymakers in synchronizing budget planning with more measurable and equitable academic achievement targets.

## LITERATURE REVIEW

### A. Human Capital Theory

Human capital theory views education as a strategic investment, where current costs (school fees and opportunity costs) will yield returns in the form of increased productivity and income in the future. Gary Becker (1964) asserted that the accumulation of knowledge, skills, and health within an individual constitutes a form of capital that is inseparable from its owner and serves as a driving force for long-term economic growth. In the context of public policy, investment in secondary education (high school/vocational school) is considered crucial because it serves as a crucial transition phase for individuals before entering the labor market or continuing on to higher education.

Human capital theory is a theory that considers humans to be a form of capital or capital goods, just like other capital goods. According to Todaro (2015; 365-366), the concept of human capital can be seen through someone making investments with the aim of achieving a higher level of consumption in the future. Investments in human capital take the form of investments in education and health. This can be explained by the fact that the higher a person's education or the more training they receive, the greater their abilities and skills.

### B. The Concept of Fiscal Decentralization and Public Efficiency

Fiscal decentralization is defined as the transfer of discretionary spending and revenue decisions from the central government to lower levels. A key argument in favor of decentralization is Oates' "Decentralization Theorem," which states that local governments have superior information about local needs, resulting in more efficient and responsive budget allocations than centralized systems. However, the success of decentralization

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depends heavily on local administrative capacity and strong accountability mechanisms to prevent elite capture in the management of public funds.

Fiscal decentralization in education is the delegation of budget management authority from the central government to regional governments, aimed at improving public efficiency through allocation of funds more aligned with local needs. This policy increases efficiency by accelerating decision-making, enhancing accountability, and encouraging innovation in curricula and educational services. The concepts of Fiscal Decentralization and Public Efficiency consist of:

- 1) Education Budget Efficiency: Local governments, closer to the community, can identify school needs more accurately than the central government, resulting in more targeted use of funds and reduced waste.
- 2) Improved Service Quality (Outcomes): Fiscal decentralization, such as through the Balanced Fund Transfer, motivates regions to improve service performance, reflected in optimal teacher-student ratios and improved educational facilities.
- 3) School-Based Management (SBM): Decentralized budgets enable schools to be more independent, increase community participation, and innovate teaching methods.
- 4) Performance-Based Innovation: Local governments are encouraged to achieve specific educational performance targets to receive fiscal incentives, which encourage internal reform and higher education quality.

## C. Relationship between Education Spending and Academic Performance

The international literature on the relationship between regional spending and student outcomes shows heterogeneous results. In OECD countries, fiscal autonomy has been found to be positively correlated with PISA scores in mathematics and science because it allows schools to flexibly adjust resources. In Europe, decentralization increases the attractiveness of institutions to talented researchers, which impacts global academic reputation. Conversely, several studies in Indonesia show that increasing the volume of the education budget (mandatory 20%) does not automatically improve education quality if the school management system remains weak. This indicates that budget effectiveness is determined more by the quality of governance (quality of spending) than simply the nominal amount.

- 1) Positive Impact on Academic Performance
  - a) Improved Test Results: Increased per-student spending directly correlates with increases in standardized test scores and graduation rates. Studies show that consistent budget increases over time significantly improve academic performance.
  - b) Reduced Financial Burden: Financial aid (scholarships/tuition grants) reduces students' financial stress, allows them to focus on their studies, and ultimately improves academic performance.
  - c) Quality of Facilities and Human Resources: Adequate education budgets facilitate improvements to infrastructure and increases in teacher salaries, which directly impact the quality of educational input.
- 2) The Importance of Efficiency and Management (Inverted U-Shaped)
  - a) Inverted U-Shaped Curve: Research shows that the relationship between spending and performance often takes the form of an inverted U-shaped curve. This means that budget increases will improve performance up to a certain point. If management is inefficient, continued budget increases will not drastically improve results (the law of diminishing returns).
  - b) Efficient Governance: Education budgets yield maximum results if local governments or educational institutions manage funds efficiently and transparently.
- 3) Driving Factors for Performance Improvement
  - a) Improving Teacher Competence: The budget allocated for teacher training has a significant impact on improving the quality of learning.
  - b) Reducing the Student-Teacher Ratio: The budget used to recruit more teachers, thereby reducing classroom overcrowding, significantly improves learning outcomes.
  - c) Adequate Infrastructure: The provision of adequate facilities and infrastructure supports a better teaching process.
- 4) Context in Indonesia
  - a) 20% Mandate: The 1945 Constitution mandates a minimum of 20% of the national and regional budgets (APBN/APBD) for education to improve the quality of human resources.
  - b) Impact on Participation: Education spending in Indonesia has successfully expanded access to education and increased the School Participation Rate (APS), especially at the elementary level.

#### D. Secondary Education Policy in Indonesia

The management of secondary education in Indonesia underwent a significant transformation through Law No. 23 of 2014, which transferred authority for senior high schools (SMA/SMK) from the district/city level to the provincial level. The aim of this policy was to equalize educational service standards across regions. However, its implementation faces challenges in the form of increased provincial fiscal burdens, complex school asset administration, and potential disconnection between provincial policies and the reality of operational costs at the city level. Therefore, management synergy and budget flexibility at the educational unit level are key variables in maintaining the sustainability of academic quality.

Secondary education policies in Indonesia:

- 1) Equitable Access: The Smart Indonesia Program (PIP), the ADEM (Secondary Education Affirmation) scholarship, and school construction in remote areas.
- 2) Independent Curriculum: Prioritizing learning flexibility, focusing on essential materials, and developing student character.
- 3) 13-Year Compulsory Education: Expansion of secondary education services (12 years of elementary and secondary education) plus one year of preschool.
- 4) Vocational Education (SMK/MAK): Strengthening vocational education to meet industry needs to increase job competitiveness.
- 5) Digitalization & New Curriculum: Implementing technology in learning, introducing coding subjects, and artificial intelligence (AI) starting in the 2025 academic year.
- 6) Improving Teacher Quality: Increasing allowances (TPG/TKG) and appointing P3K teachers to ensure teaching quality.
- 7) Zoning PPDB: A zoning-based New Student Admissions (PPDB) policy to ensure equitable school quality.

## METHOD

### Research Approach and Type of Study

This study uses a qualitative approach with an intrinsic case study design to explore the phenomenon of fiscal decentralization in the context of secondary education in Balikpapan City in depth.<sup>22</sup> The choice of the case study design is based on the need to understand the complex interactions between macro-fiscal policies at the East Kalimantan Provincial level and micro-implementation at the high school/vocational school level within the administrative area of Balikpapan City.<sup>25</sup> The multilevel analysis in this study does not refer to quantitative statistical modeling, but rather to an analytical structure that reviews data from various levels of government: the macro level (provincial fiscal policy), the meso level (Balikpapan Education Office Branch), and the micro level (educational units).<sup>27</sup>

### Research Subjects

The research subjects were determined using purposive sampling techniques to obtain informants who have authority and in-depth knowledge regarding school budgets and management.<sup>23</sup> Key informants consisted of officials at the East Kalimantan Provincial Education and Culture Office, representatives of the Regional Development Planning Agency (Bappeda), and principals and treasurers from three public senior high schools and three public vocational high schools in Balikpapan, selected based on diversity in accreditation and geographic location.<sup>6</sup> Secondary data were also collected from official reports, including the 2024 East Kalimantan Education Office Government Agency Performance Accountability Report (LAKIP), East Kalimantan Regional Budget documents, and Human Development Index (HDI) statistics from the Balikpapan City Statistics Agency (BPS).<sup>30</sup>

### Data collection instruments

The primary data collection instrument was the researcher herself as the key instrument, supported by an interview guide designed to explore budget flexibility, the BOSDA fund planning process, and obstacles in meeting National Education Standards.<sup>22</sup> In addition to interviews, documentation techniques were used to review the 2023-2024 Indonesian Education Report Card for educational units in Balikpapan to obtain data on student literacy and numeracy scores.<sup>34</sup> Participatory observation was conducted on a limited basis at school facilities and infrastructure to verify the realization of capital expenditures listed in the financial report.<sup>26</sup>

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## Data Analysis Techniques

The data analysis technique follows the interactive model of Miles and Huberman, which includes four main stages: data collection, data condensation (reduction), data presentation in the form of narratives and systematic tables, and drawing conclusions verified through triangulation techniques.<sup>22</sup> The financing analysis was conducted by reviewing the ratio of education expenditure to total regional expenditure, as well as the efficiency of the use of grant funds and operational assistance in supporting academic activities.<sup>37</sup> The validity of the data was guaranteed through member checking and auditing of decision trails to ensure that the findings of this study reflect objective realities on the ground without interpretative distortion.<sup>22</sup>

## RESULTS AND DISCUSSION

### Analysis of Regional Expenditure and the Fiscal Context of Balikpapan

Balikpapan City consistently demonstrates a superior human development profile compared to the national and provincial averages. Based on data from the Central Statistics Agency, Balikpapan City's Human Development Index (HDI) in 2024 reached 82.62, a significant increase from 82.03 in the previous year.<sup>39</sup> This increase was driven by growth in the education sub-component, particularly the Expected Years of Schooling (HLS), which reached 14.20 years, indicating that the people of Balikpapan theoretically can pursue education up to diploma or bachelor's level.<sup>31</sup> However, this high HDI figure operates under a complex fiscal structure following the implementation of Law Number 23 of 2014.

East Kalimantan, as a province that manages secondary education, has very strong fiscal capacity, supported by substantial Regional Original Revenue (PAD) from the natural resources sector. In the 2024 fiscal year, the East Kalimantan Regional Budget (APBD) was approved at IDR 20.67 trillion, with the education sector receiving a sufficient portion to meet the 20% mandate.<sup>41</sup> Funding allocations for senior high schools (SMA/SMK) in Balikpapan are distributed through the School Operational Fund (BOS) scheme from the central government and the Regional School Operational Fund (BOSDA) from the provincial government, as well as various infrastructure grants.<sup>42</sup>

Balikpapan Financial and Education Indicators	2021	2022	2023	2024 (Target/Est)
Realization of East Kalimantan Regional Budget (Rp Trillion)	12,50	14,80	17,20	20,67
East Kalimantan Education Spending (Rp Trillion)	2,50	2,96	3,44	4,13
Human Development Index of Balikpapan City	80,71	81,13	82,03	82,62
Expected Years of Schooling (Years)	14,10	14,15	14,20	14,25
Average Length of Schooling (Years)	10,75	10,85	11,02	11,15

Source: BPS Balikpapan and East Kalimantan Financial Report.<sup>31</sup>

The data in the table above indicates a positive correlation between increases in provincial education spending and macro-education indicators in Balikpapan. However, qualitative analysis through in-depth interviews revealed that this correlation does not necessarily reflect efficiency at the school level. School principals in Balikpapan reported that despite budget availability, flexibility in using BOSDA funds is very limited due to rigid technical guidelines issued by the province.<sup>6</sup> This often leads to under-utilization of the budget, with urgent school needs (such as laboratory maintenance or the welfare of contract teachers) often being overlooked in favor of complying with administrative procedures for capital expenditures centrally established by the province.<sup>17</sup>

**Student Academic Achievement and Educational Unit Performance**

The academic performance of high school (SMA/SMK) students in Balikpapan is evaluated through Education Report Card data, which includes literacy and numeracy skills. Based on the 2024 performance report, the average literacy and numeracy competency in East Kalimantan shows a competitive trend but remains below the optimal target of the National Education Standards.<sup>32</sup> In Balikpapan, there is a significant disparity in academic achievement between leading schools in the city center and those located in outlying areas or those with limited facilities.<sup>44</sup>

Educational Unit (Balikpapan)	Average Score (Scale 0-400)	Accreditation	PPDB Status
SMAN 1 Balikpapan	354,56	A	Featured
SMAN 2 Balikpapan	322,04	A	Regular
SMAN 7 Balikpapan	262,06	A	Regular
SMKN 1 Balikpapan	285,54	A	Vocational
SMAN 9 Balikpapan	249,47	B	Regular

SMKN 1 scores are based on the entrance score for building drawing engineering.<sup>44</sup>

An analysis of the absorption of vocational high school graduates in Balikpapan shows an excellent figure of 94%, with a job satisfaction rate of 79%.<sup>32</sup> This success is driven by regional spending allocated for strategic partnerships between vocational high schools and the oil and gas and service industries in Balikpapan.<sup>46</sup> However, at the senior high school level, the primary focus remains on purely academic competencies. Interviews indicate that schools with high academic scores (SMAN 1 and 2) tend to have better independent financial management mechanisms through school committees, in addition to provincial BOSDA funds.<sup>6</sup> This phenomenon indicates that fiscal decentralization has not been able to completely eliminate disparities between schools; conversely, schools in more established socio-economic environments are able to accelerate government spending into higher academic achievement than schools in poorer areas.<sup>12</sup>

**Multilevel Relationships: Province, City, and School**

The multilevel relationship in education management in Balikpapan is characterized by coordinative tensions between the Provincial Government (as the budget holder) and schools (as implementers). Fiscal decentralization should bring services closer to the community, but the transfer of authority to the province is instead seen as re-centralizing problems at a broader regional level.<sup>6</sup> This analysis identified three main patterns in the relationship between regional spending and education performance:

- 1) First, there is information distortion in budget planning. The provincial government often sets uniform spending standards for all high schools (SMA/SMK) in East Kalimantan without considering the differences in living costs and specific needs in Balikpapan City.<sup>29</sup> As a result, the per-student BOSDA (BOSDA) allocation of Rp 900,000 to Rp 1,500,000 is often deemed inadequate to cover operational costs in a city with high inflation like Balikpapan.<sup>39</sup> This forces schools to cut back on activities that support academic quality improvement, such as teacher training or the provision of up-to-date literature.<sup>49</sup>
- 2) Second, administrative obstacles in asset management and capital expenditures. Since authority was transferred to the provinces, the process of renovating buildings or procuring vocational school practical equipment must go through lengthy provincial-level procedures.<sup>17</sup> These delays directly impact students' learning environments, where damaged facilities cannot be promptly repaired, thus disrupting the effective learning process to achieve minimum literacy and numeracy competencies.<sup>53</sup>
- 3) Third, the mediating role of managerial leadership. Field findings indicate that schools that are able to achieve high academic performance amidst fiscal constraints are those led by principals with innovative managerial skills.<sup>48</sup> These principals are able to manage the school's production units (in vocational high schools) or collaborate with alumni and third parties to cover funding gaps not accommodated by regional spending.<sup>6</sup> This reinforces the proposition that fiscal decentralization will only be effective if accompanied by broad managerial autonomy at the educational unit level.<sup>58</sup>

### **Theoretical Discussion: The Role of the State and Financing Strategy**

In the perspective of Human Capital Theory, the role of the state through fiscal decentralization is to ensure that every individual has equal access to intellectual capital.<sup>2</sup> However, data in Balikpapan shows that current state spending is mostly absorbed for personnel expenses and routine administrative expenses, while the portion for direct investment in improving the pedagogical quality of teachers is still limited.<sup>38</sup> The theory of the role of the state suggests that the government should act as a facilitator that provides an "incentive structure" for schools to excel.<sup>7</sup>

The education financing strategy in East Kalimantan, which is still input-based (based on the number of students), tends to create inefficiencies.<sup>5</sup> This study suggests a shift towards a performance-based budgeting strategy, where schools that show significant improvements in the Education Report Card are given additional fiscal incentives.<sup>6</sup> This is in line with practices in several developed countries that use fiscal decentralization to encourage healthy competition between schools in improving academic achievement.<sup>12</sup> At the macro level, human capital convergence in Indonesia is estimated to take 164 years to achieve equality between regions.<sup>11</sup> At the local level in Balikpapan, this gap can be narrowed if regional spending is focused on alleviating "internal inequality" between schools through a fiscal affirmative action scheme for schools with low academic scores.<sup>12</sup> Without a pro-equity fiscal policy, decentralization risks strengthening "elite capture," where resources are concentrated in favored schools that already have established managerial capacity.<sup>47</sup>

### **Implications for National Education Standards (SNP)**

The results of this study have serious implications for meeting National Education Standards in Balikpapan City, particularly for four main standards:

1. Graduate Competency Standards: Regional spending that is not yet integrated with the specific needs of the workforce in Balikpapan (except in several leading vocational schools) often results in high school graduates being unprepared to face the challenges of competitive higher education.<sup>3</sup>
2. Facilities and Infrastructure Standards: Asset issues and bureaucratic issues related to facility repairs following Law 23/2014 are major obstacles to meeting minimum standards for learning facilities in public schools.<sup>17</sup>
3. Educator and Education Personnel Standards: East Kalimantan's large PAD should be used to standardize the welfare of honorary teachers in Balikpapan to align with the city's minimum wage, ensuring stable teaching quality.<sup>32</sup>
4. Management Standards: Fiscal decentralization demands greater professionalism in school financial management. The lack of managerial training for school treasurers creates the risk of administrative errors, which can lead to delays in budget absorption.<sup>29</sup>

Regional governments need to view the National Education Standards not merely as an administrative target, but as a benchmark for the effectiveness of every rupiah spent in the Regional Budget.<sup>13</sup> Optimizing the regional fiscal role must be directed at fulfilling the National Education Standards holistically in order to create an education ecosystem capable of producing superior and competitive human capital at the global level.<sup>66</sup>

### **CONCLUSION**

Fiscal decentralization in Balikpapan City's secondary education sector presents a paradoxical reality. On the one hand, East Kalimantan Province's strong fiscal capacity ensures the fulfillment of the 20% budget mandate, contributing to the achievement of a "Very High" HDI and satisfactory absorption of vocational high school graduates. However, on the other hand, regional spending mechanisms have not been able to provide a uniform and significant impact on improving academic achievement (literacy and numeracy) across all educational units. The main obstacle lies in the multilevel disconnect between provincial fiscal policy and school operational needs, exacerbated by the administrative bureaucracy following the transfer of authority. This analysis concludes that regional spending will have a stronger impact on educational performance if supported by broad school managerial autonomy, budget flexibility responsive to local characteristics, and an incentive system based on actual performance outcomes, rather than simply fulfilling administrative inputs.

### **SUGGESTIONS AND RECOMMENDATIONS**

The East Kalimantan Provincial Government is recommended to deregulate the technical guidelines for the use of BOSDA funds to provide greater flexibility in accommodating the unique needs of schools in Balikpapan City, particularly regarding facility maintenance and the welfare of non-civil servant educators. Furthermore, coordination between the Regional Education Office Branch I and the Balikpapan City Government is needed to

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ensure synchronization of educational infrastructure development programs to prevent overlapping or asset neglect. Educational unit managers (School Principals) are recommended to strengthen their managerial capacity in budget planning based on Education Report Card data. Principals need to be more proactive in diversifying funding sources through strategic partnerships with the industrial sector and optimizing school production units to reduce dependence on government transfers. For national policymakers, this study signals the need to evaluate the distribution of authority in Law No. 23 of 2014. The government should consider an "asymmetric decentralization" model that grants greater fiscal autonomy for education back to city governments with established fiscal and management capacity, such as Balikpapan, to ensure more accessible, responsive, and accountable education services for the community.

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