

IDENTIFICATION OF NON-FORMAL EDUCATION NEEDS IN INDUSTRIAL COMMUNITIES: A FIELD STUDY IN KAMPUNG PETUNG, KRAGILAN

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ABSTRACT

This study aims to identify the non-formal education needs of the industrial community in Kampung Petung, Kragilan. The research employed a descriptive qualitative approach through participatory observation and semi-structured interviews with local residents, community leaders, and informal sector workers. Findings reveal significant challenges in access to formal employment, continuing education, and vocational training. Additional issues include environmental degradation and declining social cohesion. The community requires non-formal education programs such as technical skills training, micro-entrepreneurship, environmental and health literacy, and youth leadership development. The study shows that establishing a community-based non-formal education center is essential to strengthen community resilience and promote inclusive socio-economic transformation.

Keywords: non-formal education, community empowerment, industrial society.

INTRODUCTION

In the era of globalization and the Fourth Industrial Revolution, widespread socio-economic transformations have profoundly reshaped social structures on a global scale. Urbanization, digitalization, and the rapid expansion of industrial zones have led to a major shift in livelihoods from agriculture to industrial and service-based sectors. However, these transitions have also brought forth serious challenges, particularly for local communities residing in or around industrial areas. One of the most pressing issues is the mismatch between available competencies and the increasing demand for adaptive and relevant education aligned with the modern labor market (UNESCO, 2021).

Non-formal education now plays a vital role in bridging this gap. In many developing countries, it serves as both an alternative and a complement to formal education, especially in empowering marginalized populations who are often excluded from the benefits of industrialization (ILO, 2020). International organizations such as UNESCO and the ILO have emphasized the importance of lifelong learning, including community-based vocational training, digital literacy, and entrepreneurial capacity building for communities impacted by industrial development.

Numerous studies have demonstrated that non-formal education can significantly enhance employment-related skills, reduce poverty, and strengthen social cohesion in communities affected by structural economic changes. Firstly, non-formal education has been proven to enhance workforce competencies. Hamdani (2024) argues that education enables upward social mobility by providing individuals with access to new knowledge and skills required in the labor market. Similarly, Yudistira (2025) highlights that integrating socio-emotional learning into non-formal education holds significant potential to improve individual well-being, thereby preparing learners to navigate the dynamics of modern work environments. In this regard, non-formal education contributes to the development of adaptive and competitive human resources.

Secondly, there is a strong link between non-formal education and poverty alleviation. Herlina et al. (2025) found that strategic collaboration between educational institutions and local communities in managing non-formal education programs—particularly those rooted in local wisdom—can enhance the effectiveness of such programs and support micro-level poverty reduction. When education is accessible and relevant to community needs, and is accompanied by social and economic empowerment, the fulfillment of basic needs becomes more attainable, thus indirectly reducing poverty.

Furthermore, non-formal education plays an essential role in reinforcing social cohesion. Agustin's research (as cited in Hamdani, 2024) shows that participation in non-formal education programs increases social engagement and a sense of belonging among community members—crucial components of social integration and community development. Increased social participation equips communities to address collective problems more effectively and strengthens their social networks amid rapid change.

Additionally, non-formal education facilitates adaptation to structural changes in industrial societies. Elman (2023) notes that shifts in economic and technological landscapes influence educational demands, requiring non-formal education to evolve in response to the changing labor market. Similarly, Abdussyukur et al. (2024) emphasize that collaboration with local communities in delivering education can enhance their capacity to adapt to modern economic challenges. These insights underscore the importance of continuously developing non-formal education in accordance with ongoing socio-economic dynamics.

In Indonesia, non-formal education contributes to improving local workforce competitiveness through vocational training, skills courses, and empowerment programs targeting vulnerable groups such as women and unemployed youth (Kholifah, 2022; Suyanto R., 2020). Government initiatives like the Paket A, B, and C programs, Community Learning Centers (PKBM), training programs by Vocational Training Centers (BLK), and entrepreneurship education reflect national efforts to expand educational access. However, the success of these programs largely depends on accurate assessments of local needs. Contextual, localized studies are essential to understand community-specific educational demands, access barriers, and socio-cultural characteristics (Widodo, 2023).

Despite a range of policies and non-formal education programs being available, a notable gap persists between existing programs and the actual needs of industrial communities. Many initiatives are not grounded in participatory, context-sensitive needs assessments. As a result, training programs are often irrelevant, misaligned, or ineffective in generating long-term improvements in community well-being (Susanti, 2021). Compounding this issue, industrial communities frequently experience social and economic marginalization due to non-transparent employment systems,

environmental pollution, and limited opportunities for civic participation. When formal employment is hindered by opaque recruitment processes and formal education fails to meet industrial demands, non-formal education should serve as a strategic pathway. Yet, few studies in Indonesia have explored non-formal education needs in industrial communities at the micro level.

Currently, there is a scarcity of detailed information regarding the specific non-formal education needs of communities living adjacent to industrial zones, particularly in rural-urban transition areas such as Kampung Petung in Kragilan District, Serang Regency. There has been no comprehensive assessment of the skills required by residents based on employment challenges, the types of non-formal education desired by the community—such as technical training, entrepreneurship, and digital literacy—or the socio-economic and cultural barriers to accessing such education. Nor has the potential of local communities as partners in implementing non-formal education programs been fully explored. Hence, there is an urgent need for community-based studies to provide accurate, contextualized insights into these questions.

Preliminary field observations reveal a complex social reality. Kampung Petung is located within a major industrial zone in Kragilan District. However, local residents face a number of persistent challenges, including:

- a) non-transparent hiring practices, with reports of illegal recruitment fees ranging from 10 to 25 million rupiah to gain factory employment;
- b) limited access to education, with secondary schools located far from the community and a lack of adequate learning infrastructure;
- c) low youth engagement in social and educational activities, as rotating shift work dominates their time and energy; and
- d) a lack of vocational training, leaving residents reliant on unstable informal sector jobs. Environmental degradation, including polluted rivers, poor drainage, and inadequate healthcare services, further exacerbates the community's vulnerability.

These conditions highlight the urgent need for non-formal education, not only as a complementary learning pathway but as a strategic tool to strengthen community resilience in the face of industrialization (Yusuf Lestari P. and Nugraha H., 2023).

Kampung Petung is part of Sentul Village in Kragilan District, Serang Regency, situated directly adjacent to several major industrial complexes. Geographically and sociologically, the community is undergoing a transition from an agrarian society to a semi-industrial one. However, residents remain structurally disadvantaged in terms of access to employment, education, healthcare, and participation in local development. Initial observations indicate that most residents depend on informal economic activities and are affected by serious environmental degradation. Traditional values such as mutual cooperation and communal solidarity persist but are gradually eroding under economic pressures and the individualistic culture of industrial society. Non-formal education holds significant potential to restore social cohesion, equip the community with life skills, and raise critical awareness of social and environmental rights (Rahmatullah, 2022).

This article aims to systematically identify the non-formal education needs of the Kampung Petung community using a participatory, field-based approach. The study not only seeks to map educational needs but also to provide an empirical foundation for designing context-specific non-formal education programs. It offers practical recommendations for educational institutions, local governments, and civil society organizations to develop sustainable and community-responsive interventions. Ultimately, this article aspires to contribute to the academic discourse on non-formal education in industrial communities and address social disparities arising from non-inclusive industrialization.

RESEARCH METHODS

This study employed a descriptive qualitative approach using a field case study method. The research was conducted in Kampung Petung, Kragilan Subdistrict, Serang Regency—an area characterized by its industrial community. The research subjects consisted of residents affected by industrialization, community leaders, and informal sector workers. Data collection techniques included participatory observation and semi-structured interviews. Observations covered social, economic, and environmental aspects such as infrastructure quality, community participation, and access to education and healthcare. Interviews were conducted with key informants to explore their perceptions, experiences, and needs related to non-formal education. Data were analyzed using a thematic approach, with steps including data reduction, data presentation, and conclusion drawing.

This research method was designed to provide a deeper understanding of the realities faced by the Petung Village community and support the formulation of non-formal education programs based on real and contextual needs.

RESULTS AND DISCUSSION

The research results show that the residents of Kampung Petung face various multidimensional challenges closely related to the presence of the industrial area. Based on observations and in-depth interviews, the following findings emerged:

1. Limited Access to Formal Employment.

Despite the industrial area's proximity to residential areas, not all residents have access to jobs in the sector. Many residents complain about the discriminatory and expensive recruitment system, with illegal fees ranging from Rp 10 million to 25 million. This means that only those with connections or significant financial resources can work in the industry.

2. Affordable Basic Education, but Limited Access to Higher Levels

Kampung Petung has basic education facilities such as elementary schools (SD), but access to junior and senior high schools (SMP and SMA) requires long-distance travel. This situation forces many children to drop out of school early and enter informal labour markets.

3. Lack of Vocational Training and Non-Formal Education.

There are no structured skill training programs or non-formal education initiatives available in the area. The community largely relies on informal experience or odd jobs, without standardized technical competencies.

4. Environmental Degradation and Public Health Concerns.

Polluted rivers, inadequate drainage systems, and air pollution from industrial activities have significantly decreased the residents' quality of life. Many residents report health problems such as respiratory infections, diarrhea, and skin diseases.

5. Low Social Participation and Erosion of Community Solidarity.

6. Social and communal activities such as mutual cooperation (*gotong royong*) still exist but are declining, especially among younger generations. The rotating work shifts in factories hinder residents' ability to engage in social and community activities.

These findings highlight a structural disconnect between the economic potential of industrial zones and the well-being of the surrounding community. The presence of industry alone does not guarantee improved living standards unless accompanied by inclusive policies ensuring fair access to education and employment. The lack of vocational training and limited access to post-primary education traps many residents in unstable informal jobs. This aligns with Susanti's (2021) study on the marginalization of peri-urban communities caused by weak educational access near industrial areas.

The disengagement of youth from community life suggests a gradual erosion of cultural values and weakening social cohesion. This condition calls for non-formal education interventions that emphasize local values and community empowerment to rebuild adaptive collective solidarity. From an environmental perspective, water pollution and inadequate sanitation infrastructure increase both health and economic vulnerabilities. These findings support Rahmatullah's (2022) recommendation that non-formal education programs should include context-specific environmental education, such as household waste management, community-based sanitation training, and awareness campaigns on industrial pollution. Health literacy should also be a central component, using participatory approaches that involve families and local networks.

Consequently, non-formal education initiatives in Kampung Petung must be oriented toward three core dimensions:

1. The development of work-related and entrepreneurial skills rooted in local potentials,
2. Social and environmental literacy education, and
3. The revitalization of community participation and collective values.

As of this study, no structured non-formal educational institution—such as a Community Learning Center (PKBM)—was found in Kampung Petung. This indicates a substantial gap in educational services that could help residents confront social, economic, and environmental challenges. The establishment of a community-based non-formal education institution is, therefore, both urgent and essential.

A variety of non-formal programs could be introduced to meet the educational needs of Kampung Petung residents. First, technical skills training in areas such as small engine repair,

hydroponic agriculture, household waste management, and handicrafts using local resources is vital. Research has shown that such training can enhance community welfare and significantly reduce social and economic inequality in underdeveloped areas (Laia et al., 2024). For instance, hydroponic training has been proven to improve food access and environmental sustainability (Ayatusa'adah et al., 2024). Similarly, household waste management training is critical for promoting hygiene and public health (Septantiningtyas et al., 2023).

Second, micro-entrepreneurship education aimed at developing family-based small enterprises offers a strategic response to unemployment and low household income. Studies from various regions have confirmed that entrepreneurship training improves both managerial skills and market understanding, enabling small business actors to market their products effectively (WK et al., 2024). Ongoing mentoring during the learning process is crucial for the long-term viability of these businesses (Ratang & Ramandey, 2022).

Third, environmental and health literacy classes can help residents critically engage with issues such as pollution, sanitation, and healthy living. Such programs have been shown to positively influence health behaviors in communities and contribute to broader public health goals (Nanur et al., 2021). Raising awareness of environmental cleanliness can lead to significant behavioral shifts that improve community well-being.

Fourth, youth leadership development programs are urgently needed. These may include training in community organizing, digital literacy, and participation in youth forums. Such initiatives, piloted in various contexts, have successfully boosted youth confidence and motivation to contribute to community life (Nizar et al., 2023). In the digital era, equipping young people with media and digital skills is crucial for their participation in the modern economy.

By adopting a community-based approach, non-formal education institutions can serve as bridges connecting local resources to community needs. This, in turn, contributes to enhancing the community's capacity to respond to diverse socio-economic challenges in Kampung Petung.

Given these conditions, the establishment of a PKBM or a similar non-formal learning center in Kampung Petung could provide a strategic pathway toward inclusive and sustainable socio-economic transformation. This conclusion is consistent with the findings of Pertiwi (2024), who emphasized the role of PKBM in empowering communities through participatory learning tailored to local needs. In that study, PKBM Sekar succeeded in increasing citizen participation in non-formal education through community-based training in entrepreneurship, environmental education, and social literacy. This approach is highly relevant to the Kampung Petung context, where similar institutions are urgently needed to address unmet educational demands that formal systems have failed to accommodate.

CONCLUSIONS

This study concludes that the community of Kampung Petung, located near a major industrial zone, faces intertwined challenges in employment, education, environment, and social cohesion, worsened by the lack of adequate non-formal education institutions. To address these issues, the community needs targeted programs such as technical skills training in small engine repair and hydroponic agriculture, micro-entrepreneurship development, environmental and health literacy education, and youth leadership training. Establishing a community-based non-formal education center is essential as an adaptive and participatory platform to enhance residents' quality of life, resilience, and involvement in regional transformation. Overall, the findings highlight the importance of an integrated development approach that positions non-formal education as a key tool for achieving social equity and justice in industrially affected communities.

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