

## Enhancing citizen capacity through optimising Village-Owned Enterprises (BUMDes) role in strengthening community participation for sustainable development

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### Abstract

Sustainable development at the local level necessitates active community participation, bolstered by educational innovation and the optimisation of empowering institutions such as Village-Owned Enterprises (BUMDes). This research investigates the impact of the Social Studies Outdoor Laboratory and BUMDes on development in the Bokoharjo, Prambanan, Sleman Regency. Specifically, the study examines three key areas: (1) the influence of the Social Studies Outdoor Laboratory on development, (2) the role of BUMDes in facilitating development, and (3) the collaborative effect between the Social Studies Outdoor Laboratory and BUMDes on regional growth. A quantitative approach was employed, sampling nine individuals from Bokoharjo Village from September to October. Data collection involved questionnaires, while data analysis was conducted using multiple linear regression tests, with the instrument's validity assessed through the product-moment method. The results reveal that: (1) the Social Studies Outdoor Laboratory has a significant influence on enhancing development, with a significance value of 0.000; (2) BUMDes plays a crucial role in contributing to development, also with a significance value of 0.000; and (3) the combination of the Social Studies Outdoor Laboratory and BUMDes demonstrates a significant influence on development, with a p-value of 0.000. These findings underscore the importance of synergetic educational innovation and local community empowerment in promoting sustainable development.

**Keywords:** Development Participation, Social Sciences Education Outdoor Laboratory, BUMDes, Empowerment.

### Introduction

Sustainable development at the local level is the main foundation for embodying community welfare holistically. Active community participation plays a vital role in the success of this development, where the community not only acts as beneficiaries but also becomes the leading actor directly involved in the decision-making and implementation of development programs. In this context, innovative educational approaches and community empowerment are strategic steps to create an inclusive and sustainable impact. Strategic institutions such as Village-Owned Enterprises (BUMDes) have a transformative role in mobilising local potential,



bridging community initiatives with sustainable development, and encouraging inclusive growth that aligns with global development goals.

Educational innovations with practical approaches like the outdoor laboratory present extraordinary opportunities to strengthen public understanding of community-based development. According to Ambarita et al. (2024), community-based development prioritises collaboration between residents and actively involves them in the decision-making process and implementation of development programs. Furthermore, Daley & Marsiglia (2000) emphasised that the success of community-based development depends on the community's ability to effectively understand and manage its local potential to create sustainable change. Approaches like the outdoor laboratory build community awareness of local issues and develop practical skills relevant to community needs, making it an innovative learning model that directly impacts community strengthening.

Through the direct experience offered by the outdoor laboratory, the community can understand more deeply the relationship between social, cultural, and economic aspects, which are the main foundations for community development. According to Cueto et al. (2015), this experience-based learning approach can strengthen individual capacity to analyse local challenges while finding creative solutions relevant to community needs. Furthermore, Momo et al. (2024) added that educational innovations improve people's technical skills and build collective awareness to contribute to sustainable development efforts. In this way, the outdoor laboratory is a learning medium and a catalyst for social change that can integrate sustainability values into daily life practices, creating a long-term impact on strengthening local communities (Avcı & Gümüş, 2020; Bashith et al., 2023; Hendratno et al., 2024).

The Outdoor Laboratory functions for education and as a space for social exploration that connects theory with actual practice in supporting local development (Çengelci, 2013). Outdoor learning can create immersive experiences that strengthen individuals' understanding of the surrounding social and natural environment while encouraging active involvement in community development (Bashith et al., 2023; Jucker & von Au, 2022; Oberle et al., 2021; Üztemur & Dere, 2023). Outdoor laboratories have a strategic role in supporting education and social activities. Apart from being used for learning and training, the community often uses this facility for meetings, performances and other activities. In fact, students often use it as a base camp for on-the-job training and research activities. However, the existence of this laboratory requires more optimal management to increase its impact on local communities.

BUMDes is one of the most important strategies for village development. In principle, establishing BUMDes is one of the village's choices in the village economic business movement according to Article 87(1) of the Law on Villages, Article 132(1), Government Regulation on Villages and Article 4, and Minister of Villages, Development of Disadvantaged Regions, and Transmigration Regulation No. 4/2015 on the Establishment, Management, and Dissolution of BUMDes. In Bokoharjo, Sleman, Indonesia, BUMDes "*Boko Makmur*" was formed in 2018 to manage the village's economic potential. This BUMDes operates various business units such as coffee shops, wedding organisers, weekly gymnastics and tourist transportation services. By diversifying these activities, BUMDes is a driving force for the local economy, supporting community-based development.

One of BUMDes' business units is the Banyunibo Tourism Area. The Banyunibo Tourism Area is a strategic location for physical and economic development. In the view of Guiver et al. (2023), tourist areas are spaces that not only function as recreation destinations but also as the main drivers of sustainable development through optimising local resources, increasing employment opportunities and preserving culture. In this case, various projects with a significant budget have been implemented in the Banyunibo Tourism Area, such as landscaping, building shops, and gazebos. Additionally, creative economic activities such as Sunday Morning, jeep tourist transportation, and cheap markets directly contribute to the local community's economic development. BUMDes in Bokoharjo Village is a real example of entrepreneurship-

based village management. Apart from supporting small and medium enterprises (SMEs or UMKM in *bahasa*) through routine activities such as low-priced markets and weekly gymnastics, BUMDes also provides services such as tourist transportation that connects various destinations around Banyunibo Temple. This activity not only creates jobs but also sustainably increases village income.

Even though it has great potential to learn and develop the local economy, using the Social Sciences Education Outdoor Laboratory and BUMDes in Bokoharjo still faces several significant challenges. Several challenges that communities often face include limited access to knowledge and technology, low community participation due to a lack of understanding of the benefits of programs, and resistance to change caused by intense local culture (Jansson et al., 2024; Moyo & Namphande, 2024; Roos, 2024). For this reason, a strategic planning process is needed that involves various stakeholders to overcome these obstacles and increase the benefits generated. This planning should include steps to improve access to knowledge and technology, increase community awareness of the benefits of the programs, and find ways to respect and integrate local culture into the development process. Development in the Bokoharjo Subdistrict is planned through The Villages Medium Term of Development Planning (*Rencana Pembangunan Jangka Menengah Kalurahan (RPJMKal)*). This document serves as a guide for developing infrastructure, increasing community participation, and maximising the use of local resources. This participatory approach ensures that development is relevant to local needs and involves the community as the main actor in the process.

This research delves into the Social Sciences Education Outdoor Laboratory and BUMDes's role in improving development in Bokoharjo District, Prambanan, Sleman Regency, Indonesia. The novelty of this research lies in its unique perspective on citizenship education, integrating an innovative approach in the form of an Outdoor Social Studies Laboratory. Based on actual experience, this method enhances students' understanding of citizenship and encourages active involvement in the local social and development context. Furthermore, this research introduces a synergy between citizenship education and the role of local institutions, such as BUMDes, which has not been extensively studied before. This synergy presents a citizenship education model based on real action, strengthening community participation to promote sustainable development.

This research significantly contributes to citizenship education by highlighting the importance of learning based on real environments to build critical, participatory and responsible citizens. This statement is in line with Hidayah et al. (2020), who emphasised that real environment-based learning can provide direct experience to students to understand social problems more deeply, develop critical awareness, and increase active involvement in resolving societal issues. Thus, this approach instils relevant civic values and prepares the younger generation to act actively as agents of change in society. The results of this research also underscore the role of BUMDes in community empowerment, particularly in the context of local development. By connecting citizenship theory with community development practice, this research paves the way for developing citizenship curricula that are more applicable, relevant and contextual according to the needs of local communities.

## Method

This research uses a systematic quantitative approach, where data is collected through objective instruments to obtain measurable and testable results. Data analysis was carried out after all the data had been collected, using relevant statistical techniques to ensure the accuracy and validity of the findings. The location of this research was Bokoharjo Village, Prambanan District, Sleman Regency, with an implementation period from September 2 to October 31, 2024. To determine the sample size, this research applies the Yamane formula with a precision level of 10%, resulting in a sample size of 99 respondents. The data collection instrument was a closed questionnaire designed using a four-category Likert scale. Filling out the questionnaire is accompanied by clear guidelines to make it easier for respondents to understand and provide

appropriate answers. Questionnaires were distributed directly and via online survey platforms to reach all respondents efficiently.

Data analysis is carried out using statistical software such as SPSS. The analysis results are processed and presented in an easy-to-understand form, such as tables, graphs and diagrams, to provide a clear picture of the research findings. Through this planned and measurable approach, this research is expected to produce interpretations and conclusions that are relevant and crucial to the development of science in related fields.

## Result and Discussion

From the research results, it appears that optimising the role of BUMDes has a significant impact on increasing the capacity of residents and strengthening their participation in sustainable development. BUMDes has proven capable of supporting local economic development and building collective community awareness of the importance of active involvement in development programs. These results show that with effective management, BUMDes can be the main catalyst in creating more independent, competitive communities committed to sustainability principles. The following are the results of analysing the data distribution for the outdoor laboratory variables.

**Table 1.**

*Descriptive Statistic*

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
X1	100	16	52	3484	34.84	9.857
X2	100	14	50	3084	30.84	8.037
Y	100	13	41	2654	26.54	6.673
Valid N (listwise)	100					

*Source: Research Result, 2024.*

This analysis shows that the outdoor laboratory variable has a wider data distribution than other variables, as can be seen from the relatively high maximum value and standard deviation. With an average of 34.84, this variable indicates a significant contribution to the overall measurement. On the other hand, the BUMDes role variable has an average of 30.84, reflecting a consistent role but tends to be lower than in outdoor laboratory. Meanwhile, the Development Improvement variable shows the lowest average value, 26.54, illustrating room for further development. The difference in standard deviation between variables also shows different levels of variation in the data, with the outdoor laboratory having the greatest variation, followed by the role of BUMDes and increasing development. This provides an initial picture of the level of dynamics and stability in each of the variables analysed.

This study tested validity using the Pearson-correlation method, also known as Product-moment, with the help of SPSS version 22 software. An item is declared valid if the  $\alpha$  value or p-value  $\leq 0.05$ . The instruments used in this research include three main variables: The Contribution of the Social Sciences Education Outdoor Laboratory (X1), the role of BUMDes, and Development Improvement. For the Social Sciences Education Outdoor Laboratory Contribution variable (X1), there were 14 question items whose validity was tested. The results of testing the validity of these items are presented in Table 2.

**Table 2.**

*Social Sciences Education Outdoor Laboratory Contribution Validity Test Result*

Item	Person-Correlation	P-Value	Information
P1	0,752	0,000	Valid
P2	0,591	0,000	Valid
P3	0,714	0,000	Valid
P4	0,768	0,000	Valid
P5	0,683	0,000	Valid

Item	Person-Correlation	P-Value	Information
P6	0,738	0,000	Valid
P7	0,704	0,000	Valid
P8	0,713	0,000	Valid
P9	0,597	0,000	Valid
P10	0,601	0,000	Valid
P11	0,713	0,000	Valid
P12	0,675	0,000	Valid
P13	0,785	0,000	Valid
P14	0,618	0,000	Valid

Source: Research Result, 2024.

The BUMDes role instrument in this research consists of 13 question items. The results of the proof can be seen in Table 3.

**Table 3.**

*BUMDes Role Validity Test Result*

Item	Person-Correlation	P-Value	Information
P1	0,715	0,000	Valid
P2	0,627	0,000	Valid
P3	0,657	0,000	Valid
P4	0,663	0,000	Valid
P5	0,618	0,000	Valid
P6	0,733	0,000	Valid
P7	0,642	0,000	Valid
P8	0,579	0,000	Valid
P9	0,712	0,000	Valid
P10	0,658	0,000	Valid
P11	0,631	0,000	Valid
P12	0,682	0,000	Valid
P13	0,617	0,000	Valid

Source: Research Result, 2024.

Table 3 presents the validity test results for the role of the BUMDes instrument. Based on this table, all items have a p-value of 0.000, which indicates that all items in the Role of BUMDes instrument are declared valid. Validity testing was carried out for the Development Improvement instrument, which consisted of 13 question items Table 4.

**Table 4.**

*Development Improvement Validity Test Result*

Item	Person-Correlation	P-Value	Information
P1	0,763	0,000	Valid
P2	0,833	0,000	Valid
P3	0,802	0,000	Valid
P4	0,823	0,000	Valid
P5	0,723	0,000	Valid
P6	0,762	0,000	Valid
P7	0,788	0,000	Valid
P8	0,804	0,000	Valid
P9	0,758	0,000	Valid
P10	0,669	0,000	Valid
P11	0,736	0,000	Valid
P12	0,774	0,000	Valid
P13	0,792	0,000	Valid

Source: Research Result, 2024.

Table 4 shows results proving the validity of development improvement instruments. The results in Table 4 show that all items show a p-value of 0.000; this shows that all items in the development improvement instrument are valid.

**Table 5.***Normality Test*

		Unstandardised Residual
N		100
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	2.51130968
Most Extreme Differences	Absolute	.081
	Positive	.065
	Negative	-.081
Test Statistic		.081
Asymp. Sig. (2-tailed)		.109c

Source: Research Result, 2024.

Table 5 presents the normality test results, which shows a significance value (p-value) of 0.109. Based on decision-making criteria, data is declared to be normally distributed if the significance value is  $> 0.05$ . In contrast, if the significance value is  $< 0.05$ , the data is considered not normally distributed (Priyatno, 2016). Therefore, the results of this test indicate that the data in this study is normally distributed.

Table 76 displays the results of the multicollinearity test using the Glasjer test, which shows the Tolerance value for the Social Sciences Education Outdoor Laboratory contribution variable, the role of BUMDes of 0.212, and the VIF value of 4.716. Based on Priyatno's guidelines (2016), multicollinearity is considered not to occur if the Tolerance value is  $> 0.10$  and  $VIF < 10.00$ , while high multicollinearity occurs if  $Tolerance < 0.10$  and  $VIF > 10.00$ . With these results, it can be concluded that the data in this study does not experience multicollinearity problems.

**Table 6.***Multicollinear Test*

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
X1	.212	4.716
X2	.212	4.716

Source: Research Result, 2024.

Hypothesis testing in this research uses multiple linear regression analysis to determine the influence of two or more independent variables on one dependent variable. This analysis includes the F-test, T-test, coefficient of determination and calculation of the regression equation model. The F-test determines whether the independent variable influences the dependent variable. If the sig value is  $> 0.05$ , the decision is taken, and then  $H_0$  is accepted, indicating the independent variable has no effect. If  $sig < 0.05$ ,  $H_0$  is rejected, and  $H_a$  is accepted, indicating simultaneous influence.

**Table 8.***ANOVA Test*

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	3784.479	2	1892.240	293.976	.000 <sup>b</sup>
Residual	624.361	97	6.437		
Total	4408.840	99			

Source: Research Result, 2024.

Table 8 is a table of f-test results. The table above shows that the significance value (p-value) is 0.000. This shows that H<sub>0</sub> is rejected, and H<sub>a</sub> is accepted, meaning that there is a simultaneous influence between the contribution variable of the Social Sciences Education Outdoor Laboratory and the role of Bumdes in increasing development in Bokoharjo, Prambanan, and Sleman Village. The t-test is used to determine the partial effect of the independent variable on the dependent. If sig > 0.05, H<sub>0</sub> is accepted, meaning there is no partial effect. If sig < 0.05, H<sub>0</sub> is rejected, indicating partial influence. The t-test was analysed using SPSS 22 and the results are in Table 9.

**Table 9**

*Coefficients Result*

Model	Unstandardised Coefficients		Standardised Coefficients	t	Say.
	B	Std. Error	Beta		
1 (Constant)	3.287	1.013		3.244	.002
X1	.383	.056	.565	6.811	.000
X2	.322	.069	.388	4.670	.000

*Source: Research Result, 2024.*

Table 9 shows the t-test results, with a significance value for the Social Sciences Education Outdoor Laboratory contribution variable of 0.000, which means H<sub>0</sub> is rejected, and H<sub>a</sub> is accepted, showing a partial influence on increasing development in Bokoharjo District, Prambanan, Sleman. Likewise, the significance value for the BUMDes role variable is 0.000, indicating a partial influence on increasing development in the area.

The research results show that the Social Sciences Education Outdoor Laboratory influences the increasing development of Bokoharjo Village, Prambanan, and Sleman. Several researchers also supports this finding, stating that outdoor laboratories are a learning resource that utilises the surrounding environment for the teaching and learning process (Avcı & Gümüş, 2020; Hendratno et al., 2024; Karadag, 2019). Another benefit of this laboratory is the increased active participation of students, who can directly see events in the field. Apart from being a learning resource, this laboratory also functions as a means of promoting local culture. The establishment of this outdoor laboratory began on July 2, 2010, in Plempoh, Bokoharjo Village, with an Agreement between the Dean of FIS UNY and the land owner, Mrs. Umi Zufaroh. This laboratory is used for various activities, including student social practice and the introduction of community equipment.

The Social Sciences Education Outdoor Laboratory functions for practical experience-based learning, providing many benefits that are not only technical but also socially and culturally profound. According to Gani et al. (2022), learning based on direct experience allows students to understand social studies concepts more contextually, connecting them with real life in society. This approach also strengthens social skills, such as cooperation, communication, and empathy, and increases cultural awareness through direct interaction with various social dynamics in the surrounding environment. Thus, the Social Sciences Education Laboratory plays a strategic role in creating holistic learning that is relevant to community needs.

Students gain technical and interpersonal skills through direct participation in real activities and experience increased learning motivation thanks to various exciting outdoor learning methods. Direct learning experience encourages student involvement emotionally and intellectually so that they can connect theory with practice more effectively (Naude et al., 2014; Trigwell et al., 2012; Williams et al., 2013). This combination of experience-based learning and a dynamic learning atmosphere creates a holistic educational environment, encouraging the development of students' character and academic competencies.

The research results show that BUMDes influences increasing development in Bokoharjo Village, Prambanan, Sleman. This aligns with research by Muaddab (2024), which highlights the role of BUMDes in increasing the village's income. Research by Marlina et al. (2024) also

revealed the positive contribution of BUMDes to the economy of village communities through the management of economic resources. BUMDes play an important role in village development, managing economic potential, and empowering communities to improve social welfare. Musyayadah et al. (2024) research shows that BUMDes in Candiwates Village succeeded in creating jobs through Jande market, which involved housewives and local youth. Establishing BUMDes includes optimising village assets, increasing community businesses, creating jobs, and equalising the village economy.

The results of this research emphasise the importance of the strategic role of BUMDes in sustainable village development. By managing local potential and empowering the community, BUMDes can improve the socio-economic welfare of village residents, create jobs, and encourage economic equality. This not only supports government policies contained in village-related regulations but also strengthens the village's position as a driver of the regional economy. By optimising village asset management and collaboration between BUMDes, the community and the government, inclusive and independent village development can be achieved, making BUMDes a successful model for community-based development.

## Conclusion

The contribution of the Social Sciences Education Outdoor Laboratory and the role of BUMDes significantly influence increasing development in Bokoharjo, Prambanan, Sleman Village, as evidenced by the significance value of 0.000 for each variable and the combination of the two. These results show that a collaborative approach between experience-based education and local economic management can create a real impact in encouraging sustainable development. As a suggestion, education managers and village governments need to continue strengthening the synergy between innovative education programs such as outdoor laboratories and develop the capacity and role of BUMDes. This can be done through continuous training, provision of supporting facilities, and expansion of collaboration networks with external parties. With a more integrated approach, the positive impact on local development will increase and be sustainable.

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### Authors' contributions

Supandi wrote this manuscript, and Saliman was a supervisor.

### Competing interests

The authors have declared no competing interests.