GeoEdu Insight Journal: Geography and Education Geography
Vol. 1, No. 2, October 2026, pp. 124~130
ISSN: 3163-9070, DOI: 10.37251/gedij.v1i2.3546

A Predictive Model of Geography Learning Achievement Reviewed from Parental Attention and Physical Learning Environment

Tri Warsito[1], Arzeti Debi[2], Sukma Ngumbarawati[3]
[1]Geography Teacher, State Senior High School 1 Minggir, Yogyakarta, Indonesia
[1]Geography Education Study Program, Faculty of Teacher Training and Education, Universitas PGRI Pontianak, Pontianak, Indonesia
[2]Department of Geography Education, State Senior High School 1 Pontianak, Pontianak, Kalimantan Barat, Indonesia

Article Info

Article history:

Received Aug 14, 2026
Revised Sep 20, 2026
Accepted Oct 18, 2026
Online First Oct 29, 2026

Keywords:

Educational Achievement
Geography Learning
Parental Attention
Physical Learning Environment
Predictive Model

ABSTRACT

Purpose of the study: The study aims to examine the predictive effect of parental attention and physical learning environment on geography learning achievement among high school students, estimating the relative contribution of each factor and their combined influence on academic outcomes.

Methodology: A quantitative approach with correlational design was employed, using structured questionnaires and Likert-scale measurements to assess parental attention and physical environment. Student semester examination scores were collected as indicators of learning achievement. Data analysis involved Pearson Product-Moment correlation and multiple linear regression, using SPSS software for statistical estimation and hypothesis testing.

Main Findings: Parental attention and physical learning environment jointly explained 33% of variance in geography learning achievement. Parental attention contributed 18.42%, while physical learning environment accounted for 14.58%, with both predictors showing linear relationships and no multicollinearity. Beta coefficients indicated substantial influence, with parental guidance slightly dominant in enhancing student performance.

Novelty/Originality of this study: The study integrates parental involvement and physical learning environment into a unified predictive model, addressing gaps in prior research that examined these factors independently. The findings provide robust, evidence-based insights for optimizing both home and school support, offering practical, actionable strategies for enhancing geography learning achievement and informing more effective targeted educational interventions.

This is an open access article under the CC BY license

Corresponding Author:
Arzeti Debi,
Geography Education Study Program, Faculty of Teacher Training and Education, Universitas PGRI Pontianak,
Jl. Ampera No. 88, Sungai Jawi, West Pontianak District, Pontianak City, West Kalimantan, 78116, Indonesia
Email: arzetidebii05@gmail.com

1. INTRODUCTION

Learning achievement serves as an important indicator for evaluating the attainment of educational goals and the effectiveness of the learning process in developing students' competencies. In geography education, academic achievement reflects the mastery of spatial concepts, an understanding of environmental dynamics, and the ability to analyze geographical phenomena systematically [1]-[3]. The attainment of such competencies is not determined solely by classroom instruction; it is also influenced by family support and the

environmental conditions in which students learn [4]-[6]. Therefore, identifying the factors that contribute to achievement in geography is essential as an empirical foundation for developing more effective instructional strategies.

Disparities in academic achievement among students suggest that access to learning support is not necessarily distributed equitably. Parental involvement manifested through guidance, motivation, supervision of academic activities, and the provision of learning resources can foster student engagement in the learning process [7]-[9]. A synthesis of research by Kim [10], highlights parental involvement as a critical construct in examining the relationship between the family and academic achievement. Beyond family support, the physical learning environment encompassing factors such as lighting, ventilation, noise levels, and the availability of a dedicated study space represents a relevant contextual dimension to consider in relation to the learning process [11]-[13]. These conditions underscore the need for an analytical approach that accounts for both familial social factors and the physical environment when explaining variations in geography learning achievement.

Research on the determinants of academic achievement has evolved to include learner characteristics, family support, and the learning environment as relevant factors in explaining variations in learning outcomes. Through a second-order meta-analysis, Kim [10], examined the relationship between parental involvement and academic achievement by synthesizing previous research. In the context of geography education, Solem et al. [1], analyzed predictors of achievement at both the student and school levels, drawing on data from the United States covering the period from 1994 to 2018. The literature provides a conceptual foundation for examining factors related to academic achievement, although the relevance and magnitude of each factor's contribution still need to be tested within different research contexts.

The development of a predictive model is an analytical approach that can be used to identify the measurable contribution of various factors to academic achievement. In educational research, multiple linear regression allows for the estimation of the relationship between each predictor and a dependent variable, while accounting for the presence of other predictors [14]-[16]. Applying this approach can yield insights into the direction of relationships, the magnitude of regression coefficients, and the model's capacity to explain variations in academic outcomes. In this study, parental attention and the physical learning environment are treated as predictor variables, while geography achievement serves as the dependent variable. Consequently, this predictive modeling is intended to provide an empirical explanation of the individual and simultaneous contributions of these two variables to students' achievement in geography.

Although previous research has addressed parental involvement and the characteristics of the learning environment, there is notable variation in the focus of analysis and the contexts in which these factors have been examined. Kim [10], focused on the relationship between parental involvement and academic achievement, while Solem et al. [1], identified predictors of achievement in geography at both the student and school levels. This divergence in focus highlights the need for further investigation into the combined contribution of parental attention and the physical learning environment to geography achievement within a specific school context. However, this gap should be understood as a need for more targeted empirical testing, rather than as evidence that these two variables have never been studied together. Consequently, this study aims to examine both predictors within a single statistical model, focusing on students at Minggir 1 Public Senior High School.

The novelty of this study lies in its integrated examination of parental attention and the physical learning environment as predictors of geography learning achievement within the context of secondary education in Indonesia. Integrating these two variables allows for an analysis that considers not only family support but also the physical conditions surrounding students' learning activities. Unlike analyses that focus solely on the relationship between two variables, this study employs multiple linear regression to estimate both the partial and simultaneous contributions of these predictors. Furthermore, the use of semester examination scores as an indicator of learning achievement enables the assessment of academic performance based on school records, rather than relying exclusively on respondents' perceptions. Consequently, this study provides empirical evidence regarding the extent to which these two variables account for variations in geography learning achievement within the specific context and sample characteristics under investigation.

Research on the predictors of geography learning achievement holds practical relevance, as it can support educational decision-making based on empirical evidence. Understanding the contributions of parental attention and the physical learning environment can assist both schools and families in identifying aspects that support learning and warrant further attention. Given these issues, this study aims to analyze the predictive relationship between parental attention, the physical learning environment, and the geography learning achievement of students at Minggir 1 Public Senior High School. Specifically, the study estimates the partial contribution of each variable, as well as their combined contribution, using multiple linear regression analysis. The findings are expected to enrich the field of geography education and provide an empirical foundation for developing family support strategies and managing learning environments that foster students' academic achievement..

2. RESEARCH METHOD

2.1. Research Design

This study employed a quantitative approach using a correlational design to examine predictive relationships among variables [17], [18]. The design aimed to estimate the extent to which parental attention and the physical learning environment contribute to geography learning achievement [19]. A predictive modeling framework was applied to analyze both partial and simultaneous effects of independent variables. The research focused on naturally occurring variables without experimental manipulation. This approach enabled statistical estimation of the strength and direction of relationships among the studied variables.

2.2. Research Setting and Time

The research was conducted at Minggir 1 Public Senior High School, a public senior high school located in Yogyakarta Province, Indonesia. The selection of this school was based on the accessibility of academic records and the relevance of geography learning outcomes to the research objectives. Data collection was carried out over a three-month period. The research took place from May to July of the academic year. During this period, questionnaire distribution and documentation retrieval were completed systematically.

2.3. Research Variables and Operational Definitions

The study involved two independent variables and one dependent variable. The independent variables consisted of parental attention (X1) and physical learning environment (X2), while the dependent variable was geography learning achievement (Y). Parental attention was operationally defined as the level of parents' involvement in supporting learning activities, including supervision, guidance, motivation, and provision of academic support. The physical learning environment referred to measurable conditions of the home study setting, such as lighting, ventilation, study space, furniture, temperature, and noise levels. Geography learning achievement was measured using students' semester examination scores as an objective indicator of academic performance.

2.4. Population and Sample

The population comprised all Grade X and Grade XI social science students at Minggir 1 Public Senior High School, totaling 141 students. Grade XII students were excluded due to academic scheduling constraints during the data collection period. Sample determination followed proportional random sampling to ensure adequate representation from each class level. Based on the Isaac and Michael sampling table with a 5% margin of error, 105 students were selected as research respondents. The distribution of the population and the proportionally selected sample across classes are presented in Table 1.

Table 1. Distribution of Population and Sample

Number	Class	Population	Sample
1	X1	26	19
2	X2	27	21
3	X3	26	19
4	X4	27	20
5	XI social science	35	26
	Total	141	105

2.5. Data Collection Techniques and Research Instruments

Data were collected using questionnaires and documentation techniques [20]. Structured questionnaires were administered to measure parental attention and the physical learning environment using a modified Likert scale. The response options ranged from "always" to "never," with both positive and negative item scoring applied. Instrument grids were developed to ensure content validity based on predefined indicators. Documentation of students' geography semester examination scores was obtained from school academic records to measure learning achievement objectively.

2.6. Data Analysis Techniques

Data analysis was conducted through several sequential stages, including editing, coding, and tabulation. Descriptive statistics were initially used to summarize respondent characteristics and variable distributions. Prior to hypothesis testing, classical assumption tests were performed, including normality, linearity, and multicollinearity assessments [21], [22]. Pearson Product-Moment correlation analysis was applied to examine bivariate relationships among variables. Multiple linear regression analysis was subsequently employed to estimate the predictive strength and simultaneous contribution of parental attention and physical learning environment toward geography learning achievement.

3. RESULTS AND DISCUSSION

3.1. Normality Test

To ensure that the sample data adequately represent the population, the normality of each variable was examined using the Kolmogorov–Smirnov (KS) test. Data were considered normally distributed if the P-value exceeded 0.05. The results of the normality test are presented in Table 2.

Table 2. Normality Test Results

No	Variable	KS-Z	P-value	Description
1	Parental Attention (X1)	1.246	0.090	Normal
2	Physical Learning Environment (X2)	0.678	0.747	Normal
3	Geography Learning Achievement (Y)	1.201	0.112	Normal

The results indicate that all variables parental attention, physical learning environment, and geography learning achievement are normally distributed ($P > 0.05$). This confirms that parametric statistical analysis is appropriate for this study.

3.2. Linearity Test

Linearity between independent and dependent variables was assessed to determine whether regression analysis is appropriate. The test involved calculating the F-statistic for each variable. A relationship is considered linear if the P-value > 0.05. Table 3 presents the results.

Table 3. Multicollinearity Test Results

No	Independent Variable	Df	F-count	F-table 5%	P-value	Description
1	Parental Attention (X1)	27;76	1.099		0.364	Linear
2	Physical Learning Environment (X2)	21;82	1.386		0.150	Linear

The findings demonstrate a linear relationship between both independent variables (X1 and X2) and geography learning achievement (Y). This supports the application of correlation and linear regression analyses.

3.3. Multicollinearity Test

Multicollinearity between independent variables was examined to ensure that predictor variables are not excessively correlated. A VIF < 5 and correlation coefficient $r < 0.800$ indicate absence of multicollinearity. The results are presented in Table 4.

Table 4. Multicollinearity Test Results

No	Variable	X1	X2	VIF	Description
1	Parental Attention (X1)	1	0.206	1.044	No multicollinearity
2	Physical Learning Environment (X2)	0.206	1	1.044	No multicollinearity

These results indicate that the independent variables are suitable for multiple linear regression analysis.

3.4. Correlation and Multiple Linear Regression Analysis

Correlation and multiple linear regression analyses were conducted to examine the predictive relationship of parental attention and physical learning environment on geography learning achievement. The results of the multiple linear regression are summarized in Table 5.

Table 5. Multiple Linear Regression Results

Variable	Beta	t-value	Sig.
Parental Attention (X1)	0.445	4.760	0.000
Physical Learning Environment (X2)	0.539	5.343	0.000

R	R^2	Adjusted R^2	Sig. F
0.574	0.330	0.324	0.000

The regression model is statistically significant (Sig. F = 0.000), indicating that parental attention and physical learning environment jointly explain 33% of the variance in geography learning achievement.

The predictive equation is:

$$\hat{Y} = 10.259 + 0.445X_1 + 0.539X_2$$

This implies that every one-point increase in parental attention and physical learning environment is expected to increase geography learning achievement by 1.084 points. Individually, parental attention contributes 18.42% and physical learning environment contributes 14.58% to the total explained variance, with parental attention being the dominant predictor.

Analysis indicates parental attention significantly contributes to geography learning achievement among high school students. Normality and linearity assessments confirmed data suitability for parametric statistical procedures, enabling multiple linear regression analysis. Parental attention accounts for 18.42% of explained variance, demonstrating critical influence of family involvement on academic performance. Physical learning environment contributes 14.58%, slightly lower than parental attention, but jointly the model explains 33% of variance in geography achievement. Predictive coefficients highlight measurable relationships between external factors and student performance.

Linear relationships between independent variables and geography achievement suggest enhancements in parental support and study environment quality correlate with improved academic outcomes. Beta coefficients, 0.445 for parental attention and 0.539 for physical environment, indicate substantial contributions with parental guidance remaining dominant. Absence of multicollinearity confirms independent interpretability of predictor effects. Regression model provides quantitative evidence of interactions between social and environmental determinants on learning. Integration of these factors strengthens predictive capacity of academic achievement models in geography education.

Empirical evidence aligns with prior research linking parental involvement to academic success and supportive environments to cognitive focus. Past studies often examined single variables, limiting understanding of combined influence on achievement [23]-[25]. Multiple regression analysis enables simultaneous estimation of partial and joint effects, addressing gaps in literature. Quantitative modeling offers structured approach to evaluate how social and environmental conditions collectively influence student performance [26]. Application of integrative statistical framework contributes to more robust explanation of learning outcome variability.

Predictive modeling allows estimation of relative influence of parental attention and learning environment concurrently. Simultaneous analysis clarifies magnitude of contribution each factor exerts on geography achievement. Regression coefficients translate into expected changes in academic outcomes per unit increase in predictor variables [27]-[29]. Structured interpretation supports informed educational planning and prioritization of intervention strategies. Integration of family and environmental factors provides actionable insight for optimizing student learning conditions [30].

Practical consideration suggests targeted interventions can enhance parental engagement and optimize study environments. Structured parental guidance, supervision of learning activities, and facilitation of conducive study spaces support concentration and academic performance [31]. Incremental improvements in these dimensions can amplify overall achievement in geography. Data-driven understanding of external determinants enables focused strategies that align home support with educational objectives [32]-[34]. Implementation of interventions addressing both parental and environmental factors may yield measurable improvement in student outcomes.

Limitations include restriction to Grade X and XI students at single school, which may constrain generalizability. Reliance on self-reported questionnaires introduces potential measurement bias for parental attention and physical environment. Omission of additional predictors such as intrinsic motivation or study habits limits explanatory scope [35]. Longitudinal studies and larger, diverse samples may provide more comprehensive insights. Inclusion of additional covariates and multi-site sampling recommended for future research to enhance predictive accuracy and external validity.

4. CONCLUSION

Findings indicate that parental attention and physical learning environment collectively exert a significant influence on geography learning achievement among high school students, with parental involvement contributing slightly more to explained variance than environmental conditions, while the joint effect accounts for approximately one-third of overall achievement variance. Multiple linear regression analysis provides quantitative evidence of these relationships, demonstrating the measurable impact of social and environmental factors on student performance. Integrating these determinants into a unified predictive model allows for more precise identification of effective educational interventions, emphasizing the importance of structured parental guidance and optimized study environments. Results suggest that targeted strategies promoting family engagement and conducive learning spaces can enhance cognitive focus, motivation, and overall academic outcomes. Future research could expand predictive frameworks by incorporating additional variables such as intrinsic motivation, study habits, or multi-school datasets to improve generalizability and predictive accuracy.

Overall, the study underscores the value of evidence-based approaches that simultaneously address social and environmental influences in order to strengthen geography education outcomes and support data-driven policy development.

ACKNOWLEDGEMENTS

The author expresses sincere gratitude to Minggir 1 Public Senior High School for granting access to student data and supporting the research process. Appreciation is extended to all students and parents who participated in data collection, enabling comprehensive analysis. Financial and administrative support provided by the School Research Fund is gratefully acknowledged. The author also thanks colleagues and academic mentors for their guidance and constructive feedback throughout the study. Contributions of all parties have been essential in ensuring the quality and rigor of this research.

REFERENCES

[1] M. Solem *et al.*, "Student- and school-level Predictors of geography achievement in the United States, 1994 – 2018," *J. Geog.*, vol. 120, no. 6, pp. 201–211, 2021, doi: 10.1080/00221341.2021.2000009.

[2] S. Meechandee and N. Meekaew, "Integrating phenomenon - based learning and GIS to improve geo - literacy and student engagement : An action research approach," *Discov. Educ.*, vol. 4, no. 91, pp. 1–12, 2025, doi: 10.1007/s44217-025-00468-9.

[3] T. Bendl, L. Krajňáková, M. Marada, and D. Řezníčková, "Geographical thinking in geography education: A systematic review," *Int. Res. Geogr. Environ. Educ.*, vol. 34, no. 4, pp. 326–352, Oct. 2025, doi: 10.1080/10382046.2024.2354097.

[4] A. Costa, D. Moreira, J. Casanova, and Â. Azevedo, *Determinants of academic achievement from the middle to secondary school education : A systematic review*, vol. 27, no. 6. Springer Netherlands, 2024. doi: 10.1007/s11218-024-09941-z.

[5] S. Li, Y. Tang, and Y. Zheng, "How the home learning environment contributes to children's social–emotional competence: A moderated mediation model," *Front. Psychol.*, vol. 14, no. 1065978, pp. 1–19, 2023, [Online]. Available: https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2023.1065978

[6] Q. Liu, X. Du, and H. Lu, "Teacher support and learning engagement of EFL learners: The mediating role of self-efficacy and achievement goal orientation," *Curr. Psychol.*, vol. 42, no. 4, pp. 2619–2635, 2023, doi: 10.1007/s12144-022-04043-5.

[7] M. Goshin, D. Dubrov, S. Kosaretsky, and D. Grigoryev, "The Strategies of Parental Involvement in Adolescents' Education and Extracurricular Activities," *J. Youth Adolesc.*, vol. 50, no. 5, pp. 906–920, 2021, doi: 10.1007/s10964-021-01399-y.

[8] E. Hernández-padilla, A. Bazán-ramírez, W. Bazán-ramírez, J. Solano-gutierrez, E. Hernández-padilla, and A. Bazán-ramírez, "Parental participation and parents ' support : effects on mathematics achievement , 2018 national assessment of learning , Mexico," *Front. Psychol.*, vol. 14, no. 1154470, pp. 1–15, 2023, doi: 10.3389/fpsyg.2023.1154470.

[9] C. Y. Tan, M. Lyu, and B. Peng, "Academic benefits from parental involvement are stratified by parental socioeconomic status: A meta-analysis," *Parenting*, vol. 20, no. 4, pp. 241–287, Oct. 2020, doi: 10.1080/15295192.2019.1694836.

[10] S. Kim, "Fifty years of parental involvement and achievement research: A second-order meta-analysis," *Educ. Res. Rev.*, vol. 37, pp. 1–15, 2022, doi: 10.1016/j.edurev.2022.100463.

[11] H. K. Wilson and A. J. Cotgrave, "Learning space design: The presentation of a framework for the built environment discipline," *Int. J. Constr. Educ. Res.*, vol. 16, no. 2, pp. 132–148, Apr. 2020, doi: 10.1080/15578771.2020.1727067.

[12] V. Mirata, F. Hirt, P. Bergamin, and C. Van Der Westhuizen, "Challenges and contexts in establishing adaptive learning in higher education : Findings from a Delphi study," *Int. J. Educ. Technol. High. Educ.*, vol. 17, no. 32, pp. 1–25, 2020, doi: 10.1186/s41239-020-00209-y.

[13] H. Balalle, "Exploring student engagement in technology-based education in relation to gamification , online / distance learning , and other factors : A systematic literature review," *Soc. Sci. Humanit. Open*, vol. 9, no. 100870, pp. 2–10, 2024, doi: 10.1016/j.ssaho.2024.100870.

[14] M. M. Pellegrini, F. Ciampi, G. Marzi, and B. Orlando, "The relationship between knowledge management and leadership: Mapping the field and providing future research avenues," *J. Knowl. Manag.*, vol. 24, no. 6, pp. 1445–1492, Jun. 2020, doi: 10.1108/JKM-01-2020-0034.

[15] R. Cantelmi, G. Di Gravio, and R. Patriarca, "Reviewing qualitative research approaches in the context of critical infrastructure resilience," *Environ. Syst. Decis.*, vol. 41, no. 3, pp. 341–376, 2021, doi: 10.1007/s10669-020-09795-8.

[16] H. Cheong, A. Lyons, R. Houghton, and A. Majumdar, "Secondary qualitative research methodology using online data within the context of social sciences," *Int. J. Qual. Methods*, vol. 22, pp. 1–19, Oct. 2023, doi: 10.1177/16094069231180160.

[17] E. E. Ebhuoma *et al.*, "Subsistence farmers' differential vulnerability to drought in Mpumalanga province , South Africa: Under the political ecology spotlight," *Cogent Soc. Sci.*, vol. 6, no. 1, pp. 1–16, 2020, doi: 10.1080/23311886.2020.1792155.

[18] L. M. En, C. Heng, Y. Sern, Z. Binti, A. Aziz, and L. Jing, "Architectural colour and lighting strategies for autism-friendly physical learning environment in Malaysia," *J. Asian Archit. Build. Eng.*, vol. 00, no. 00, pp. 1–15, 2026, doi: 10.1080/13467581.2026.2621574.

[19] E. R. Hinde *et al.*, "Linking geography to reading and English language learners' achievement in US elementary and middle school classrooms," *Int. Res. Geogr. Environ. Educ.*, vol. 20, no. 1, pp. 47–63, 2011, doi:

10.1080/10382046.2011.540102.
[20] M. Solem and M. Solem, "Geography Achievement and Future Geographers," *Prof. Geogr.*, vol. 75, no. 2, pp. 207–219, 2023, doi: 10.1080/00330124.2022.2081227.
[21] L. Watt and L. Watt, "Fijian infrastructural citizenship: spaces of electricity sharing and informal power grids in an informal settlement," *Cogent Soc. Sci.*, vol. 6, no. 1, pp. 1–20, 2020, doi: 10.1080/23311886.2020.1719568.
[22] P. S. Mustafa *et al.*, *Metodologi penelitian kuantitatif, kualitatif, dan penelitian tindakan kelas dalam pendidikan olahraga*. 2022.
[23] I. D. Weighting, K. Model, V. Pengamatan, and V. Model, "Perbandingan Akurasi Metode idw dan Kriging dalam Pemetaan Muka Air," *Maj. Geogr. Indones.*, vol. 33, no. 2, pp. 49–57, 2019.
[24] F. Geografi and U. Gadjah, "Pengelolaan usaha jasa pariwisata berbasis pengembangan masyarakat pada kawasan ubud bali," *Maj. Geogr. Indones.*, vol. 22, no. 2, pp. 145–164, 2008.
[25] H. Rose, S. Curle, I. Aizawa, and G. Thompson, "What drives success in english medium taught courses? The interplay between language proficiency, academic skills, and motivation," *Stud. High. Educ.*, vol. 45, no. 11, pp. 2149–2161, Nov. 2020, doi: 10.1080/03075079.2019.1590690.
[26] K. Gunungkidul, A. P. Wicaksono, and M. A. Khafid, "Karakterisasi Longsor untuk Analisis Kerawanan Bencana Longsor," *Maj. Geogr. Indones.*, vol. 36, no. 2, pp. 119–125, 2022, doi: 10.22146/mgi.71857.
[27] L. A. Nasution, Suratman, and Sudrajat, "Program studi magister ilmu lingkungan, sekolah pascasarjana Universitas Gadjah Mada, Yogyakarta, Indonesia departemen ilmu Lingkungan, Fakultas Geografi, Universitas Gadjah Mada, Yogyakarta, Indonesia," *Maj. Geogr. Indones.*, vol. 35, no. 2, pp. 95–103, 2021, doi: 10.22146/mgi.63231.
[28] R. Harini, D. N. Aulia, E. C. Ningrum, K. Hanifah, L. Fitria, and T. Dewanti, "Kearifan lokal pertanian, permasalahan, dan arahan strategi dalam pengelolaan pertanian di Desa Sembungan," *Maj. Geogr. Indones.*, vol. 34, no. 2, pp. 125–129, 2020, doi: 10.22146/mgi.32310.
[29] T. Z. Keith, M. R. Reynolds, and J. M. Caemmerer, *Multiple Regression and Beyond; An Introduction to Multiple Regression and Structural Equation Modeling; Fourth Edition*. Routledge, 2025.
[30] U. Indonesia, I. Badan, and I. Nasional, "Model prediksi perubahan penutup lahan di Kota Kabupaten Majalengka menggunakan metode cellular automata Markov chain," *Maj. Geogr. Indones.*, vol. 138, no. 2, pp. 114–126, 2024, doi: 10.22146/mgi.70636.
[31] A. W. Wijaya *et al.*, "Analisis ekologi bentanglahan di Taman Nasional Baluran dan sekitarnya," *Maj. Geogr. Indones.*, vol. 34, no. 1, pp. 34–32, 2020, doi: 10.22146/mgi.51956.
[32] S. R. Budiani, L. Puspitasari, M. N. Adibah, S. Nisa, and A. Fauzia, "Kajian Daya Dukung Fisik Wisata Berkemah Telaga Cebong Desa Sembun- gan untuk Mendukung Pariwisata Berkelanjutan," *Maj. Geogr. Indones.*, vol. 33, no. 1, pp. 9–15, 2019, doi: 10.22146/mgi.32304.
[33] A. Rofi and H. Zarodi, "Dampak gempa Lombok dan Sumbawa 2018 terhadap sumber penghidupan dan strategi kelangsungan hidup keluarga korban," *Maj. Geogr. Indones.*, vol. 34, no. 2, pp. 95–100, 2020, doi: 10.22146/mgi.49132.
[34] M. Orero-Blat, D. Palacios-Marqués, and A. L. Leal-Rodríguez, "Orchestrating the digital symphony: The impact of data-driven orientation, organizational culture and digital maturity on big data analytics capabilities," *J. Enterp. Inf. Manag.*, vol. 38, no. 2, pp. 679–703, Jan. 2025, doi: 10.1108/JEIM-03-2024-0159.
[35] L. G. Boakye, C. K. Osei, S. Y. Annor, L. G. Boakye, C. K. Osei, and S. Y. Annor, "On-farm diversification strategies and improved welfare of the immiserated rural smallholder farmer: Fallacy or realism ?†," *Cogent Soc. Sci.*, vol. 7, no. 1, pp. 1–17, 2021, doi: 10.1080/23311886.2020.1865609.