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Exploring joyful, mindful, and meaningful learning in Surakarta high school Geography education

Albertus Erico Jerry Krisna Nugroho[1], Sugiyanto[*)2], Singgih Prihadi[3]
[1]Universitas Sebelas Maret, Surakarta, Indonesia; albertusericojerry@student.uns.ac.id
[2]Universitas Sebelas Maret, Surakarta, Indonesia; sugiyanto60@staff.uns.ac.id
[3]Universitas Sebelas Maret, Surakarta, Indonesia; singgihprihadi@staff.uns.ac.id
[*)]Corresponding author: Sugiyanto; E-mail addresses: sugiyanto60@staff.uns.ac.id

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Abstract. Deep learning implementation in Indonesian education has encouraged the development of joyful, mindful, and meaningful learning experiences. However, previous studies have predominantly focused on policy discourse, teacher readiness, and general pedagogical transformation, while limited research has explored how these principles are experienced in geography classrooms from multiple educational perspectives. While previous studies have primarily focused on policy discourse and teacher readiness, limited research has examined how these principles are experienced in geography classrooms from multiple educational perspectives. Therefore, this study aimed to explore the implementation of joyful, mindful, and meaningful learning in geography education from the perspectives of teachers, vice principals for curriculum affairs, and students in public high schools in Surakarta, Indonesia. This study employed a qualitative exploratory design using purposive sampling. Participants included nine geography teachers, nine vice principals for curriculum affairs, and Phase F geography students from nine public high schools. Data were collected through semi-structured interviews and open-ended questionnaires and analyzed using thematic analysis. The findings revealed that joyful learning was reflected through interactive and participatory classroom practices, mindful learning developed through reflective inquiry and critical geographic awareness, and meaningful learning emerged through contextual and authentic learning experiences related to students' real-life environments. The study also found that these three principles were interconnected in supporting deeper and more student-centered geography learning. This study contributes to geography pedagogy by providing a multi-perspective understanding of deep learning implementation within the Merdeka Curriculum context in Indonesia. The findings offer practical insights for geography teachers and school leaders in designing more engaging, reflective, and contextually relevant learning experiences.

Introduction

Educational developments in the 21st century call for a transformation in learning that focuses not only on the transfer of knowledge, but also on student engagement, reflection, and the meaningfulness of learning (Martinez, 2022). In this context, geography education plays a strategic role because it not only focuses on space and the environment but also fosters spatial awareness, civic engagement, and an understanding of global sustainability issues (Ratnasari et al., 2019). According to de Miguel González (2024), geography education helps build a multidimensional understanding of the relationships between people, the environment, and social change. In

addition, geography education can also strengthen students' connection to social and environmental experiences, making the learning process more contextual and relevant (Rawling et al., 2022). However, various studies indicate that geography education still faces pedagogical challenges. A study by Béneker et al. (2024), shows that geography education has not yet optimally utilized the social environment as an authentic learning space. It also found that the predominance of theoretical approaches makes it difficult for students to understand geography content. Moreover, a bibliometric study shows that integrating geography into the curriculum is closely related to applying teaching methods in conjunction with geospatial technology to support the development of competencies (Nugroho et al., 2025a). In the context of geographic citizenship, Howell & Maddox (2024), emphasize that teachers still face obstacles in fostering inquiry, reflection, and active student participation. These conditions highlight the need for a more engaging, reflective, and meaningful approach to learning.

Advances in digital technology and artificial intelligence have contributed to a paradigm shift in global education (Chang & Kidman, 2023; Fitriani et al., 2025; Zhong & Zhao, 2025; Widana, 2020). However, the term "deep learning" in education is often associated with artificial intelligence and machine learning (Dai et al., 2020; Perrotta & Selwyn, 2020). In the context of Indonesian education, deep learning is understood as a pedagogical approach that emphasizes joyful, mindful, and meaningful learning through emotional engagement, conscious reflection, and the connection of learning to real life (Nofamataro Zebua, 2025; Lestari et al., 2025). The implementation of deep learning in Indonesia's education system is gaining momentum alongside the transformation of the Merdeka Curriculum, which emphasizes flexibility, contextual learning, and the development of 21st-century competencies. Several studies indicate that deep learning is beginning to be positioned as the foundation of a new pedagogy in Indonesian education (Nurhasanah et al., 2025; Prihantoro et al., 2025). Other studies have found that implementing this approach can enhance student engagement, collaboration, empathy, and reflective skills (Iriawan et al., 2025; Megawati et al., 2025). Alongside the Merdeka Curriculum's change, which prioritizes flexibility, contextual learning, and the development of 21st-century competences, deep learning is being more widely used in Indonesia's educational system. According to several studies (Kapisan et al., 2026), deep learning is starting to be positioned as the cornerstone of a new pedagogy in Indonesian education. However, its implementation still faces challenges related to teacher readiness, pedagogical understanding, and translating concepts into learning practices (Isnaeni et al., 2025; Maghfiroh et al., 2026).

Previous research in Indonesia has predominantly examined deep learning from the perspectives of educational policy, implementation readiness, teacher training, and pedagogical transformation (Atmojo et al., 2025; Triana et al., 2025; Suryaningsih & Cahaya, 2026). Other studies have focused on its application in specific subject areas, including mathematics and character education (Ediyono et al., 2025). Within geography education, existing research has primarily explored teachers' conceptual understanding of deep learning rather than how joyful, mindful, and meaningful learning are enacted in classroom practice (Tjahjono et al., 2026). Furthermore, previous studies have generally relied on single-source perspectives, particularly teachers or policymakers, providing limited understanding of how deep learning is experienced by students and supported at the school level (Al-Qoyyim & Nabila, 2025; Kharisma et al., 2025). As a result, there remains insufficient empirical evidence regarding the implementation of joyful, mindful, and meaningful learning in geography classrooms from multiple educational stakeholders. Addressing this gap is important because deep learning is not only shaped by instructional practices but also by students' learning experiences and institutional support structures.

The urgency of this research is particularly relevant in the context of Surakarta, which is experiencing rapidly evolving educational and cultural dynamics. The transformation of educational

facilities and services in Surakarta reflects progressive educational development at the secondary school level (Setyono & Cahyono, 2019). Surakarta provides a relevant setting for investigating deep learning implementation because all public senior high schools have formally adopted the Merdeka Curriculum. However, the quality of implementation remains uneven across schools. Previous studies indicate that geography teachers are still in the early stages of understanding deep learning pedagogy and translating its principles into classroom practice (Tjahjono et al., 2026). In addition, socio-cultural challenges among young people, including limited cultural understanding and communication skills, continue to be reported in the local context (Sugiyanto et al., 2025). These conditions suggest a gap between curriculum expectations and classroom realities, highlighting the need to examine how joyful, mindful, and meaningful learning are actually experienced and implemented in geography education.

This study aims to explore how the principles of joyful, mindful, and meaningful learning are perceived and implemented in geography instruction at a secondary school in Surakarta, Indonesia. The study involves teachers, vice principals in charge of curriculum, and students to gain a more comprehensive understanding of deep learning experiences in geography education. The novelty of the research lies in its focus on real pedagogical experiences, specific analysis of joyful, mindful, and meaningful learning in geography education, and the use of a multi-perspective approach to generate a more holistic understanding of learning practices in secondary schools.

Based on the identified research gap, this study was guided by the following research questions: (1) how is joyful learning implemented in secondary school geography education in Surakarta?; (2) how is mindful learning reflected in geography teaching and learning practices?; (3) how is meaningful learning experienced by teachers and students in geography classrooms?; (4) how are joyful, mindful, and meaningful learning integrated to support deep learning in geography education?. Accordingly, this study aims to explore how joyful, mindful, and meaningful learning are implemented in secondary school geography education in Surakarta and how these principles collectively support deep learning from the perspectives of teachers, vice principals for curriculum, and students.

Method

Research Design

This study employed a qualitative exploratory design to examine how the principles of joyful, mindful, and meaningful learning are perceived and experienced in secondary school geography instruction. A qualitative approach was selected to explore participants' experiences and interpretations within authentic educational contexts (Creswell, 2017). The exploratory design was considered appropriate because the implementation of deep learning in Indonesian geography education remains under-researched. This approach enabled an in-depth understanding of teaching practices, student learning experiences, and emerging patterns of interpretation (Antony et al., 2022). The study was guided by a pragmatic orientation, selecting methods based on their relevance to the research objectives and the phenomenon under investigation. A systematic and reflective research process also contributed to the credibility and academic value of the findings (Takona, 2024). The first author served as the primary research instrument, conducting interviews, coordinating questionnaire administration, managing field notes, and organizing data throughout the study.

Research Setting and Participants

The study was conducted in nine public high schools in Surakarta, Indonesia, a city recognized for its educational development and implementation of the Merdeka Curriculum. Previous research suggests that geography teachers in Surakarta have begun to understand deep learning pedagogy,

although the application of joyful, mindful, and meaningful learning principles remains underexplored (Tjahjono et al., 2026). Therefore, Surakarta provides a relevant context for this study. Image 1, illustrates the locations of the participating school.

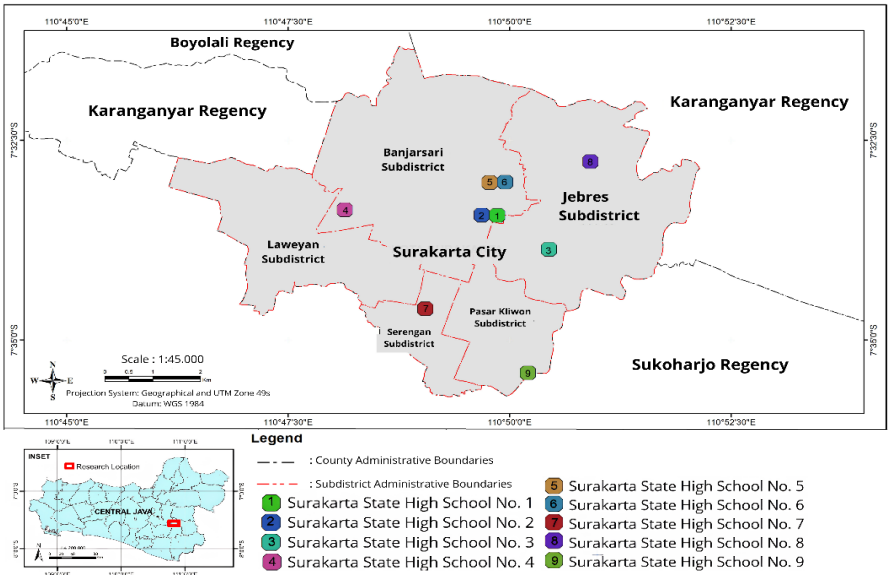

Image 1. Research Location Map

Participants were selected through purposive sampling to ensure direct experience with geography instruction based on joyful, mindful, and meaningful learning (Hossan et al., 2023). The study involved geography teachers, vice principals for curriculum, and Phase F students in geography elective classes. Student participation served as supporting data to triangulate and validate findings related to learning experiences (Hayashi et al., 2019). This multi-perspective approach enabled a more comprehensive understanding of geography instruction in secondary schools (Zelčāne & Pipere, 2023).

Table 1. Research Participants

Participant Group	Number of Participants	Role in the Study
Geography Teachers	9	Provided perspectives on instructional practices and the implementation of joyful, mindful, and meaningful learning in geography classrooms
Vice Principals for Curriculum	9	Provided perspectives on curriculum support, school policies, and instructional implementation
Phase F Geography Students	30	Shared learning experiences and perceptions related to joyful, mindful, and meaningful learning in geography education

Data Collection

Data collection was conducted between February and May 2026 across nine public high schools in Surakarta. Data were collected through semi-structured interviews and open-ended questionnaires to explore the implementation of joyful, mindful, and meaningful learning in geography education. Interviews with geography teachers and vice principals for curriculum provided the primary data, while Phase F students in geography elective classes completed open-ended questionnaires to support triangulation and validate findings (Bernard & Wutich, 2026; Creswell, 2017). Student

involvement offered additional insights into learning experiences in geography classrooms (Flemming & Noyes, 2021).

The instruments were developed based on the Indonesian deep learning framework, focusing on joyful, mindful, and meaningful learning dimensions (Mu'ti et al., 2025), and enriched by deep learning pedagogy emphasizing active engagement, reflection, and authentic learning (Fullan et al., 2017). To ensure relevance to geography education, the instruments were adapted to environmental and social contexts and reviewed through expert judgment prior to data collection. Table 2 presents the conceptual basis of the instruments. Semi-structured interviews were conducted face-to-face with geography teachers and vice principals for curriculum, with each interview lasting approximately 30–60 minutes. Student questionnaires were administered directly at participating schools using open-ended response formats to capture students' learning experiences and perceptions.

Table 2. Research Instruments

Dimension	Operational Focus	Example Indicators
Joyful Learning	Emotional engagement and active participation	Student enthusiasm, interactive classroom atmosphere, participatory learning
Mindful Learning	Reflective and conscious learning processes	Critical reflection, awareness, analytical thinking, active inquiry
Meaningful Learning	Contextual and authentic learning experiences	Real-world relevance, environmental issues, experiential understanding

Source: (Fullan et al., 2017; Mu'ti et al., 2025), with modification

Data Analysis

Research data were analyzed using thematic analysis to identify patterns and themes related to the implementation of joyful, mindful, and meaningful learning in geography education (Lochmiller, 2021). This approach was suitable for exploring participants' experiences across multiple data sources, including interviews and open-ended questionnaires (Ahmed et al., 2025). Data analysis followed five stages: data management, coding, categorization, theme development, and interpretation (Bingham, 2023). Interview transcripts and questionnaire responses were coded, grouped into categories, and synthesized into themes reflecting participants' experiences, pedagogical practices, and interpretations. Cross-participant and cross-source comparisons, including student data, were used to strengthen triangulation and consistency of findings (Li & Zhang, 2022). To enhance credibility, themes were reviewed and refined through ongoing interpretive reflection. Image 2, presents the stages of data analysis.

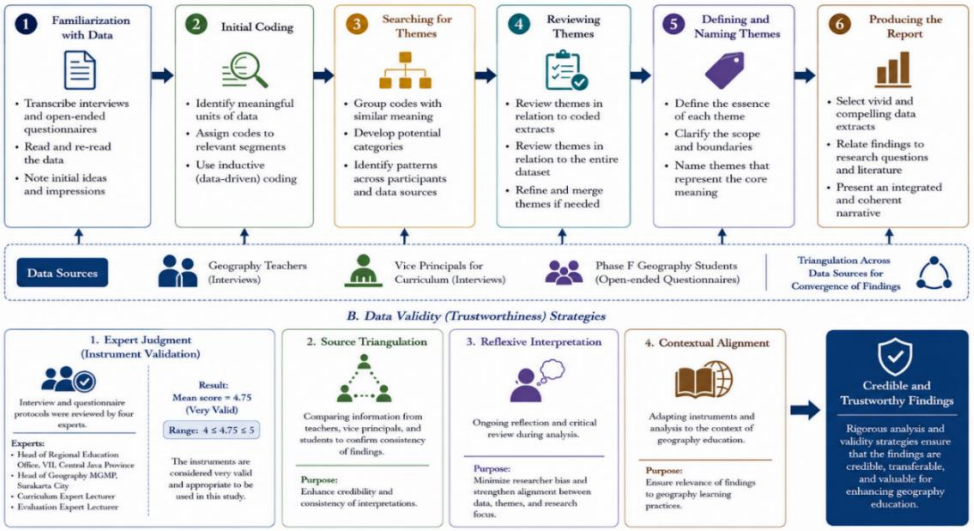

Image 2. Data Analysis Framework

Data Validity

Data validity was ensured through expert judgment, data source triangulation, and interpretive reflection. The instruments were validated by four experts and achieved an average score of 4.75, indicating a highly valid category (see Table 3). Data source triangulation involved geography teachers, vice principals for curriculum, and students to strengthen the credibility of the findings (Hayashi et al., 2019). Interpretive reflection and theme review were also conducted to ensure consistency between the data, research focus, and findings (Mezmir, 2020).

Table 3. Instrument Validity Categories

Aspect	Mean Score
Relevance	4.82
Clarity	4.69
Language	4.71
Content suitability	4.79
Overall	4.75

Based on Table 3, four experts independently evaluated the relevance, clarity, and appropriateness of each instrument item using a five-point rating scale. The overall mean score was 4.75, indicating a very high level of expert agreement regarding the suitability of the instruments for data collection.

Trustworthiness

To enhance the trustworthiness of the findings, this study adopted the criteria of credibility, transferability, dependability, and confirmability commonly applied in qualitative research. Credibility was strengthened through data source triangulation involving geography teachers, vice principals for curriculum affairs, and students, allowing comparison of perspectives across participant groups (Hayashi et al., 2019). The use of semi-structured interviews together with open-ended questionnaires also contributed to data triangulation and strengthened the consistency of emerging themes. Transferability was addressed by providing detailed descriptions of the research context, participant characteristics, sampling strategy, and data collection procedures. Such contextual information enables readers to determine the applicability of the findings to similar educational settings. Dependability was supported through a systematic research process, including the use of validated interview protocols, consistent data collection procedures across all participating schools, and a transparent thematic analysis process consisting of data management,

coding, categorization, theme development, and interpretation (Bingham, 2023). The research procedures were documented to ensure methodological consistency throughout the study. Confirmability was established by maintaining an audit trail of interview transcripts, field notes, coding decisions, and analytical memos throughout the research process. In addition, interpretive reflection and continuous theme review were conducted to ensure that the findings accurately represented participants' experiences rather than researcher assumptions (Mezmir, 2020).

Results and Discussion

Joyful Learning through Interactive Geography Practices

Research findings indicate that the principle of joyful learning in geography education is realized through interactive, collaborative, and contextual teaching practices. Geography teachers emphasize that a joyful learning environment is not only about engaging activities but also about students' active involvement in understanding geographical phenomena that are relevant to their daily lives. Joyful learning is implemented through group discussions, environmental case studies, the use of visual media, and issue-based learning. Table 4, presents a summary of findings related to joyful learning.

Table 4. Representative Findings on Joyful Learning Practices in Geography Education

School Context	Representative Findings
Surakarta State High School No. 1	Interactive discussion encouraged active classroom participation
Surakarta State High School No. 2	Geography learning became more engaging through local environmental case studies
Surakarta State High School No. 3	Students showed higher enthusiasm during collaborative learning activities
Surakarta State High School No. 4	Visual and digital learning media increased student attention and motivation
Surakarta State High School No. 5	Contextual learning improved students' confidence in expressing opinions
Surakarta State High School No. 6	Outdoor observation activities created more enjoyable learning experiences
Surakarta State High School No. 7	Group discussion facilitated peer interaction and classroom engagement
Surakarta State High School No. 8	Teachers emphasized student-centered learning to reduce passive learning habits
Surakarta State High School No. 9	Real-life geographic issues stimulated student curiosity and participation

Based on Table 4, most teachers explained that geography instruction becomes more effective when students are actively engaged in the learning process. A geography teacher at Surakarta State High School 3 explained:

"If we just explain the theory, students get bored quickly. But when they are asked to discuss floods, urban planning, or environmental changes around Surakarta, they participate more actively in discussions." (Geography Teacher at State High School 3 Surakarta).

These findings indicate that joyful learning is not only focused on creating a pleasant classroom atmosphere but also on students' emotional and intellectual engagement. Case-based activities and discussions make students more comfortable expressing their opinions and interacting with their

peers. A similar perspective was shared by the Vice Principal for Curriculum at State High School 5 Surakarta:

"Teachers are encouraged to create more active and less monotonous learning experiences so that students feel more comfortable and engaged in the learning process." (Deputy Principal for Curriculum at State High School 5 Surakarta).

From the students' perspective, geography lessons are considered more engaging when they incorporate discussions, environmental observations, and problem-based learning compared to one-way lectures. One student stated:

"When there are discussions or we discuss real-world events, the lessons become more exciting and I don't get sleepy." (Student in Phase F at State High School 7 Surakarta).

Joyful learning in geography education is fostered through interactive, collaborative, and contextual activities such as discussions, case-based learning, visual media, and environmental observation. These approaches enhance student engagement and active participation, which are key elements of deep learning. The findings suggest that teachers are moving beyond lecture-based instruction toward more student-centered learning, while direct experiences with real-world phenomena strengthen geographical awareness and meaningful learning (Kidman & Chang, 2023; Morris, 2020).

A noteworthy finding of this study is that joyful learning was not merely associated with enjoyable classroom activities but was closely connected to students' intellectual engagement with authentic geographical issues. Unlike previous studies that often describe joyful learning in terms of motivation and classroom atmosphere, the present findings indicate that enjoyment emerged when students actively explored environmental and socio-spatial problems relevant to their local context. This suggests that joyful learning in geography education may function as a gateway to deeper cognitive engagement rather than simply enhancing classroom satisfaction.

Mindful Learning and Reflective Geographic Awareness

Geography instruction also promotes mindful learning through reflective, analytical, and environmentally conscious activities. Teachers encourage students to think critically about social and environmental issues through case studies, reflective tasks, discussions, and inquiry-based learning. Table 5, presents a summary of the findings related to mindful learning.

Table 5. Representative Findings on Mindful Learning in Geography Education

School Context	Representative Findings
Surakarta State High School No. 1	Inquiry-based discussion encouraged critical geographic thinking
Surakarta State High School No. 2	Students reflected on environmental problems in their local surroundings
Surakarta State High School No. 3	Geography learning stimulated analytical discussion on social issues
Surakarta State High School No. 4	Reflective questioning increased students' awareness of environmental change
Surakarta State High School No. 5	Teachers emphasized reasoning and interpretation rather than memorization
Surakarta State High School No. 6	Students became more aware of disaster mitigation and environmental risks

School Context	Representative Findings
Surakarta State High School No. 7	Classroom discussion promoted reflective learning and active inquiry
Surakarta State High School No. 8	Contextual geographic cases supported critical and spatial thinking
Surakarta State High School No. 9	Students demonstrated greater awareness of local environmental challenges

A geography teacher at Surakarta State High School 5 explained that geography instruction is designed so that students do not merely memorize material, but are able to understand the relationship between geographical phenomena and community life.

"We try to encourage students to think about why an environmental problem occurs, what its impacts are, and what possible solutions might be." (Geography Teacher at State High School 5 Surakarta).

This approach demonstrates that mindful learning develops through a process of reflection and critical awareness of socio-spatial phenomena. Learning no longer focuses on the transfer of information, but on how students build a conscious and reflective understanding of environmental and social issues. A similar perspective was shared by the Vice Principal for Curriculum at State High School 2 Surakarta:

"Teachers are now guided to provide instruction that encourages students to think more actively, analyze, and reflect on the issues around them." (Deputy Principal for Curriculum at State High School 2 Surakarta).

From the students' perspective, environmental case studies and discussions of current issues help them understand the connection between geography content and daily life. One student remarked: "When we discuss environmental issues or flooding around the city, it makes us more aware that these are actually close to our lives." (Student in Phase F at State High School 4 Surakarta).

Research findings indicate that mindful learning develops through reflective activities, inquiry-based learning, and the analysis of social and environmental phenomena. Teachers not only foster conceptual understanding but also cultivate critical thinking skills, environmental awareness, and reflection on geographical issues in daily life (Rushton, 2021). In this context, mindful learning plays a vital role in building students' awareness of the relationship between humans, space, and the environment (Lee & Ryu, 2015). The findings indicate that mindful learning in geography education promotes reflective understanding, environmental awareness, and higher-order thinking skills through inquiry activities and reflective discussions (Whalen & Paez, 2022). Providing opportunities to critically explore social and environmental issues further strengthens students' analytical abilities and sustained understanding (Clayton et al., 2024). The study also shows that mindful learning fosters social and environmental awareness, particularly regarding environmental issues, disaster mitigation, and social change. As a key component of deep learning, mindful learning connects student engagement with critical reflection and intellectual development, supporting environmental awareness and sustainability education (Feriyanto & Anjariyah, 2024; Resa et al., 2025).

A notable contribution of this study is the finding that mindful learning in geography education extends beyond individual reflection toward the development of place-based geographic awareness. While previous studies have generally emphasized reflective thinking and metacognitive processes as central elements of mindful learning, the present findings demonstrate that students' reflection

was closely linked to their understanding of local environmental issues, disaster risks, and socio-spatial challenges. This suggests that mindful learning in geography education is not only a cognitive process but also a means of fostering contextual awareness and responsible citizenship. The findings therefore extend existing deep learning literature by illustrating how reflective inquiry can strengthen students' connections with real-world geographic problems and sustainability-related issues.

Meaningful Learning through Contextual Geography Experiences

Geography instruction in secondary schools not only encourages students' active engagement and reflective awareness but also fosters meaningful learning experiences by connecting the subject matter to everyday life. Research findings indicate that meaningful learning occurs when students understand the relevance of geography content to environmental, social, and spatial issues in their surroundings. Teachers believe that learning becomes more meaningful when students are able to connect geographical concepts with real-world experiences and local community conditions. Table 6, presents a summary of findings related to meaningful learning.

Table 6. Representative Findings on Meaningful Learning in Geography Education

School Context	Representative Findings
Surakarta State High School No. 1	Contextual geography learning strengthened students' understanding of urban issues
Surakarta State High School No. 2	Local environmental problems supported meaningful classroom discussion
Surakarta State High School No. 3	Students connected geographic concepts with everyday social experiences
Surakarta State High School No. 4	Real-world case studies improved students' understanding of sustainability issues
Surakarta State High School No. 5	Contextual learning increased students' awareness of environmental responsibility
Surakarta State High School No. 6	Experiential learning activities enhanced students' understanding of geographic phenomena
Surakarta State High School No. 7	Community-based learning strengthened relevance between theory and practice
Surakarta State High School No. 8	Teachers emphasized contextual and student-centered geography learning
Surakarta State High School No. 9	The school promoted adaptive and relevant learning practices despite being a newly established school

A geography teacher at Surakarta State High School 8 explained that geography lessons are easier to understand when the material is linked to real-world conditions in the surrounding environment. "Students understand the material better when lessons are linked to environmental issues or social conditions that they actually see in their daily lives." (Geography Teacher at State High School 8 Surakarta).

This statement indicates that meaningful learning develops through contextual learning experiences that are relevant to students' lives. Learning connected to social and environmental realities allows students to build a deeper understanding compared to learning that is solely focused on memorizing concepts. The Vice Principal for Curriculum at State High School 1 Surakarta emphasized:

"Learning is now designed so that students not only understand the theory but are also able to see the benefits and applications of the material in their lives." (Vice Principal for Curriculum at State High School 1 Surakarta).

A similar perspective was shared by the Vice Principal for Curriculum at State High School 9 Surakarta:

"We strive to create learning experiences closely tied to students' experiences so they feel the material they study is truly important and useful." (Vice Principal for Curriculum at State High School 9 Surakarta).

From the students' perspective, geography learning is considered more meaningful when the material is linked to environmental conditions and issues they experience firsthand. A student from State High School 6 Surakarta shared:

"When we learn about the environment or spatial planning around the city, it's easier to understand because we often see it directly we can also use Google Earth." (Phase F Student, State High School 6 Surakarta).

Meanwhile, a student at State High School 1 Surakarta stated: "Geography feels important because it turns out to be connected to the issues around us." (Phase F Student, State High School 1 Surakarta).

The findings indicate that meaningful learning develops through contextual and authentic experiences that connect geographic concepts with environmental issues, socio-spatial phenomena, and students' daily lives. Such relevance promotes deeper understanding than rote memorization and highlights the importance of local contexts in geography learning (Baildon, 2023; Fitrianto & Farisi, 2025; Risiro, 2022). The study also shows that meaningful learning helps students recognize the relevance of geography to sustainability, environmental issues, and social responsibility. As a component of deep learning, it strengthens the link between learning experiences and conceptual understanding while enhancing student engagement and learning outcomes (Ramadana et al., 2025; Salong & Ansiska, 2025; Widana & Ratnaya, 2021).

The findings also provide new insight into the nature of meaningful learning in geography education. Previous studies have commonly described meaningful learning as the connection between academic content and students' experiences. However, this study found that meaningful learning emerged most strongly when students were able to interpret local environmental and socio-spatial issues through geographic concepts and digital geographic tools. Rather than simply increasing relevance, contextual learning enabled students to apply geographic understanding to phenomena they encountered in everyday life. This finding suggests that meaningful learning in geography education functions as a bridge between conceptual knowledge and real-world problem interpretation, thereby supporting deeper understanding and long-term learning retention.

Integrating Joyful, Mindful, and Meaningful Learning in Geography Education

The findings indicate that joyful, mindful, and meaningful learning are interconnected in creating deeper and more learner-centered geography learning experiences. Their integration reflects the relationship between emotional engagement, reflective thinking, and contextual learning. Table 7 summarizes the main findings, while Image 3, illustrates the conceptual relationships among these principles. Although joyful, mindful, and meaningful learning were identified across all participating schools, several contextual variations were observed. Schools that frequently implemented environmental observations, local case studies, and outdoor learning activities tended to

demonstrate stronger characteristics of meaningful learning. In contrast, schools emphasizing inquiry-based discussions and analytical classroom dialogue showed more pronounced manifestations of mindful learning. Joyful learning appeared relatively consistent across schools and was primarily associated with collaborative activities, student participation, and interactive classroom environments. These findings indicate that while the three principles were evident across all school contexts, their relative emphasis varied according to instructional approaches, learning resources, and school-level pedagogical practices.

Table 7. Integrated Findings of Joyful, Mindful, and Meaningful Learning in Geography Education

Learning Principle	Main Characteristics	Educational Implications
Joyful Learning	Interactive and engaging learning atmosphere	Increased student participation and classroom engagement
Mindful Learning	Reflective and critical geographic thinking	Strengthened environmental awareness and inquiry skills
Meaningful Learning	Contextual and authentic learning experiences	Enhanced relevance of geography learning to students' lives

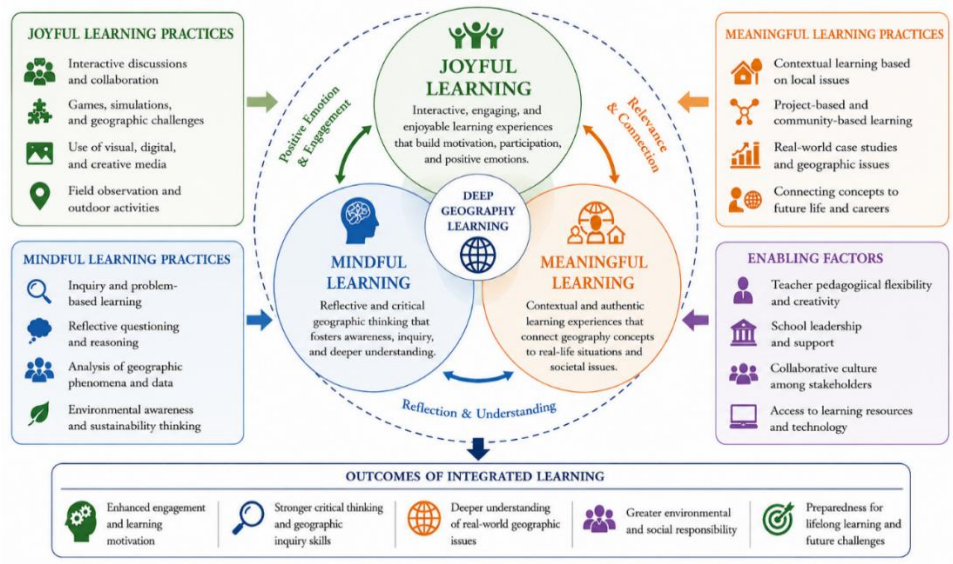

Image 3. Conceptual Integration of Joyful, Mindful, and Meaningful Learning in Geography Education

Based on Image 3, the findings show that geography education provides a strong foundation for integrating joyful, mindful, and meaningful learning. Geography content related to socio-spatial phenomena, environmental issues, and sustainability enables students to engage in real-world experiences, critical reflection, and contextual exploration. Learning occurs through an interactive, reflective, and contextual process in which a positive learning atmosphere promotes engagement, encourages critical thinking, and leads to meaningful learning experiences. These findings demonstrate that the characteristics of geography education strongly support the implementation of deep learning. This integrated learning pattern is also consistent with evidence from a scoping review of the Merdeka Curriculum, which highlights that improving educational quality requires student-centered, contextual, and competency-oriented learning practices that promote meaningful student engagement (Nugroho et al., 2025b). This aligns with the study by Andayanie et al. (2025), which explains that deep learning develops through a combination of joyful, mindful, and meaningful learning experiences.

The findings suggest that successful implementation of deep learning in geography education depends on pedagogical and institutional support, including teacher creativity, flexible learning strategies, and school support. The integration of joyful, mindful, and meaningful learning promotes not only knowledge acquisition but also critical thinking, social awareness, and engagement with environmental issues (Feriyanto & Anjariyah, 2024). These findings highlight the potential of geography education to support adaptive, contextual, and sustainability-oriented learning in the 21st century (Sugiyanto et al., 2026).

From a theoretical perspective, the findings contribute to the emerging deep learning literature by demonstrating that joyful, mindful, and meaningful learning operate as interconnected pedagogical dimensions rather than isolated instructional components. The study extends existing conceptual discussions by providing empirical evidence from geography education and illustrating how emotional engagement, reflective inquiry, and contextual relevance interact to support deeper learning experiences.

Study Limitations

This study has several limitations. First, the research was conducted only in public senior high schools in Surakarta, which may limit the transferability of the findings to other educational contexts. Second, the study relied primarily on interviews and open-ended questionnaires without incorporating extended classroom observations across all participating schools. Third, as a qualitative exploratory study, the findings are intended to provide in-depth contextual understanding rather than statistical generalization. Future research may employ mixed-method or comparative approaches across different regions and educational levels to further examine the implementation of deep learning in geography education.

Conclusion

This study demonstrates that the implementation of deep learning in geography education is reflected through the integration of joyful, mindful, and meaningful learning. Rather than functioning as separate dimensions, these principles interact to create learning experiences that are engaging, reflective, and contextually relevant to students' lives. The findings indicate that geography education provides a strong platform for fostering student participation, critical reflection on socio-environmental issues, and the application of geographic knowledge to real-world contexts. Furthermore, the study extends existing deep learning literature by showing how these principles are experienced and supported from multiple educational perspectives, including teachers, vice principals for curriculum, and students. The findings also provide practical implications for geography education. For classroom practice, geography teachers should intentionally integrate collaborative discussion, inquiry-based learning, contextual environmental issues, and authentic field experiences to simultaneously foster joyful, mindful, and meaningful learning. At the school level, curriculum leaders and principals should support professional development programs that strengthen teachers' capacity to implement deep learning pedagogy through reflective and student-centered instructional strategies. At the policy level, the findings may inform the implementation of the Merdeka Curriculum by providing empirical evidence that deep learning is most effective when emotional engagement, reflective thinking, and contextual learning are integrated within authentic geography learning experiences.

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