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Geoedupreneurship as Entrepreneurship Education in Higher Education Geography Learning in Indonesia

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Abstract

The transformation of higher education in Indonesia encourages the integration of entrepreneurial values into various disciplines, including geography education. Geoedupreneurship presents itself as an approach that combines spatial science and entrepreneurship based on local potential. This study aims to analyze the suitability of learning planning, the development of graduate learning outcomes, and the actual implementation of geoedupreneurship in higher education in Indonesia, with the higher education curriculum guidelines. A qualitative descriptive approach was used through analysis of Semester Learning Plan documents, student surveys, learning observations, and interviews. The results show that learning planning in geography education entrepreneurship courses at universities in Indonesia shows an average suitability of 81.43%, while the development of graduate learning outcomes achieves a level of alignment of 78% with the higher education curriculum guidelines. The implementation of a project-based approach supported by micro e-learning technology supports geoedupreneurship learning activities. However, 45.2% of students experience obstacles in integrating entrepreneurship concepts with geographical issues, and 54.8% state the need for contextual and applicable digital learning materials. The planning and implementation of geoedupreneurship are structured and adaptive, but require strengthening of learning instruments and the development of contextual digital learning materials. The geoedupreneurship approach has an important contribution in producing graduates with spatial competitiveness and entrepreneurship but requires further research to strengthen curriculum integration and the development of digital geoedupreneurship learning materials based on local potential that are oriented towards work competencies and support the achievement of geoedupreneurship learning objectives at the higher education level.

Keywords: advanced learning, advanced competencies, entrepreneurship learning, entrepreneurship education, geoedupreneurship learning, independent learning, learning achievement, project-based learning

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1. Introduction

Higher education plays a crucial role in preparing graduates who not only master scientific theory but also are able to adapt to increasingly complex contemporary economic and social challenges (Okolie et al., 2019; Fuadi et al., 2021). Global developments marked by the integration of the digital economy and technological transformation within the framework of the 5.0 industrial revolution have driven the need for integration between education and entrepreneurship as a strategic

agenda that cannot be ignored (Yu & Jiang, 2021). The integration of entrepreneurial values into various disciplines is a new orientation in higher education reform based on strengthening graduate competitiveness (Cruz et al., 2021). This phenomenon indicates that higher education institutions need to reconstruct their curricula to produce graduates who are intellectually resilient and competent in managing economic resources based on local potential. This approach serves not merely as an adaptive tool but also as a transformational strategy that supports students' achievement of multidimensional competencies.

In the realm of geography education, the concept of geoedupreneurship exists as a transdisciplinary approach that combines spatial science with an entrepreneurial orientation based on local potential. (Wahyudi et al., 2024). This concept is relevant to the characteristics of geography as a scientific field that is contextual, applicable, and provides solutions to various spatial problems, offering strategic opportunities to develop an entrepreneurial learning approach based on regional potential (Bacq & Janssen, 2011). The existence of geoedupreneurship aligns with the characteristics of geography education, which emphasizes the importance of a comprehensive understanding of the region as a basis for development planning and business development. However, there is little research specifically examining the extent to which the geoedupreneurship approach has been systematically implemented in various geography education study programs in Indonesia. The absence of a comprehensive evaluation basis regarding the alignment between learning practices and national guidelines indicates a gap that needs to be filled critically and scientifically.

Geoedupreneurship learning ideally refers to a Semester Learning Plan that has been systematically prepared and in accordance with national learning guidelines (Haris & Tjahjandarie, 2024; Zeng et al., 2018). A mismatch between classroom practices and the established planning framework has the potential to reduce learning effectiveness and weaken geoedupreneurship potential as a means of strengthening science based entrepreneurial competencies (Igwe et al., 2021). Research conducted by Alkandari (2023), shows that the gap between academic planning and implementation practices remains a major obstacle in the implementation of competency based curricula at the higher education level. These findings suggest that evaluating the implementation of geoedupreneurship is essential as part of a systematic effort to improve the quality of geography learning at the higher education level.

The limited number of studies specifically addressing geoedupreneurship policies and implementation in various universities indicates the importance of developing studies that can fill this scientific gap. Meanwhile, higher education policies have directed curriculum strengthening through outcome and project based learning approaches, including the integration of local potential based entrepreneurship Click or tap here to enter text.(Ulya, 2019). Amalia & von Korflesch (2021), concluded in a bibliometric study that entrepreneurship education programs in Indonesian universities are still concentrated on Java and lack the adoption of modern practices that utilize local potential. Widjaja (2022) in a quantitative study in Malang, confirmed that the use of e-learning in entrepreneurship courses increases self efficacy, which in turn significantly influences students' entrepreneurial intentions. A similar study by Elpisah (2024), emphasized that mentoring, lecturer competence, and various forms of entrepreneurship learning are important aspects, but have not been

systematically integrated into the Indonesian university curriculum.

Driven by the Merdeka Belajar Kampus Merdeka (MBKM) policy and the 2024 Higher Education Curriculum Guidelines KPT 2024, Indonesian higher education faces an increasing mandate to integrate entrepreneurial skills. This study focuses on Geography Education, where this integration manifests as "Geoedupreneurship" a unique synthesis of spatial science, local resource utilization, pedagogic skills, and entrepreneurial principles. Branca et al. (2025) said while existing literature recognizes the value of entrepreneurship and modern learning methods like Project Based Learning, a significant gap remains in analyzing the specific content application challenges unique to Geoedupreneurship.

A research gap remains apparent in the lack of empirical studies analyzing the suitability of semester lesson plans, Geoedupreneurship learning implementation, and curriculum design for the learning outcomes of Geoedupreneurship graduates in Indonesian higher education. This demonstrates the urgent need for studies that examine the theoretical alignment and instructional practices of Geoedupreneurship. This research addresses the technical demands of Geospatial Analysis and Digital Marketing, which have been overlooked. The Geoedupreneurship approach risks becoming a normative concept without any real contribution to strengthening student competencies if it is not accompanied by depth academic study and objective assessment (Rhaiem & Amara, 2021).

The true novelty of this research is twofold, positioning it distinctly within the Indonesian context. First, unlike previous studies that discuss entrepreneurship broadly, this research provides the first evidence based diagnostic focused specifically on the crucial content application challenges unique to Geoedupreneurship, particularly the technical demands of Geospatial Analysis and Digital Marketing, which have been previously overlooked. Second, its methodology is unique: it employs triangulation (analysis of national curriculum documents, student surveys, and lecturer interviews) to directly pinpoint material deficiencies and propose concrete digital solutions. The distinctive focus on the alignment of RPS (Semester Learning Plans) with the high level KPT 2024 mandates is critical for ensuring the Geoedupreneurship approach functions as a robust instructional strategy, not merely a conceptual idea.

This study endeavors to achieve three primary objectives is (1) to meticulously analyze the structural alignment between the Geoedupreneurship learning plans (RPS) currently in use and the mandates set forth in the KPT 2024 Guidelines; (2) to empirically identify the specific learning materials deemed most relevant, concurrently assessing those perceived as presenting the greatest difficulty by the student cohort; and (3) to systematically determine the most essential and effective modalities of digital learning materials necessary to substantively bridge the documented skills deficit.

Based on the conceptual background and empirical findings, these objectives are also formulated to is analyze the suitability of Geoedupreneurship planning, classroom implementation, and curriculum design against National Higher Education Graduate Learning Outcomes Standards are vital. This is because effective Geoedupreneurship learning requires not only a structured conceptual approach but also a reflective analysis of the continuity between pedagogical policies and practices implemented in the field (Hägg, 2021). The integration of normative documents and learning practices at the study program level is a crucial dimension in evaluating the approach's effectiveness. This

research is expected to provide academic contributions to the development of Geoedupreneurship learning strategies that are more relevant, measurable, and adaptive to the needs of the workplace and local dynamics that are a primary concern in geography education.

2 Method

This study adopts a descriptive qualitative approach to deeply uncover the conceptual dynamics and pedagogical practices that occur during the planning and implementation of Geoedupreneurship learning at various Indonesian higher education institutions (Ghanad, 2023; Mantula et al., 2024). This methodology is deemed most appropriate because the primary objectives analyzing structural alignment (RPS vs. KPT 2024), identifying perceived material difficulty, and determining effective digital solutions require an in depth, contextual understanding and comprehensive interpretation of complex instructional phenomena, which quantitative methods alone cannot provide (Yi & Duval-Couetil, 2022).

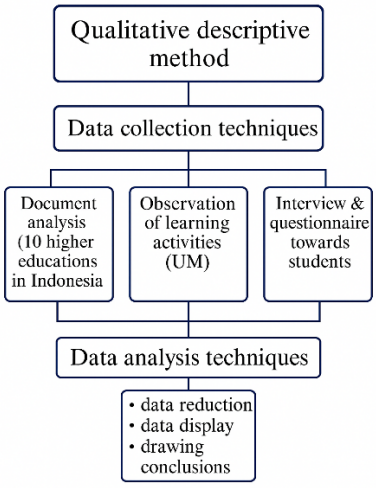

Figure 1. Research Flowchart

Data collection was carried out in three main stages to ensure methodological triangulation: document analysis, observation of learning activities, and interviews/questionnaire distribution.

Document Analysis was performed on Semester Learning Plans (RPS) guided by the National Higher Education Curriculum from ten universities across Indonesia, covering components such as learning outcomes, learning methods, and evaluation strategies (Haris & Tjahjandarie, 2024). Institutions were selected purposively, considering geographic distribution, accreditation status, and the availability of legal and relevant documents (Busetto et al., 2020; Ngoatle et al., 2022).

Direct observations were conducted on the implementation of geoedupreneurship learning in the Geography Education Study Program at the State University of Malang (Dignath & Veenman, 2021). This institution was selected based on the sustainability of geography based entrepreneurship practices, the completeness of academic documents, and institutional readiness to support field observations. Observations were conducted in a structured manner to obtain systematic data on instructional activities, interactions between lecturers and students, the use of learning tools, and the forms of evaluation implemented in learning activities (Gao et al., 2020).

Interviews were conducted with lecturers teaching the geoedupreneurship course to obtain information on the semester lesson plan formulation process, strategies for aligning with national curriculum guidelines, and challenges faced in implementing geoedupreneurship learning at the institutional level. The interview instrument was semi structured to allow for flexible yet focused exploration of topics. Supporting data was also collected through questionnaires distributed to students participating in the course. All interviews were transcribed in their entirety to serve as the basis for further

analysis (Adeoye-Olatunde & Olenik, 2021). To enhance the reliability and trustworthiness of the findings, a method of member checking (data verification) was employed, where interview transcripts and key findings were confirmed with the participating lecturers.

The data analysis technique in this study was conducted inductively through the stages of data reduction, data presentation, and drawing conclusions

(Kushnir, 2025; Lim, 2025). Data validity was primarily ensured through methodological triangulation, where all data obtained from documents, observations, and the results of interviews or questionnaires were processed narratively and comparatively. This comparative process systematically identifies consistencies and inconsistencies between the planning and implementation of Geoedupreneurship learning in Indonesian higher education, guaranteeing a comprehensive and reliable understanding.

The overall process is designed to build a comprehensive understanding of the conceptual dynamics and implementation of Geoedupreneurship. Each stage aims to examine the extent to which the geography education based entrepreneurship curriculum has been consistently integrated into the planning and implementation of learning activities, in accordance with higher education curriculum development guidelines (Leko et al., 2021).

3 Result and Discussion

The conceptualization of geoedupreneurship in higher education emerged as a response to the need for adaptive, applicable, and contextual geography learning. Geoedupreneurship studies prioritize strengthening innovative, reflective, and solution oriented competencies (Kraus et al., 2021). The transdisciplinary challenges facing geography education are no longer limited to spatial analysis alone but have evolved toward the necessity of developing graduates capable of identifying spatially based economic opportunities and implementing innovative ideas rooted in local wisdom (Robles, 2025). This framework positions geoedupreneurship as a strategy to address sustainable spatially based economic and social dynamics.

a. Integration of geoedupreneurship learning plans in Indonesian higher education with the guidelines for compiling the National Higher Education Curriculum

The promulgation of Regulation of the Minister of Education, Culture, Research, and Technology of the Republic of Indonesia Number 53 of 2023 concerning Quality Assurance in Higher Education underscores the critical need for a timely review of study program curricula within higher education institutions. This policy mandates the adjustment of learning systems to be more adaptive to contemporary developments, societal dynamics, and the strategic direction of national higher education, which emphasizes quality, relevance, and sustainability (Hays & Reinders, 2020; Priyadarshini & Abhilash, 2022).

The imperative for curriculum integration aligns with the principles stipulated in Presidential Regulation of the Republic of Indonesia Number 8 of 2012, which emphasizes that higher education curricula must be systematically designed based on linear, measurable learning achievement levels aligned with national qualifications. Consequently, the curriculum structure requires integral compilation, including the rigorous formulation of graduate learning outcomes (GLOs), course learning outcomes (CLOs), sub course

learning outcomes (sub CLOs), study materials, learning strategies and modalities, and an objective, comprehensive, rubric based evaluation system.

The emphasis on designing a focused and integrated curriculum is further reinforced by the provisions in Article 44 of the Minister of Education, Culture, Research, and Technology Regulation Number 53 of 2023. This mandates that the study program curriculum must encompass, at minimum, GLOs, curriculum duration, learning methods, learning modalities, competency requirements, learning outcomes assessment, materials to be completed, and student admission procedures at various curriculum stages (Permendikbudristek, 2023). These elements establish a robust conceptual foundation that ensures a quality learning process oriented toward strengthening graduate competencies within their respective scientific fields, including geography education (Logachev et al., 2021).

As the guiding document for developing an outcomes oriented curriculum, the 2024 Higher Education Curriculum Guidelines delineate components essential for comprehensive curriculum development (Wu & Chen, 2021). These consist of study program identity, curriculum evaluation and tracer study, the conceptual basis for curriculum design and development, the formulation of the program's vision, mission, objectives, and strategies, the formulation of graduate competency standards (GLOs), the determination of study materials and credit weights, the preparation of curriculum matrices and maps, the development of learning modalities (Semester Learning Plans/RPS), curriculum management and implementation mechanisms, and student admission procedures.

All of these components transcend mere administrative requirements; they represent a structured learning system designed to guarantee academic quality, scientific relevance, and the effective achievement of graduate competencies (Li & Rohayati, 2024; Martinez, 2022). Therefore, the existence of standardized, structured curriculum documentation constitutes a crucial foundation for quality study program implementation in higher education.

A synthetic review of geoedupreneurship and related course plans across Indonesian universities indicates a notable variation in their alignment with national curriculum standards. Among these, the State University of Malang (UM) demonstrates the highest degree of conformity, reaching 91% compliance. The RPS integrates Global Learning Outcomes (GLOs), Course Learning Outcomes (CLOs), and sub CLOs in a well structured manner, employing project based and case based learning approaches supported by a quantitatively measurable assessment rubric (Wahyudi et al., 2024).

The semester learning plan document for entrepreneurship in geography education at the State University of Malang demonstrates consistency in the learning outcomes of study program graduates, including aspects of independence, entrepreneurial spirit, creative thinking, and skills in developing business plans and entrepreneurial proposals in geography, reflecting a student centered learning approach (Crespí et al., 2022). Furthermore, the learning structure is geared toward geography based entrepreneurship through a local potential mapping approach and region based spatial products.

The semester lesson plan for the entrepreneurship course in geography education at Lambung Mangkurat University presents a local entrepreneurship based approach contextualized within the geographic environment. Learning outcomes reflect entrepreneurial and sustainability

values (Rosário et al., 2022). Completed components include graduate learning outcomes, course learning outcomes, study materials, learning strategies, evaluation, and references. However, the curriculum map and explicit integration of independent learning and independent campuses are not yet fully illustrated. Therefore, the actual level of conformity with national guidelines was recorded at 83.3%, necessitating further alignment to ensure holistic integration of the curriculum design.

The entrepreneurship course in geography education at Yogyakarta State University has developed a semester entrepreneurship lesson plan document that displays a hybrid learning structure and an integration of cognitive and affective outcomes (Pan et al., 2024). The course's learning outcomes have been operationally formulated, although they have not been broken down into sub learning outcomes. The learning materials include social observation contexts, interactive discussions, and community case studies. The semester lesson plan's alignment with national learning guidelines was recorded at 80%, reflecting the need for refinement of the evaluation format and detailed description of learning experiences.

Through the semester learning plan for the entrepreneurship course in geography education, the University of Muhammadiyah Mataram presents an entrepreneurship learning model that emphasizes a moral approach and social entrepreneurship. Based on an evaluation of the 2024 Higher Education Curriculum Guide, the semester learning plan for Entrepreneurship at the University of Muhammadiyah Mataram meets seven components: alignment of graduate learning outcomes with the KKNI (National Qualifications Framework), integration of graduate learning outcomes, relevance to graduate needs, alignment with strategic issues, assessment measurability, relationship to graduate learning outcomes, and learning format. However, aspects of the study program vision, integration of independent learning and independent campuses, and the context of Industry 4.0 are not yet explicitly included in the semester learning plan document. Therefore, the actual level of conformity with the national curriculum guidelines was recorded at 70%, necessitating further strategic alignment.

The curriculum developed for the entrepreneurship course by Geography Education at the University of Jember reflects a focus on strengthening collaboration and adaptation by integrating spatial skills approaches with digital innovation and regional economics within the context of geography education entrepreneurship (Astutik, 2024). The substantial direction of this semester's learning plan aligns with the competencies in geography entrepreneurship, including through mapping service projects and other geospatial entrepreneurship projects, thus leading to the development of contextual geography education based entrepreneurship (Baker & Welter, 2018).

Based on an evaluation of the 2024 Higher Education Curriculum Guide, the Entrepreneurship semester learning plan at the University of Jember Geography Education meets nine components is course identity, graduate learning outcomes, study materials, semester credit system, course learning outcomes, sub course learning outcomes, learning strategies, and assessment methods. However, these are not yet explicitly provided in the semester learning plan document, particularly regarding the curriculum map and the basis for curriculum development. Therefore, the actual level of conformity to the national curriculum guide was recorded at 75%, necessitating

improvements in the planning and structure of the learning documents.

The semester learning plan document for the entrepreneurship course from the geography education program at Makassar State University emphasizes the importance of integrating social values into environmentally conscious local entrepreneurship. The learning materials in the document include business planning, business feasibility analysis, branding, and financial management, presented based on local resource potential (Badulescu & Badulescu, 2016). Based on an evaluation of the 2024 Higher Education Curriculum Guide, the semester learning plan for Entrepreneurship at Makassar State University fulfills nine components is identity, graduate learning outcomes, course learning outcomes, study materials, methods, time, assessment, references, and the relationship between graduate learning outcomes and course learning outcomes. However, an explicit learning outcome map is not yet available, and the evaluation aspect still needs to be detailed quantitatively. Therefore, the actual level of conformity with the national curriculum guide was recorded at 75%, so there is a need to strengthen the dimensions of mapping graduate learning outcomes and learning evaluation.

Sultan Syarif Kasim State Islamic University, Riau, developed an Entrepreneurship semester learning plan that emphasizes spiritual values, environmental sensitivity, and social responsibility (Novita, 2021). Based on an evaluation of the 2024 Higher Education Curriculum Guide, the Entrepreneurship semester learning plan for geography education at Sultan Syarif Kasim State Islamic University, Riau, fulfills nine components in its entirety: graduate profile, graduate learning outcomes, course structure and semester credit system weighting, study materials, course learning outcomes, weekly lesson plans, learning methods, learning time, and a list of references. However, explicit aspects of sub course learning outcomes, quantitative indicator-based assessment rubrics, and mapping between curriculum elements are not yet available in the semester learning plan document. Therefore, the actual level of conformity to the national curriculum guide was recorded at 75%, necessitating improvements in the evaluation and integration aspects of the learning system.

The Entrepreneurship semester learning plan for Geography Education at Amikom University, Yogyakarta, demonstrates an integrated entrepreneurial approach between information technology and spatial principles (Sekarsih, 2022). Students are directed to create digital technology-based business ideas and apply them to geography-based entrepreneurial practices. Based on an analysis of the 2024 Higher Education Curriculum Guide, the Entrepreneurship semester learning plan for Geography Education at Amikom University Yogyakarta meets 11 components, namely graduate profile, graduate learning outcomes, course learning outcomes, sub-course learning outcomes, study materials, learning methods, learning time, weekly learning plans, assessments, references, and learning media. However, a map of the relationships between curriculum elements is not yet available in the semester learning plan document. Therefore, the actual level of conformity to the national curriculum guidelines was recorded at 92%, so systemic linkages between learning elements are needed.

The curriculum document for the Entrepreneurship in Geography Education course from Padang State University contains an approach that integrates the concepts of local resource based innovation and regional vulnerability (Khairani et al., 2021). Based on

an evaluation of the 2024 Higher Education Curriculum Guide, the semester learning plan for Entrepreneurship in Geography Education at Padang State University meets 10 components: graduate profile, graduate learning outcomes, course learning outcomes, study materials, learning strategies, time allocation, assessment, references, learning media, and weekly lesson plans. However, the semester learning plan document does not explicitly provide achievement indicators and a map of systemic relationships between learning elements. Therefore, the actual level of conformity with the national curriculum guidelines was recorded at 83%, requiring improvements in the evaluation dimension and the integrative structure between outcomes.

Based on an evaluation of the 2024 Higher Education Curriculum Guidelines, the Entrepreneurship semester learning plan for Geography Education at Semarang State University meets 10 of the 12 components, namely the integration of graduate learning outcomes, course learning outcomes, project based learning models, and the integration of independent learning and independent campus learning. Learning outcomes include aspects of conceptual skills, business idea development, and entrepreneurial practices based on community observation (Parwez, 2017). However, explicit aspects of tracer studies and alignment with higher education curriculum guidelines are not yet available in the semester learning plan document. Therefore, the actual level of conformity to the national curriculum guidelines was recorded at 83%, requiring improvements in the graduate traceability aspect and explicit reference to national standards.

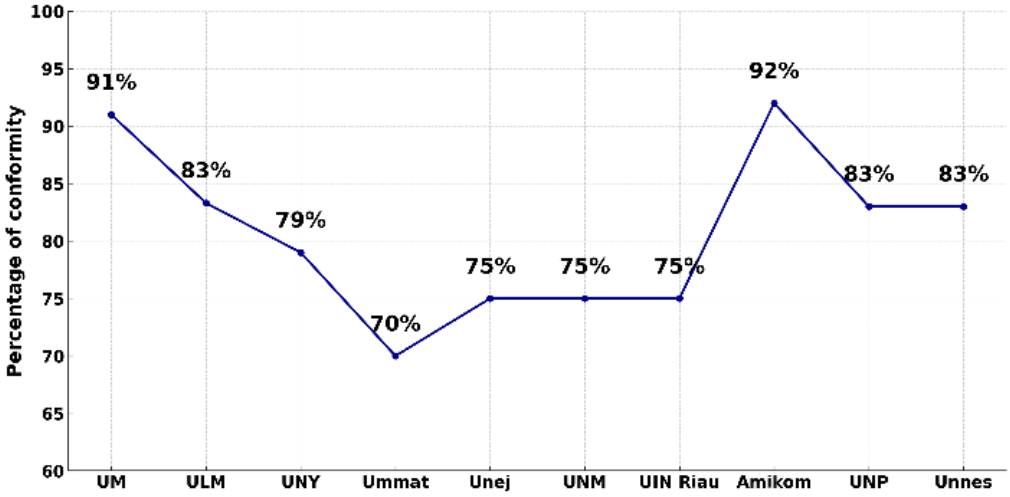

Figure 2. Percentage of Conformity of Semester Learning Plans to the National Learning Guidelines

Based on the overall review results, the geoedupreneurship semester lesson plan documents from various universities in Indonesia show varying levels of integration with the national higher education curriculum guidelines and demonstrate efforts to synergize entrepreneurship development with the scientific characteristics of geography education. The average actual level of alignment with the 2024 Higher Education Curriculum Guidelines was recorded at 81.43%. This figure reflects the institutions' commitment to implementing an outcomes based curriculum, but also indicates room for improvement, particularly in the evaluation aspect, as well as strategic integration with national policies and the context of independent learning (independent campus)

to ensure complete integration between content, process, and outcomes and in line with the direction of higher education development based on quality and strong scientific character (Venesaar et al., 2021).

b. Conformity of implementation of geoedupreneurship learning in the classroom with the National Higher Education Curriculum guidelines

The practical implementation of geoedupreneurship learning in higher education environments must embody the synergy between strengthening scientific competencies in geography and context based entrepreneurship (Ghafar, 2020). Learning activities must strategically shift their focus from merely mastering theoretical aspects to cultivating strategic thinking skills necessary for designing entrepreneurial solutions based on spatial understanding and local potential (Audretsch et al., 2019).

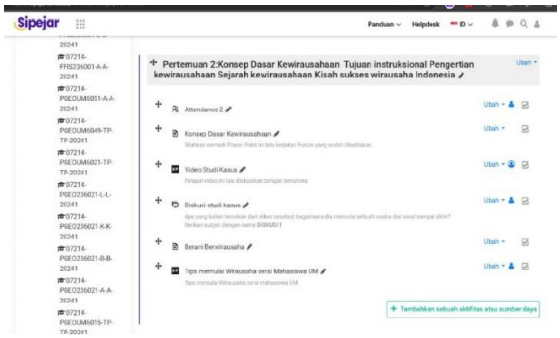

Figure 3. Geoedupreneurship LMS Display

Based on observations, the learning structure of the entrepreneurship course in the Geography Education study program at Malang State University is designed based on alignment between learning outcomes and graduate competencies as required by the higher education curriculum guidelines. The course's learning outcomes encompass dimensions of attitudes, knowledge, and skills, including critical thinking, creativity, and independence (Akpur, 2020). Students are guided to actively develop business proposals, map local business potential based on geospatial data, and develop technology based marketing models. These indicators reflect a learning approach predicated on contemporary social needs and realities, in line with the adaptive and applicable characteristics of 21st century learning (Soghomonyan & Karapetyan, 2023).

However, the findings reveal a significant fidelity gap between the planned curriculum documents and actual classroom implementation. The primary impediment stems from the conventional nature of material delivery and the scarcity of concrete, geography specific entrepreneurial case studies. A needs analysis indicated that 45.2% of students struggled to grasp the theme of entrepreneurial potential in geography education, specifically in conceptually linking entrepreneurial theory with contextual geographic phenomena. This situation risks lowering student engagement, limiting the scope for innovative business ideas, and creating obstacles in developing locally rooted entrepreneurial strategies (Castro & Zermeño, 2021; Klofsten et al., 2019).

Figure 4. Observation of Geoedupreneurship Learning Activities at Malang State University

Observations of the structure of the material presented show that although the learning substance has accommodated the dimensions of digital literacy and entrepreneurial attitudes, the form of presentation, which remains oriented toward a general and static view of entrepreneurship, structurally hinders the deep internalization of

the concept within the field of geography education (Juniwati et al., 2020). Students lack contextual learning experiences, preventing the entrepreneurial values integrated into the science of geography education from being deeply embedded. The need for interactive digital learning materials and the minimal use of real life case studies prevents students from gaining a genuine understanding of the business process and potential based on analysis of the local context (Mukhlishin, 2024; Utami et al., 2018).

The analysis strongly suggests that developing digital content in the form of e-learning is highly effective in boosting student engagement. The concise module format, audiovisual content, and interactive quizzes have been shown to strengthen mastery of entrepreneurial concepts and facilitate a dynamic learning environment (Hossain, 2023). This outcome underscores the significant opportunity for integrating technology to facilitate efficient and adaptive learning (Fischer et al., 2025; Isaeva et al., 2025). As well as being able to provide information for policymakers such as universities and educational institutions in implementing technology in learning (Wahdah et al., 2025). The digital format allows lecturers to access and present materials flexibly, while students have the opportunity to learn anytime and anywhere. This aligns with contemporary learning characteristics, which prioritize flexibility, independence, and personalized learning experiences (Susiyawati et al., 2024).

Table 1. Analysis of Learning Needs for Students

No	Question	Answer	Frequency	Percentage (%)
1.	Effective learning styles	Combination of several learning methods	54	47%
2.	Effective learning methods	Project Based Learning	74	64,3%
3.	The most difficult material to understand	Entrepreneurial Potential in Geography	52	45,2%
4.	Main obstacles	Lack of interesting and applicable reference sources	51	44,3%
5.	Most frequently used learning materials	Digital Modul (PDF/e-book)	53	46,1%
6.	Frequency of use of digital learning materials	Often	68	55,7%
7.	Weaknesses of the learning materials used	Too theoretical and less applicable	47	38,3%
8.	The need for contextual digital learning materials	Very necessary	63	54,8%
9.	Types of learning materials needed	Entrepreneurship based on geography education	65	56,5%
10.	Additional features of digital learning materials created	Online discussion forum	57	49,6%

Findings regarding students' conceptual difficulties indicate that strengthening geoedupreneurship learning is not only about the availability of digital teaching materials but also about how learning is designed and experienced by students. Ongoing learning

practices have facilitated understanding of basic entrepreneurship and geography concepts. In contrast, the demands of learning outcomes lead to higher cognitive competencies, including data-based spatial analysis, contextual evaluation of business opportunities, and rational, reflective entrepreneurial decision-making. This condition indicates that the implementation of Project-Based Learning has functioned as an active learning approach. In contrast, the character of advanced learning has not been fully actualised in students' metacognitive dimension, especially the ability to reflect on thought processes, test spatial assumptions, and consider the social and ecological implications of formulated business decisions. Innovation in geoedupreneurship learning at this stage should focus on designing a progressive learning flow as a structured learning trajectory, starting with the exploration of authentic spatial problems, contextual geospatial data analysis, the formulation of alternative local business opportunities, and the simulation of evidence-based entrepreneurial decision-making. This kind of learning design opens up space for developing challenging, adaptive learning experiences, encourages student self-regulation, and strengthens the position of geoedupreneurship as an innovative form of learning relevant to higher education and oriented towards mastering advanced competencies.

This situation is reinforced by interviews with educators, which indicate that limited technology based learning materials constitute a major challenge in optimizing learning outcomes. Educators confirmed that although the curriculum has been systematically designed, the learning materials lack full integration with the concept of geoedupreneurship. Students explicitly require materials that are more contextual, applicable, and relevant to current needs, particularly those integrating geographical knowledge with local potential based entrepreneurial practices.

In line with these findings, a student analysis conducted using the Slovin sampling technique confirmed that 54.8% of respondents expressed a critical need for digital learning materials to bridge theoretical understanding and contextual application. The analysis revealed that students require interactive, visual, and real life case study based learning so that the learning process is not only informative but also transformative. The overwhelming preference of 55.7% of respondents for digital learning materials indicates an urgent need for content innovation, particularly content that enables independent exploration in analyzing potential geography based business opportunities, thereby enhancing the learning experience (Al Abri et al., 2024).

A comprehensive examination reveals that the implementation of geoedupreneurship learning at Malang State University has demonstrated a strategic direction aligned with the principles of competency based higher education curriculum development, innovation, and adaptation to current needs (Johnstone & Soares, 2014; Law, 2022). The structure of learning outcomes and learning activities has supported the development of graduates with geography based entrepreneurial skills, but the successful implementation requires substantial support in the form of contextual, flexible, and applicable digital learning materials. The scarcity of appropriate learning materials (Haleem et al., 2022; Joseph et al., 2024) remains a critical bottleneck. The availability of digital technology based learning materials will strengthen the achievement of learning objectives and ensure that alignment between planning documents, actual learning

implementation, and student needs can be achieved in an integrated and sustainable manner.

c. Geoedupreneurship curriculum structure within the framework of Higher Education Graduate Learning Outcomes

The structure of the geoedupreneurship curriculum at the higher education level must be comprehensively designed to ensure that formulated Graduate Learning Outcomes (GLOs) accurately reflect the strategic demands of education, spatial science development, and workforce needs (Mahardhani et al., 2023). Effective curriculum development is not only defined by the existence of clear GLOs but also by the extent to which these outcomes are systematically structured and supported by measurable indicators. Structuring the geoedupreneurship curriculum is of strategic urgency because GLOs not only represent the final educational outcomes but also serve as the main foundation for learning planning (Driscoll & Wood, 2023). This development acts as an academic instrument to strengthen the integration of geographic entrepreneurship based on regional potential, ensuring GLOs meet national standards and maintain relevance to contemporary industry demands.

The analytical framework for developing GLOs in the geoedupreneurship curriculum ideally references the ten main indicators stipulated in the 2024 Higher Education Curriculum Development Guidelines (Sukirman & Linse, 2024). These indicators include: the relationship between graduate learning outcomes and the Indonesian National Qualifications Framework (KKNI); the integration of attitudes, knowledge, general skills, and specific skills; the suitability of graduate learning outcomes to the graduate profile and stakeholder needs; the relationship between graduate learning outcomes and the vision, mission, and scientific disciplines of the study program; the alignment of graduate learning outcomes with strategic issues; measurability in the learning and assessment process; the relationship between graduate learning outcomes and study materials and courses; compatibility with the curriculum of similar study programs; current contexts such as industry 4.0, society 5.0, and sustainability; and the relationship between graduate learning outcomes and the independent learning and independent campus policies.

An analysis of the semester learning plan document for the Geoedupreneurship program at State University of Malang shows an 80% alignment level with the higher education curriculum guidelines. Consistent formulation of course learning outcomes across the dimensions of attitudes, skills, and knowledge is demonstrated through concrete indicators such as the ability to develop spatial based business proposals, self assessment, and mastery of geography based digital marketing (Shen et al., 2025). This mapping has been strengthened through vertical linkages between sub course learning outcomes, course learning outcomes, and graduate learning outcomes, reflecting the outcome based curriculum structure as recommended in the national higher education curriculum framework.

The semester learning plan document for the Geography Education Entrepreneurship course at Makassar State University focuses on a collaborative spatial business plan. Based on an evaluation of the ten GLO indicators in the 2024 Higher Education Curriculum Guide, the RPS at Makassar State University substantially meets seven indicators, encompassing the dimensions of graduate learning outcomes, integration with graduate needs, and integration of social and

environmental values in learning. However, its relationship to the independent learning and independent campus policy and digital transformation issues is not yet explicitly outlined. Therefore, the level of conformity is 70%, requiring further strengthening in the contextual dimension and digital based learning.

The curriculum for the entrepreneurship geography education course at Yogyakarta State University has reached 70%. Competency formulation includes the ability to manage regional potential, collaborate, and conduct business observations and training. The curriculum demonstrates alignment with the graduate profile needed by society, although the structural interconnectedness in the learning documents remains incomplete. This provides room for further strengthening in terms of assessment and mapping of study materials.

Based on an evaluation of the 2024 Higher Education Curriculum Guidelines, the Entrepreneurship semester learning plan at Semarang State University meets 8 of the 10 GLO indicators is relevance to the KKNI, the dimensions of attitude, knowledge, skills, relevance of graduate profiles, integration of vision and mission, alignment with strategic issues, mapping of GLOs and study materials, alignment with similar curricula, and connections to independent learning and independent campuses (MBKM). However, an explicit assessment rubric is not yet available, and reinforcement in the context of Industry 4.0 and Society 5.0 is still limited. Therefore, the actual level of conformity to the national curriculum guidelines was recorded at 80%, necessitating the strengthening of learning assessment aspects and the actualization of the digital transformation context (Brēmane, 2021; Kusmawan, 2024).

Meanwhile, based on an evaluation of the ten GLO indicators, the Entrepreneurship semester learning plan at Padang State University meets nine indicators, including linkage to the KKNI, integration of learning dimensions, alignment with graduate profiles and academic disciplines, alignment with strategic issues, relevance of study materials, and integration with digital and sustainability contexts. However, an explicit linkage with the independent learning and independent campus policy has not been reflected in the document. Therefore, the actual level of alignment with national indicators was recorded at 90%, necessitating strengthening explicit integration with the Independent Learning framework.

The entrepreneurship curriculum in geography education at Amikom University Yogyakarta, demonstrates strong structural integration of digital competency and geospatial technology based innovation. Based on an analysis of the ten GLO indicators, the Entrepreneurship semester learning plan at Amikom University Yogyakarta substantially meets eight indicators: the linkage of GLOs to the KKNI, the integration of learning outcome dimensions, alignment with graduate profiles, alignment with strategic issues, measurability of the learning process, suitability of study materials, alignment with similar curricula, and relevance to the digital and technological context. However, there is no explicit integration with the study program's vision and mission and the independent learning policy of an independent campus. Therefore, the actual level of conformity with the national graduate learning outcome indicators was recorded at 80%, necessitating the strengthening of the integration of the study program's vision and mission and the independent learning policy of an independent campus.

Based on an evaluation of the 2024 Higher Education Curriculum Guidelines, the University of Jember's semester learning plan reflects the fulfillment of 8 of the 10 GLO indicators: integration of attitudes, knowledge, skills, relevance to the KKNI, and local orientation. However, aspects of independent learning, independent campus, institutional vision integration, and technology integration are not explicitly described. Learning activities include project based learning and case studies in mapping services, visual design, and geospatial based social media learning. This structure represents alignment between the pedagogical approach and the practical needs of adaptive and creative geography graduates. Therefore, the alignment with the GLO indicators was recorded at 80%, necessitating strengthening alignment with national policies and technology actualization (Hashim et al., 2022).

The structure of the entrepreneurship curriculum for geography education at Lambung Mangkurat University demonstrates the integration of graduate learning outcomes with the graduate profile and regional needs. The dimensions of knowledge, attitudes, and skills have been integrated, although not yet fully systematically mapped out in the study materials. Of the ten GLO indicators, eight have been met. However, aspects of independent learning, independent campus, and national strategic issues have not been explicitly outlined. The alignment rate was recorded at 80%. Strengthening the integration of the vision, independent learning, independent campus policies, and national strategic issues is needed, as well as reflecting an outcomes based approach.

The geoedupreneurship curriculum document at Sultan Syarif Kasim State Islamic University, Riau, demonstrates a strategic orientation toward sustainability issues and emphasizes the development of an entrepreneurial spirit based on Islamic values and local wisdom. Based on an analysis of the ten GLO indicators, the Entrepreneurship semester learning plan at Sultan Syarif Kasim State Islamic University, Riau, substantially meets eight indicators is the link between GLOs and the KKNI, the integration of learning outcome dimensions, alignment with graduate profiles, alignment with strategic issues, measurability of graduate learning outcomes relative to study materials, linkages with similar curricula, local contextualization, and a reflective learning approach. However, there is no explicit integration of the Merdeka Belajar Kampus Merdeka policy and the study program's vision and mission. Therefore, the actual level of conformity to the national graduate learning outcome guidelines is recorded at 80%. Therefore, strengthening the integration of national guidelines and integration with scientific knowledge is necessary (Cui, 2021).

Based on an evaluation of the 2024 Higher Education Curriculum Guidelines, the semester learning plan at the University of Muhammadiyah Mataram reflects the fulfillment of 7 of the 10 GLO indicators is relevance to the KKNI, dimensional integration, graduate character orientation, social alignment, assessment measurability, the relationship between GLOs and study materials, and collaborative learning strategies. However, indicators related to similar curricula, the independent learning and independent campus policy, and digital issues are not yet clearly defined. Therefore, the valid conformity rate was recorded at 70%, necessitating the strengthening of the contextual dimension and national policy. The knowledge and skills dimension has been formulated in an applicable manner through a project based assignment approach and the

development of a business proposal. The curriculum structure has accommodated contextual integration and independent learning principles, although integration with digital technology issues is still limited (Alenezi et al., 2023; Sitaridis & Kitsios, 2024).

If the entire document is examined synthetically, it appears that most of the geoedupreneurship curricula in various Geography Education study programs in Indonesia have generally demonstrated an institutional commitment to integrating aspects of geography education based entrepreneurship into the core competencies of graduates.

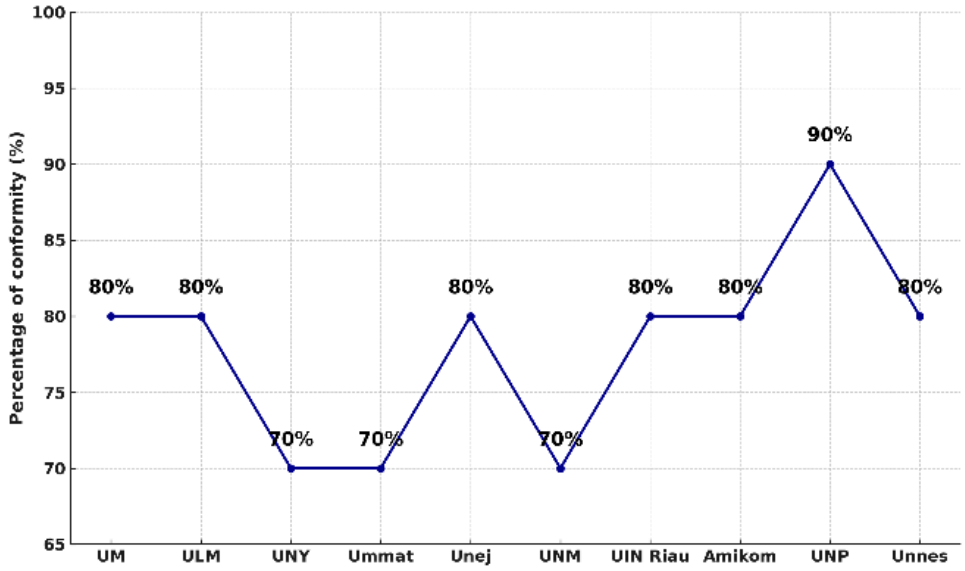

Figure 6. Diagram of the Analysis of the Suitability of the Geoedupreneurship Curriculum to the Learning Achievements of Graduates

An analysis of GLO alignment (Figure 6) reveals an average conformity level of 78% across the study programs. This figure, while reflecting relatively good institutional performance in structural design, indicates persistent gaps in systematic integration and evaluation documentation. For instance, while Padang State University (UNP) achieved the highest alignment (90%), it still requires the explicit incorporation of MBKM linkage. Conversely, Makassar State University (UNM), Yogyakarta State University (UNY), and University of Muhammadiyah Mataram (Ummat) all registered lower compliance (70%) due to critical omissions in integrating national policy (MBKM), digital transformation issues, and explicit assessment rubrics.

The general trend suggests that while most curricula demonstrate a commitment to integrating geographic entrepreneurship into core graduate competencies, a deeper analytical exploration is needed to understand the inhibiting factors that prevent a 100% alignment across all indicators. This includes investigating the role of national policy dissemination and the availability of specialized pedagogical resources in shaping the significant variations observed, which span from 70% to 90% alignment.

Based on this outlined analysis, the continuous refinement of the geoedupreneurship curriculum is urgently required. This refinement must utilize a systemic alignment mechanism to ensure that every learning element substantially contributes to the development of adaptive,

solution oriented, and visionary graduate profiles. Furthermore, future research is strongly recommended to focus on two key areas: first, the development of contextual digital learning materials that explicitly integrate entrepreneurship concepts with local geographical issues, thereby making learning more applicable to regional dynamics (Maghfiroh et al., 2024); and second, longitudinal mapping of the effectiveness of learning implementation, specifically emphasizing the achievement of graduate profiles, to gain a comprehensive understanding of the curriculum's contribution to student readiness for contemporary socio economic realities. This two pronged approach serves not only as a measurement tool for learning effectiveness but also as a mechanism for strengthening the curriculum, ensuring the entire learning process is consistent with national policy directions and cultivates graduate competencies that are adaptive to developmental dynamics based on regional characteristics.

4 Conclusion

This study confirms that the conceptual framework of geoedupreneurship is structurally established within Indonesian higher education, aligning with national mandates for curriculum outcomes. The document analysis revealed a high average conformity of 81.43% in course learning plans and 78% in Graduate Learning Outcomes (GLOs) across participating institutions, demonstrating a consistent and relevant design. Furthermore, findings from the implementation case study at the State University of Malang affirmed that the utilization of a project based approach and micro e-learning effectively supports the cognitive, affective, and psychomotor domains. However, a critical fidelity gap emerged at the student level: implementation data indicated that 45.2% of students struggled to conceptually link entrepreneurial theory with contextual geographic phenomena, and 54.8% expressed a critical need for more contextual digital learning materials. These findings underscore that while structural curriculum compliance is high, pedagogical adaptation remains a key bottleneck that must be addressed to achieve full alignment between planning documents and desired graduate competencies. Overall, geoedupreneurship practices show great potential to foster innovative and adaptive geographic entrepreneurship graduates.

Despite the robust analysis of archival curriculum data, the scope of this study is inherently limited by its methodology. The primary constraint lies in the reliance on static document analysis combined with a single site case study for observing classroom implementation fidelity. The present research, therefore, does not provide a longitudinal assessment of post graduate career outcomes or a multi institutional comparative analysis of learning methodologies, which constrains the full generalizability of pedagogical effectiveness across the entire sample of universities surveyed. This structural limitation should be considered when interpreting the implementation gaps discussed.

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