

WHAT ARE THE UNDERPINNING PREFERENCES OF THE PRACTICAL APPROACH TO DEVELOPING ENVIRONMENTAL GEOGRAPHY REFERENCE BOOKS IN UNIVERSITY?

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ABSTRACT

The need to analyse environmental geography reference books in tertiary institutions sets the stepping stones for the book writer's consideration. Students' needs are essential in investigating the initial key stages of developing a new reference book. This study aimed to analyse the needs of content preferences, geography skills, and design formats of Environmental Geography reference books. It employed a quantitative descriptive method with an online survey through Google Forms. Using the snowball technique, the research subjects were students enrolled in Environmental Geography courses in Indonesia during the odd semester in 2022. Data were analysed descriptively. The findings indicated that Environmental Geography knowledge, geography skills, and design were key requirements for developing reference books. The students were primarily concerned with content-based and geography skills in environmental geography, not with lectures. The development of digital technology has no impact on students because of the prevalence of printed versions of reference books. Implications of the results were the key to integrating content, skills, geography, and design in creating learning resource products in Indonesia.

Keywords: *Content; Design; Environmental Geography; Skills; Reference Book*

INTRODUCTION

Writing an environmental geography reference book poses challenges in research and development. Identifying key needs and problems is essential to determining the right solutions. Book authors need to identify specific content, skills, and design specifications. This study collected descriptive data about content understanding, geography skills,

and basic book design for writing environmental geography reference books. Practical knowledge and key skills play critical parts in designing reference book models. The need for preliminary studies shapes the perceptions guiding the development of geography textbooks (Lee & Catling, 2016). Furthermore, developing

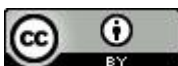


environmental geography reference books generally delves into motivation, assessment, and lesson learning in tertiary institutions.

The materials for writing environmental geography reference books emphasise the interaction between nature and humans. Understanding this interaction is influential in developing knowledge and writing reference books. The study of environmental geography denotes the core of the geographical discipline, the spatial relations between nature and humans. The spatial and temporal framework is the timeline hierarchy of human-environment interactions (Larsen & Harrington, 2021). Specific knowledge of geography and skills determine the objective approach to book design (Lee & Catling, 2016). It is necessary to scrutinise the substance in a reference book according to the convention of the geography association, and knowledge development demonstrates the strength of literacy in environmental geography. Assessing emerging and old books emphasises geographic knowledge, spatial thinking, taxonomy, design, and book standard (Yang, 2013). The high quality of book content plays a role in instruction and research activities (Platt, 2018). How

core substances are presented in a book indicates the quality of information and the author's lines of thought presented to readers.

Environmental geography reference books must point out theories and geography skills and their application. These theories and applications form the representation of geographic knowledge and action. Spatial perspectives to date remain under-explored in geography reference books when environmental change and disasters are under the spotlight (Ridha et al., 2019a). Strengthening geography skills impacts the effective and efficient construction of geographic knowledge. The presentation of book contents helps develop students' spatial thinking skills through questions and answers (Jo & Bednarz, 2011). Equally important is that the substantive insights into the relationship between humans and the environment call forth the application of spatial skills. Environmental geography offers a range of theories, approaches, investigation methods, and substantive insights connecting humans and the environment. The research results of environmental geography reference books pave the pedagogical designs in presenting



knowledge, content, and spatial thinking (Mili & Winch, 2019).

The format of the environmental geography reference book determines its use in learning or research. Factual knowledge and fundamental concepts serve as the core substance of the book's content. The geographic investigations in the reference book aid in extending the understanding of ideas through further research (Jitendra et al., 2001). Engaging presentations are the key to making ideas and information explicit to readers or students. The book design reflects the author's perception of how materials can be effectively presented (Sikorov, 2021; Simon & Budke, 2020). Learning resources lay the basics for learning or research at the undergraduate level, and instructional design also determines learning references. In developing these references, educational psychology and visual communication help identify the appropriate information, characters, content, disciplines, understanding, topics, images, aesthetics, and decent layout presentation of book design (Behnke, 2021).

Book authors' skills to explore and design a book format model must match students' or readers' needs. Analysing design characteristics is a step for

developing the right format based on students' needs. The design of environmental geography books is generally evaluated in terms of language, content, and format presentation. Reference books may comply with the inductive or deductive approaches to physical and environmental geography studies (Day, 2017). Exploring the development of reference books for university academics and key geography associations aids in curriculum investments for developing the substance of environmental geography content (Hill & Jones, 2010), while also adding to understanding the quality of a reference book.

Based on the authors' expertise, data from environmental books registered in Indonesia's national library include as many as three products. The results of the book do not meet the standards of the branch of science that provides upstream and downstream environmental geography knowledge. The understanding of the temporal relationship between human and environmental interactions has not been widely studied in reference books in Indonesia. Research (Al-Nofli, 2010; Mellawen et al., 2024) suggests that students' perceptions of geography



content provide an active perspective on lifelong learning situations. Pedagogical geographic literacy and content knowledge to develop students' spatial mentality in viewing world phenomena with a book (Kurniawan et al., 2024; Parker et al., 2018).

A reference aims to build students' theoretical concepts and skills to engage in learning or research at the undergraduate level actively. The present study investigates the development of an environmental geography reference book through a practical approach to student needs. This inquiry on key reference books and Geography learning objectives and content assists in developing geographic knowledge (Morgan, 2002). The expertise in scaffolding the reflection of selecting, integrating, and applying skills associated with geographic knowledge is evident in writing geography reference books (Lee & Catling, 2016; Maude, 2020). The knowledge or skills embedded in a reference book affect students' visual and textual responses. Knowledge connects concepts and concrete facts from important information, constituting a series of geographic facts (Béneker & van der Vaart, 2020). The philosophy of

geocapability drives the strength of geographic knowledge in the reference book (Huckle, 2019). Student understanding connects theory, application, and higher-order thinking skills (Hooghuis et al., 2014). A reference book psychologically impacts students' cognitive processes in learning or research. The studies reported in this research focus on students' priority considerations and preferences for the reference book's content, geography skills, and design. The research results serve as the basis for developing environmental geography reference books.

MATERIALS AND METHODS

This quantitative research collected data using a questionnaire distributed online, given the advancement of technology (Fowler, 2014). The function identification problems and needs in the field determine the direction for developing student learning resource products. Dealing with needs analysis for book review as a part of the curriculum (Okeeffe, 2013), the research was carried out in September, October, November, and December 2022. The technique used was snowball sampling, taking into account the environmental



geography course programmed by the student at the university. The criteria sample recruited students enrolled in environmental geography courses in Indonesia in the odd semester of 2022. These courses were distributed in the University of Jember, State University of Malang, State University of Surabaya, Kanjuruhan University, Samudera Langsa University, Lambung Mangkurat University, and State University of Manado. Instrument basics for research need analysis, developing reference books used model (Behnke, 2021; Lee & Catling, 2017), focus on content material, skill geography, and design with a Likert scale. The survey was distributed online to make efficient data collection from multiple distant sites while allowing the respondents' uniqueness, needs, and privacy to remain confidential (Vasanth & Harinarayana, 2016). This aimed to comply with the principles of communication-based research (Saleh & Bista, 2017). Experts in instructional design validated the survey, which collected 429 valid responses. It involved inquiries concerning the need for environmental geography learning resources based on tertiary institutions' learning processes and contexts. Needs analysis of

reference books with particular research subjects lays the basis for didactic communication and aids (Kučerová et al., 2018; Sidorov, 2009). The data collection and analysis were grounded in the needs of environmental geography books regarding content, geography skills, and conceptual models. The data were descriptively analysed from an online survey. The analysis results will guide future examination of relevant topics and the development of reference books in environmental geography (Lee & Catling, 2017).

RESULTS AND DISCUSSION

This research explored the basic need for a practical approach to developing environmental geography reference books by deploying needs analysis of content, geography skills, and book design as voiced by students' preferences. The need analysis results aided the development of a new environmental geography reference book. The involvement of students as respondents allowed the portrayal of accurate preferences for reference books as they were actual readers. The development of the environmental geography reference book also considered the instructional instruments,



learning resources, and targeted competencies in the courses involved. Learning resources, content, skills, and design were significant determinants of student psychological well-being. These dimensions shaped the requirement and assessment of a reference book. The analysis results are presented below.

1. The Content of Environmental Geography References

Key materials in a reference book represented the presentation of

environmental geography content. One of the challenges in presenting explicit explanations was how to address contemporary issues as the basis for developing content. As such, authors need to develop the skills to explain geographic information explicitly. Geography learning goals and content were essential elements of the Environmental Geography reference book. The standard contents of environmental geography references, as authors' primary considerations, are shown in **Figure 1**.

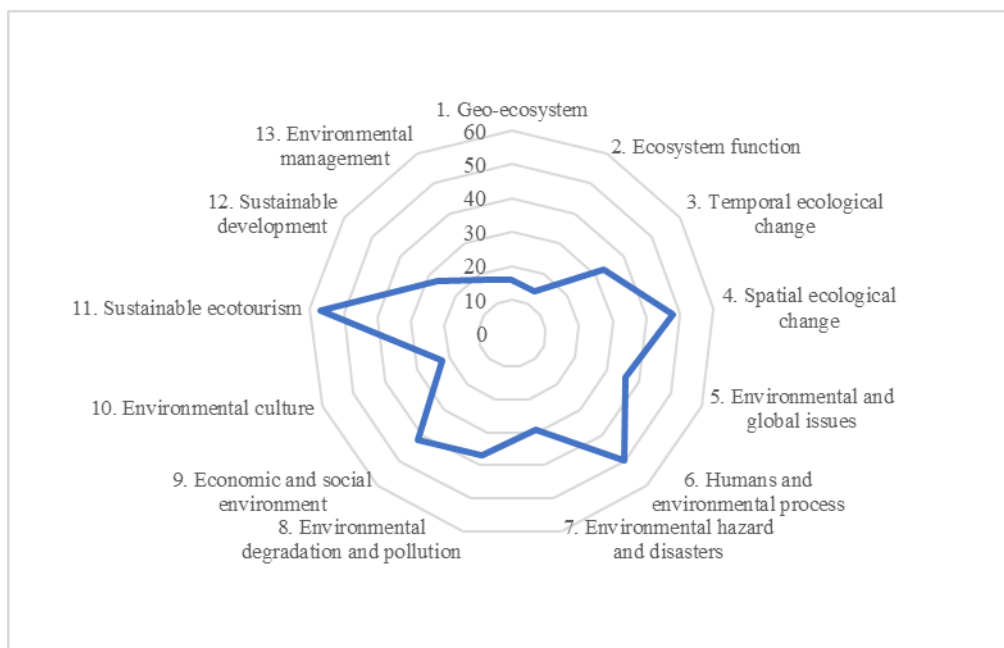


Figure 1. The Content of the Environmental Geography Reference Book

The contents in a reference book must be presented clearly, which subsequently requires the sequence of contents following the scope of environmental

geography while adhering to regional and global issues. For instance, improving human welfare and social equity, reducing environmental risks,

and nullifying ecological gaps are key to sustainable development in ecotourism (Sumarmi et al., 2022). Book content needs to engage an explanatory perspective to meet the evolving demands of environmental geography. Theoretical discussions and associated applications remain prevalent and essential for strengthening students' ecological literacy. Raising environmental awareness is the key to decent environmental management (Handoyo et al., 2021), and making these contents explicit in the book helps to

strengthen students' knowledge and theoretical understanding as important drivers to their engagement in learning and research. **Figure 2** shows the required contents in the environmental geography reference book from students' and researchers' perspectives. Authors must learn to perceive and embrace these perspectives when presenting knowledge and skills, especially with visuals and relevant exemplification. Equally crucial is that book authors must consider the environmental geography knowledge characteristics.

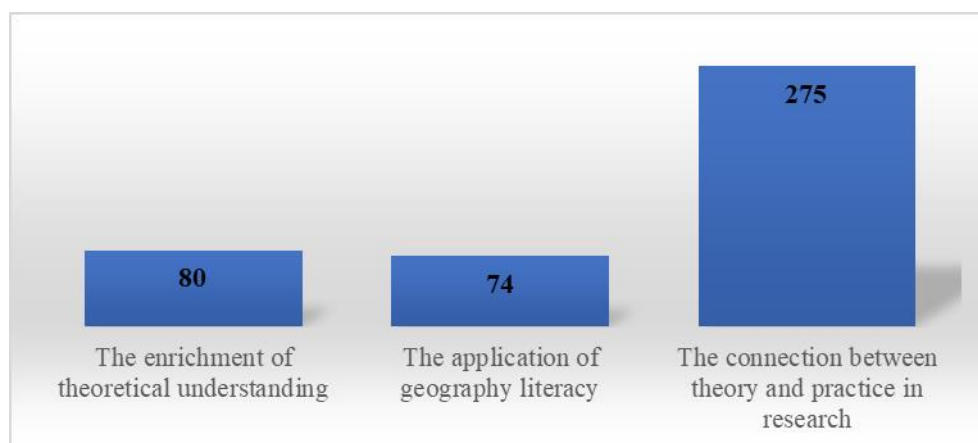


Figure 2. The Need for an Environmental Geography Reference Book

The book's content portrays the environmental geography theories and skills included. The relationship between theory and practice will strengthen students' ecological understanding. Studying human and environmental relations is an inherent part of the geographical approach. A basic spatial

ecological approach can help pave the way for developing environmental geography books (Handoyo & Sukanto, 2019). The presentation of texts and images will help the readers' meaning-making process. Notwithstanding, it is also crucial to ensure that the content is

accountable academically and scientifically.

2. Geographic Skills

Reference books must demonstrate the geography skills that students or readers aim for. Spatial thinking, spatial analysis, and the application of geography are the basis for strengthening material in research and helping build

higher-order thinking skills. Scientific thinking with general and specific applications coupled with textual and visual details builds the reader's comprehension, thoughts, and actions in response to geographic phenomena. The required skills in this regard refer to the spatial, environmental, and regional approaches, as shown in **Figure 3**.

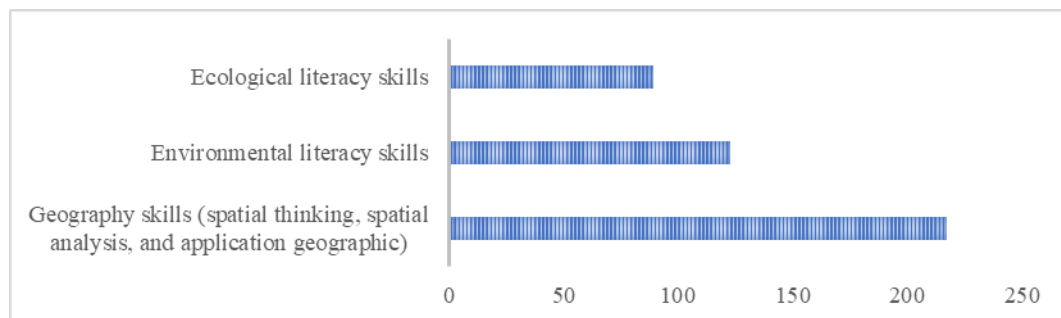


Figure 3. The Hierarchy of Skills in Environmental Geography Reference Book

Geography skills aid in studying geosphere phenomena for environmental geography. Analysing the basics of geocapability requires an understanding of theory and its applications. In addition, the reference book needs to integrate spatial concepts as the springboard for higher-order thinking skills (Ridha et al., 2019b). Geocapability determines the extent to which an individual can interact sustainably with the environment.

Geography skills enable a caring and responsible attitude toward environmental problems in life. Environmental attitudes and geography skills are important for university students to maintain sustainable development (Sumarmi et al., 2022), as they explore samples and cases from real life.

3. The Design of Environmental Geography Reference Book

The environmental geography reference book design emphasises the presentation of content and skills, which are determined and sequenced in compliance with the actual relationship between humans and the environment. This is

where careful analysis matters to locate and present data, facts, cases, pictures, and maps with descriptions according to the scope of environmental geography.

Figure 4 shows the types of reference books of interest to undergraduate students.

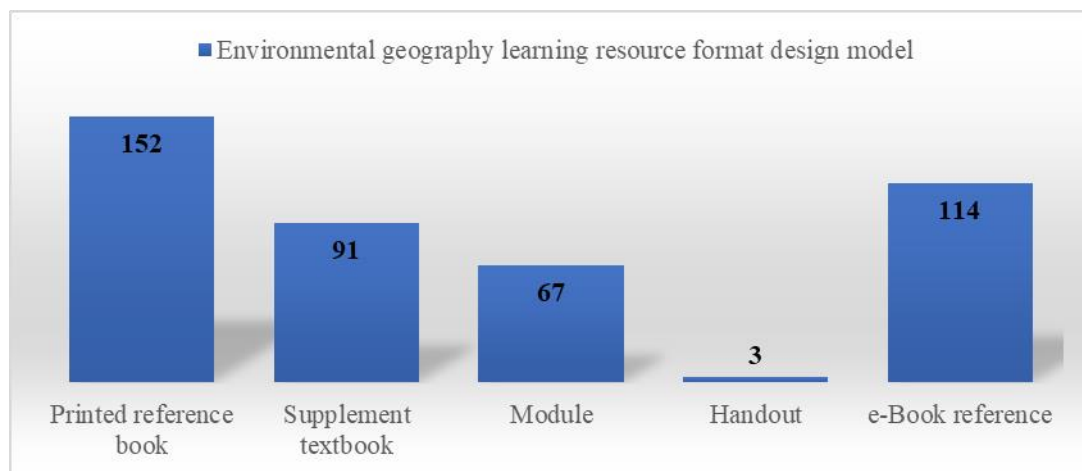


Figure 4. The Types of Environmental Geography Reference Book

Book design poses psychological bearings on students' interest and literacy in tertiary institutions since the book may constitute a conceptual framework for needs analysis. The book design must present images, photos, data, and maps, potentially activating psychological elements relevant to students' learning environment (Purwanto et al., 2015). These elements help define and develop effective and useful reference books, empowering students' literacy culture. In this study, the book design is based on

the analysis results of learning resources recommended by the participating lecturers. The attractiveness of the design model must pay attention to the standard content in environmental geography. The reference design also aids in achieving quality learning at tertiary education in Indonesia at present and in the future.

Research data retrieved through practical approach were collected to find problems and solutions for developing reference books. The content-centred

analysis emphasises accurate content, skills, and design. Key ideas provide the guiding perspectives and information to develop environmental geography reference books that comply with 21st-century learning and integrate spatial, environmental, and regional approaches (Aksa & Handoyo, 2019). Students' needs provide many critical insights as a fundamental feature of developing a reference book. The analysis frameworks on required books are pivotal to identifying and developing geography-related skills (Simon et al., 2020). Studies in reference books examine the contents, geography skills, and expected design according to the dynamics of environmental geography learning at tertiary education.

Needs analysis aids in selecting environmental geography books, as shown by authors' voices. Meticulous identification of content, skills, and designs benefits students in multiple aspects. The information on environmental geography needs to be described explicitly. Data, content, facts, and cases allow knowledge co-construction. The content quality and key skills are essential in creating a new reference book. By implication, a consistent update of environmental

geography information, such as regional and global phenomena, is extremely important in building students' skills. Presentation of the latest material must be considered.

The findings demonstrate that the content of the environmental geography reference books has not encompassed the required scope and depth. This is due to the absence of cases, facts, data, and reports on the development of science relevant to students' lives. The content determines the generalisation of human-environment interaction as exemplified by real life (Dove, 2012; Rey-Goyeneche & Alexander, 2021). Content presentation not only scaffolds student knowledge in lectures but also empowers their skills in research. To preempt irrelevant or incomplete disciplinary content, book authors must consider the existing curriculum and consented standard based on national and international geography associations to address the lack of in-depth concepts or exemplification (Lee & Catling, 2017). Geography knowledge must show many examples of small-scale place-based cases using appropriate language and terminology. Accurate illustration of contents will build theoretical understanding and direct students'



actions and skills according to geography knowledge derived from five indicators, i.e., concepts, explanations, typology of geographic knowledge, vocabulary, and language (Lambert, 2011).

It is important to underscore the emerging environmental phenomena driven by human actions that can impact the environment, economics, society, and politics. One example is that sustainable ecotourism and sustainable development are underrepresented in the published books, despite their significant roles in addressing current issues. The scope of environmental geography provides an authentic context for students' engagement in problem-solving (Reinfried et al., 2015; Schubert, 2015). The updates of reference books are 20% influenced by researchers' propositions, while 80% is driven by the resultant implementation of research findings (Stigler et al., 2020). The representation of content needs to substantiate the core materials of environmental geography. The development of reference books extends content representation from 2% to 33% (Lawhon & Le Roux, 2019). The application of geocapability (understanding of geographic knowledge

for life in the Anthropocene era) involves various disciplines, including environmental geography (Mitchell, 2022). The actualisation of specific and in-depth material can provide a clue about content quality. This quality, however, needs to be in harmony with how the book is used by considering the development of geographic perspectives, knowledge, skills, and attitudes to understand real-life phenomena (Lee et al., 2021).

Strengthening geography knowledge and skills underscores the environmental geography philosophy's values that link theory and research. The balance between the two will provide valuable insight to students and assist them in drawing concrete examples of the relationship between theory and research. Book models that make theory and skills more accurate, eliminate conceptual changes for students (Reinfried et al., 2015). Proper content presentation strengthens geographic thinking skills, environmental literacy, and ecological literacy through student-led research. The relationship between content and geographic thinking skills can provide an apt reference point for students' attitudes and actions (Cox et al., 2019). Spatial education expands



individual experiences for learning and applying geography concepts (Bednarz & Lee, 2019), concomitantly developing positive attitudes toward the environment and ecological literacy. Actions driven by deep ecological literacy are fundamental to forming a strategy for sustainable environmental conservation (Sumarmi et al., 2020).

Building experience by strengthening geography skills builds a well-rounded perspective on phenomena in environmental geography. Examples, cases, facts, and geographic phenomena affect the construction of students' thinking processes as they encounter theory and action in everyday environmental dynamics and disasters resulting from human activities. Thinking through geographic spectacles aims to prepare the younger generation to develop knowledge about disasters (Ridha et al., 2021). In reality, geography skills and knowledge influence individual and community actions in sustainably managing the environment. Community actions positively impact nature as marked by the development of sustainable ecotourism, a concrete application of geographic skills (Sumarmi et al., 2022).

Furthermore, geographic skills influence students' knowledge and career paths as they focus on caring for environmental dynamics. The key challenge is the urgency to strengthen skills in maintaining a decent interaction between humans and the environment. Geography application skills support career opportunities by strengthening knowledge, skills, research, and strategies to expand access to respond to global economic influences (Solem et al., 2013).

A clear focus on current environmental dynamics characterises quality environmental geography reference books. To achieve this quality, expertise in environmental geography and the ability to address current technological advancements are called upon. The core criteria for developing a quality reference book are the clarity of subject content, skills, focus, and product relevance to students. The challenges of determining decent book design deal with identifying appropriate letters, graphics, maps, and layouts that are attractive to readers. Students emphasised the value of having printed books to support their learning.

The printed reference book suits students' needs better than the digital



version. The analysis of reference book design is highly dependent on the discipline (D'Antoni et al., 2009). Students think that accountable sources of information are important to avoid misconceptions. The information in the reference book influences students' motivation and psychological well-being. These properties are essential to developing the student's academic culture, literacy culture, scientific culture, and scientific honesty in tertiary institutions.

Furthermore, the curriculum in geography education and reference books is one of the underpinning components for amplifying students' academic honesty (Rey-Goyeneche & Alexander, 2021). The quality of developing and designing the reference book format has direct implications for students. Presentation of text with factual knowledge and concepts will guide theory and its application, reflecting the scope of the environmental geography discipline model. The author's expertise in designing a reference book format directly impacts students. Text presentation with factual knowledge and concepts will direct theory and the application of geography skills, reflecting the author's perception

of the environmental geography reference book. Reference books are believed to provide avenues for researchers, academics, and students to solve educational problems (Stigler et al., 2020).

CONCLUSIONS

This study explored the core elements of reference books, inter alia, content, geography skills, and design as the bedrock of the development of reference books. The need for relevant books is influenced by the geography education study program curriculum while ensuring sustained relevance to the learning dynamics. Geographic knowledge and skills are important in designing an environmental geography reference book. The contextual content and approach to developing printed reference books stimulate student literacy. A practical and systematic approach to exploring the features of an environmental geography reference book helps to strengthen students' geocapability. Spatial thinking, spatial analysis, and the application of geographic concepts enable the contextualization of cases with informative presentations. In developing a proper reference book, authors need to



ponder expertise, motivation, knowledge, development style and approach, and content and practice of geography skills. As a preliminary study, this research has surfaced key issues in developing informative and interesting books for students or readers. The evolving trends in geography instruction are acknowledged to encourage the development of environmental geography reference books. The limitations of this study focus on the perception of student perspective resource learning and require an in-depth exploration of lecturers with expertise in environmental geography at universities in Indonesia. A recommendation for future research is to delve into the book content, geography skills, and design of environmental geography books in Indonesia.

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