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SCIENCE MATERIALS DEVELOPMENT THROUGH ETHNOPHOTOGRAPHY FOR CULTURAL LITERACY

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Abstract

This study aims to develop ethnophotography-based Natural and Social Sciences (IPAS) teaching materials that are valid, practical, and effective in enhancing the cultural literacy of elementary school students. The development process employed a modified Borg & Gall R&D model through stages of needs analysis, data collection, product design, expert validation, revision, limited trials, and effectiveness testing. The research was conducted with teachers and fifth-grade students at Tegal Besar Public Elementary School, East Ogan Komering Ulu Regency. Data were obtained through observations, interviews, questionnaires, and documentation, and analyzed using descriptive quantitative and qualitative methods. The results show that the developed teaching materials achieved a high level of validity with an average expert score of 94.3%. They were also found to be highly practical based on positive responses from teachers and students. Effectiveness testing demonstrated improvement in students' cultural literacy with an N-gain score of 0.82 (high category). The interactive digital format supports student engagement and strengthens understanding of the sociocultural context of their local environment. Therefore, the ethnophotography-based teaching materials are feasible for instructional use and contribute to contextual learning aligned with the Independent Curriculum.

Keywords

Contextual Learning, Cultural Literacy, Elementary School, Ethnophotography, IPAS.

INTRODUCTION

Basic education plays a fundamental role in developing critical thinking, creativity, and character in students. In the context of Indonesian national education, a paradigm shift in the curriculum has become inevitable to address the challenges of globalization and digital transformation in the 21st century. The Independent Curriculum, launched by the Ministry of Education, Culture, Research, and Technology in 2022, is one manifestation of educational reform oriented towards strengthening student competencies, character, and literacy (Windayani & Putra, 2022). This curriculum emphasizes not only academic achievement but also the development of the profile of Pancasila students who are devout, critical thinkers, creative, independent, collaborative, and globally diverse (Lapesigue, 2024). Thus, the direction of education in Indonesia emphasizes contextual, collaborative, and relevant learning to students' real lives.

One of the key innovations in the Independent Curriculum is the merging of Natural Sciences (IPA) and Social Sciences (IPS) into Natural and Social Sciences (IPAS) in grades IV–VI of elementary school. This integration is based on the psychological perspective that elementary school-aged children think holistically, concretely, and integratively, thus deeming separate learning between science and social studies ineffective (Ayanda & Yaw, 2025; Naz & Qureshi, 2024). Through IPA, students are expected to understand natural and social phenomena as an interconnected whole. However, various studies show that the implementation of IPA in the field still faces various challenges. Teachers still tend to teach IPA partially, with the material being informative and rote, and not yet leading to meaningful learning that connects scientific concepts to students' socio-cultural lives (Humayra et al., 2022; Nurabadi et al., 2025). As a result, students' literacy and critical thinking skills have not developed optimally.

One crucial issue in the implementation of the Independent Curriculum is the low level of student literacy in various regions. Based on the results of the 2023 National Assessment (AN), the reading and numeracy skills of elementary school students in various regions of Indonesia are still below the minimum competency level, with less than 50% of students achieving adequate reading literacy. A similar situation was found at Tegal Besar Public Elementary School, East Ogan Komering Ulu Regency, the location of this research. Observations and interviews showed that literacy activities at the school were not yet optimally implemented, still limited to reading activities before the start of lessons, without any integration of cultural values and local contextuality in teaching materials (Prawira et al., 2023)(Lani & Pauzi, 2024). This situation indicates that literacy in

elementary schools has not been oriented towards building students' cultural awareness and local identity.

In this context, cultural literacy is a crucial competency to develop starting in elementary school. Cultural literacy encompasses not only the ability to understand texts and symbols but also the ability to understand, appreciate, and express cultural values as a national identity (Saidah et al., 2025; Tongli et al., 2024). Cultural literacy helps students understand social and cultural diversity, fosters empathy, and strengthens nationalism and the spirit of diversity (Hora et al., 2024). In the era of globalization and digitalization, cultural literacy plays a strategic role as a bulwark against cultural homogenization and the degradation of local values. Therefore, learning that integrates cultural literacy with science and natural sciences material is relevant and urgently needed.

One innovative approach that can be used to foster cultural literacy in science and natural sciences learning is through the development of ethnophotography-based teaching materials. Ethnophotography is an approach that combines ethnographic methods with photography to visually represent culture, social activities, and community life (Mulyono et al., 2024; Jufrida et al., 2024). In the context of learning, ethnophotography is not merely visual documentation, but also a means of reflection and analysis on the cultural meanings contained within photographs. Through ethnophotography, students can observe, interpret, and understand local cultural values in a more concrete and engaging way. This approach also aligns with the characteristics of elementary school students, who more easily grasp concepts through visual media and direct experience.

Etnophotography serves as a learning medium that can bring the socio-cultural context of local communities to life in the classroom. Photographs of economic activities, customs, and local wisdom of the East Ogan Komering Ulu community, for example, can serve as learning resources that enrich students' understanding of science topics such as "My Region, My Pride" and "Economic Activities Around Me." Through ethnophotography-based learning, students not only learn about the types of economic enterprises in the community but also understand the values of mutual cooperation, hard work, and creativity inherent in local economic activities. Thus, ethnophotography-based teaching materials can serve as a vehicle for character education and strengthen the Pancasila student profile.

Empirically, previous research has shown that the development of ethnophotography-based teaching materials has proven effective in improving students' learning outcomes, motivation, and cultural literacy. Etnophotography-based social studies teaching materials at the junior high school

level were able to increase student engagement and learning outcomes in a good category (Rais et al., 2023; Mansur & Amrin, 2023). The use of ethnophotography-based teaching materials of historical objects improved students' understanding of local cultural heritage with an average increase in learning outcomes of 0.43 points (moderate category) (Yulista et al., 2023; Purnamasari, 2023). Teaching materials based on regional potential are very important in supporting contextual learning and strengthening local cultural identity (Jayadi et al., 2024). However, most of these studies still use conventional print formats and have not optimally integrated digital technology. This is an important research gap to be filled by developing ethnophotography-based teaching materials in digital format using interactive platforms such as Canva.

Based on a needs analysis conducted at Tegal Besar Public Elementary School, teachers and students expressed a strong need for more engaging, contextual, and visual-based science and science teaching materials. 100% of student respondents stated that they preferred teaching materials containing images and were more interested if the material was related to their hometowns (Nurvitasari et al., 2025; DS et al., 2024). Furthermore, teachers acknowledged that they had never developed teaching materials that utilized local wisdom as a learning resource. This indicates a gap between the abundant local cultural potential of East Ogan Komering Ulu Regency and teaching practices in elementary schools, which still rely on national thematic textbooks. This region, however, boasts rich cultural and economic resources, including agriculture, plantations, trade, and crafts, which can provide authentic learning resources for students (Setiyowati et al., 2024).

Developing ethnophotography-based science and science teaching materials is an innovative solution to bridge this gap. Through the integration of local cultural visualizations, this teaching material not only presents science concepts scientifically but also brings to life meaningful learning experiences for students. The use of digital technologies such as Canva provides the opportunity to create interactive, engaging, and accessible teaching materials. This allows students to actively engage in learning, build connections between scientific knowledge and cultural realities, and develop comprehensive cultural literacy skills.

Theoretically, this research is significant in developing an integrative learning paradigm between science, social studies, and culture. Ethnophotography-based science learning aligns with a constructivist approach that positions students as active subjects in constructing knowledge through their experiences and social contexts (Isa et al., 2022; Burwell, 2023). Through ethnographic photographs, students are encouraged to observe, interpret, and reflect on the cultural phenomena

around them. This process fosters critical thinking skills, social empathy, and cultural awareness. These skills are key components of the cultural literacy expected in the Independent Curriculum. Furthermore, the use of ethnophotography also strengthens the principles of differentiated learning because it accommodates visual, kinesthetic, and reflective learning styles.

Practically, the development of these teaching materials is expected to provide teachers with tangible alternatives relevant to the local context. Teachers can utilize ethnophotography-based teaching materials to design project activities, group discussions, and cultural reflections that strengthen the Pancasila-based student profile, particularly critical, creative, and globally diverse thinking. For students, these teaching materials provide a fun, contextual, and meaningful learning experience while fostering a love for their region. More broadly, this research has implications for elementary education in strengthening cultural literacy and preserving local values through innovative digital teaching materials.

Therefore, the urgency of this research lies in the need to develop ethnophotography-based science and education teaching materials that are valid, practical, and effective in improving the cultural literacy of elementary school students. This study seeks to answer three main questions: (1) To what extent are the developed ethnophotography-based science and education teaching materials valid? (2) how practical the teaching materials are in implementing learning; and (3) to what extent the teaching materials are effective in improving students' cultural literacy. Through a development approach with the Borg & Gall model adapted according to needs, this research not only produces teaching materials but also provides a conceptual model for science learning that integrates local culture with visual media and digital technology.

Thus, the development of ethnophotography-based science and science teaching materials is expected to be a breakthrough in contextual learning practices in elementary schools. This innovation not only improves students' cultural literacy but also strengthens the synergy between education, culture, and technology in realizing learning rooted in local wisdom and oriented toward globalization. In the long term, this effort will become part of the national education strategy to develop a generation of Pancasila-based students with character, adaptability, and a strong cultural identity amidst the challenges of the digital era.

METHOD

This study employs a Research and Development (R&D) (Moleong, 2021) approach aimed at producing educational products in the form of ethnophotography-based teaching materials for Natural and Social Sciences that are valid, practical, and effective in improving elementary school students' cultural literacy. The development process adapts the Borg and Gall model, modified to suit the context and characteristics of elementary school learning, and is conducted through nine systematic stages: (1) identification of potential and problems, (2) data collection, (3) product design, (4) design validation, (5) design revision, (6) product trial, (7) product revision, (8) usage trial, and (9) final product refinement (Aka, 2019), as illustrated in Figure 1. This model is selected because it provides a structured and iterative framework that supports empirical testing and continuous improvement, thereby ensuring that the resulting educational product is pedagogically feasible and contextually applicable in real classroom settings.

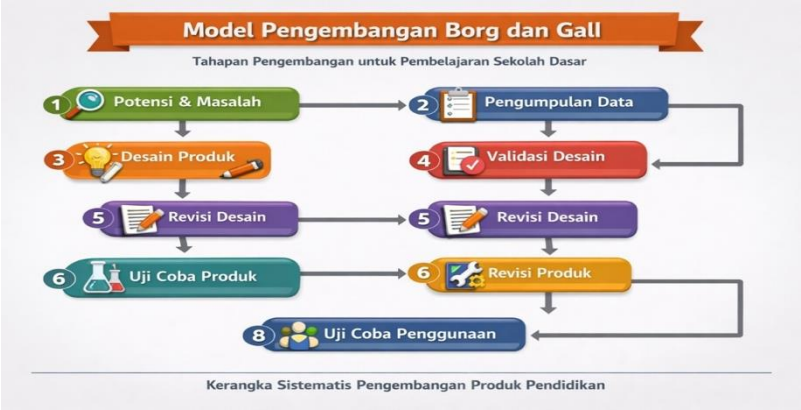

Figure 1. Borg and Gall Development Model Adapted for Primary School Learning Context.

The potential and problems stage was conducted by identifying the needs of teachers and students through observation, interviews, and questionnaires (Sugiyono, 2022), at Tegal Besar Public Elementary School, East Ogan Komering Ulu Regency. The product design phase involved developing teaching materials that integrated ethnographic photographs representing the economic and social activities of local communities in East Ogan Komering Ulu Regency.

The design validation phase involved three experts: a material expert, a media expert, and a language expert. They assessed the suitability of the content, the accuracy of the science and science concepts, the relevance of local culture, and the appropriateness of the digital media's presentation (Laksana, 2024). The assessment was conducted using a validation sheet with a Likert scale, and then the average validity score was calculated to determine the product's suitability. After validation, the product was revised based on expert input to refine the content and visual design

before being piloted with students (Kua et al., 2024).

The product pilot phase was conducted in a limited number of classes (grade 5) at Tegal Besar Public Elementary School to assess the practicality of the teaching materials. Practicality was measured through a questionnaire surveying teacher and student responses regarding ease of use, attractiveness of the presentation, and the usefulness of the teaching materials in science and science learning. The next stage was a field trial to assess the effectiveness of the teaching materials in improving students' cultural literacy. Measurements were conducted using a cultural literacy test instrument before and after use of the teaching materials (pretest-posttest) (Creswell & Poth, 2016). The results were analyzed using the N-gain formula to determine the effectiveness of the teaching materials in improving cultural literacy skills (Maulana et al., 2024).

The data obtained were analyzed descriptively using quantitative and qualitative methods (Ulum & Köksal, 2020). Quantitative analysis was used to assess the validation results, practicality, and effectiveness of the product, while qualitative analysis was used to interpret data from interviews, observations, and respondent responses (Finkbeiner, 2016). The criteria for interpreting the results of the validity, practicality, and effectiveness tests were determined based on the conversion guidelines for values into very valid, valid, moderately valid, and invalid categories. The N-gain data were categorized as high (≥ 0.70), moderate (0.30–0.69), and low (<0.30).

Overall, this research method was designed to produce ethnophotography-based science teaching materials that are not only academically sound but also culturally and pedagogically relevant. Through this R&D approach, the research seeks to address the need for innovative teaching materials that integrate local cultural values, digital technology, and cultural literacy goals in the implementation of the Independent Curriculum in elementary schools.

FINDINGS AND DISCUSSION

Findings

Teaching Materials Development Process (Steps 1 to 3: Potential and Issues, Data Collection, and Product Design)

This research resulted in ethnophotography-based Natural and Social Sciences (IPAS) teaching materials for fifth-grade elementary school students on the topic "My Region, My Pride: Economic Conditions in My Region." The teaching materials development process was based on a modified Borg and Gall model, encompassing nine main stages, namely: (1) potential and problems,

(2) data collection, (3) product design, (4) design validation, (5) design revision, (6) product trial, (7) product revision, (8) usage trial, and (9) final product refinement. This model was chosen because it provides a systematic framework to produce educational products that are empirical and applicable in real classroom contexts.

At the potential and problems stage (Stage 1), the process began with a needs analysis of teachers and students at Tegal Besar Public Elementary School, East Ogan Komering Ulu Regency. Interviews revealed that teachers had never developed their own teaching materials that integrated local wisdom, and that IPAS learning was still conducted using national thematic textbooks that tended to be monotonous. Students also expressed a high interest in teaching materials that featured images and photographs, as well as materials related to their surroundings. These findings indicate a gap between curriculum expectations, especially in contextual and culturally responsive learning, and the actual learning resources used in classrooms.

At the data collection stage (Stage 2), researchers collected supporting data through literature review related to IPAS learning, ethnophotography, and cultural literacy, as well as analysis of the Merdeka Curriculum, specifically the Phase C learning outcomes (CP) for fifth-grade elementary school on the topic *"My Region, My Pride."* This stage ensured that the developed materials were aligned with curriculum standards and theoretically grounded, while also responding to the socio-cultural characteristics of students' environments.

At the product design stage (Stage 3), researchers developed ethnophotography-based teaching materials in the form of interactive digital books using the Canva application. This teaching material contains key components such as:

1. Learning instructions,
2. Learning outcomes and activity objectives,
3. Material descriptions linked to the local socio-economic context,
4. Ethnographic photo documentation showcasing the economic activities of the people of East Ogan Komering Ulu Regency,
5. Cultural reflection activities, and
6. Comprehension exercises and self-assessment.

Each sub-topic is related to cultural literacy values, such as mutual cooperation, responsibility, and love for one's homeland. The product design also follows the principles of Kinanti et al. (2025) in the development of teaching materials, which emphasise systematic structure,

visual appeal, and the integration of learning objectives with content presentation. An example of a teaching material page is shown in Figure 2.

Figure 2. Teaching Material Design based on Ethnophotography

Product Validation Results (Stages 4–5: Design Validation and Design Revision)

The design validation stage (Stage 4) was conducted by three validators, each representing the material, media, and language aspects. A summary of the assessment results is presented in Table 1 below.

Table 1. Results of Expert Validation on The Feasibility of Ethnophotography-Based Science Teaching Materials.

Validation Aspects	Validator	Score (%)	Category
Material	Expert 1	96	Very Valid
	Expert 2	98	Very Valid
Media	Expert 1	96	Very Valid
	Expert 2	95	Very Valid
Language	Expert 1	90	Very Valid
	Expert 2	91	Very Valid
Average	–	**94.3**	**Very Valid**

The assessment results showed that the validity level of the teaching materials reached an average score of 94.3%, falling into the "very valid" category. More specifically:

1. Material experts gave positive assessments of the accuracy of the science and social science content and its relevance to the learning outcomes of the Independent Curriculum.
2. Media experts assessed the visual appearance and interactivity of the teaching materials as highly engaging and appropriate to the characteristics of elementary school students.
3. Linguists assessed the language used as communicative, in accordance with spelling rules, and easy for students to understand.

Based on these validation results, the product entered the design revision stage (Stage 5). Revisions were carried out according to validators' suggestions, particularly in simplifying scientific

terms and clarifying several instructional sentences to better match students' cognitive development levels. After these improvements, the teaching materials were declared suitable to proceed to field testing.

Practicality Test Results (Stages 6–7: Product Testing and Product Revision)

The product trial stage (Stage 6) aimed to determine the practicality of the teaching materials, including ease of use, attractiveness, and usefulness in learning activities. The results of teacher and student responses are presented in Table 2.

Table 2. Results of the Practicality Test of Ethnophotography-Based Science and Science Teaching Materials Based on Teacher and Student Responses.

Respondents	Aspects Assessed	Average Score (%)	Category
Teachers	Ease of use, clarity of instructions, relevance of material	90	Very Practical
Students	Attractiveness of display, understandability of content, ease of independent learning	93.8	Very Practical
Average	–	91.9	Very Practical

The questionnaire results showed that both teachers' and students' responses were categorized as very practical, with an average score of 91.9%. Teachers stated that the teaching materials were easy to use, provided clear guidance, and supported differentiated learning. Students showed high interest in the photographs of local economic activities displayed, as they helped them better understand regional economic concepts in a concrete way.

Teachers also assessed that ethnographic photography-based teaching materials helped to create an active and communicative learning environment. This is in line with the opinion of Merdiaty & Sulistiasih (2024) that learning success depends on the active involvement of students and intrinsic motivation that arises from enjoyable learning experiences.

Based on feedback from this trial, minor technical revisions were implemented at the product revision stage (Stage 7), mainly related to navigation flow and readability of several visual elements, to enhance user comfort during learning activities.

Effectiveness Test Results (Stage 8: Trial Use)

At the usage trial stage (Stage 8), the effectiveness of the teaching materials was tested through pretests and posttests measuring students' cultural literacy skills. The increase in students' average cultural literacy scores is shown in Figure 3.

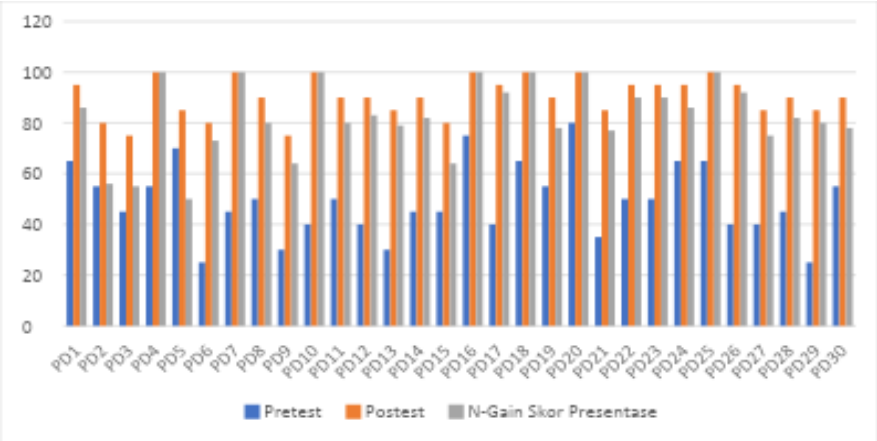

Figure 3. Comparison of Students' Average Cultural Literacy Scores Before and After Using the Teaching Materials.

The results of the score improvement analysis are summarized in Table 3 below.

Table 3. Results of The Effectiveness Test of Ethnophotography-Based Science Teaching Materials on Improving Students' Cultural Literacy.

Test Types	Average Value	Increase (N-gain)	Category
Pretest	49.17	–	–
Posttest	90.50	0.82	High

Based on the analysis, there was an increase in the average score from 49.17 in the pretest to 90.50 in the posttest, with an N-gain of 0.82, which is considered high. This increase indicates that the use of ethnophotography-based science teaching materials is effective in improving students' cultural literacy.

Furthermore, classroom observations showed positive changes in students' attitudes toward appreciating local cultural values, increased participation in class discussions, and improved ability to connect economic concepts to the socio-cultural context of their environment. These qualitative findings strengthen the quantitative results and indicate that the product supports both cognitive and affective learning domains.

Final Product (Stage 9: Final Product Refinement)

The final product refinement stage (Stage 9) was conducted after completing all trials and revisions. The final product is an interactive digital book on IPAS teaching based on ethnophotography in HTML and PDF formats, accessible through an online link. This teaching material features authentic photographs of community activities such as farming, trading, weaving, and crafting. The photos are accompanied by contextual narratives explaining the cultural meaning

and socio-economic values behind each activity.

The teaching material also includes reflective quizzes, self-study guides, and project assignments based on the Pancasila student profile, thereby supporting character education and cultural awareness simultaneously. The final product integrates curriculum alignment, local cultural relevance, interactive media design, and measurable learning outcomes, making it suitable for implementation in elementary school IPAS learning, particularly within the framework of the Merdeka Curriculum.

Discussion

The validity of these teaching materials demonstrates that they meet the principles of content suitability, scientific construction, and presentation of learning media. The results of validation by material experts indicate that the science content in these teaching materials is relevant to the Learning Outcomes (CP) of Phase C of the Independent Curriculum, specifically the theme "Economic Activities in My Region." According to Juliana (2022), good teaching materials must be systematically structured and contain information relevant to students' learning needs. In this context, the developed teaching materials integrate science and social concepts in an integrated manner, in line with the characteristics of science learning, which demands a holistic approach to natural and social phenomena (Bati, 2023; Puspita et al., 2024).

Media validation also indicates that these teaching materials are visually appealing and align with the developmental characteristics of elementary school students who think concretely and visually (Kristin et al., 2024). The authentic presentation of ethnographic photographs helps students understand the relationship between theory and the social reality around them. This supports Fadilah (2023) view that visual media can improve comprehension and retention of information by simultaneously activating visual and affective perception.

Furthermore, the communicative language aspect is a key strength of this product. The language used is tailored to the child's linguistic developmental level, as recommended by Putra & Rezania (2023), who recommend that language in teaching materials should be simple, straightforward, and able to arouse students' curiosity. Therefore, in terms of validity, this teaching material meets the criteria for being suitable for use in science learning based on the Independent Curriculum.

The practicality of teaching materials is measured by their ease of use by teachers and students, as well as their ability to create engaging and interactive learning experiences. Teacher and

student responses indicate that these teaching materials are not only easy to use but also increase student active engagement during the learning process. This supports the principle of active learning, which positions students as the subjects of learning (Hikmawati et al., 2024; Lalian et al., 2022).

Teachers stated that ethnophotography-based teaching materials made it easier for them to connect science concepts to the local cultural context without having to seek additional resources. This approach aligns with the concept of contextual teaching and learning (CTL), which emphasizes the importance of connecting subject matter to real-life situations for more meaningful learning (Fitriani et al., 2023). By displaying photographs of local economic activities, students more easily understand the relationship between science and the social realities of their region.

Furthermore, the practicality of these digital teaching materials is also due to the use of Canva technology, which allows for interactive visual presentation of material. According to Lapesigue (2024)Technology-based learning media designed with interactivity principles can increase learning motivation by providing multisensory experiences. Therefore, these teaching materials are not only technically practical but also support the differentiated learning strategies characteristic of the Independent Curriculum.

Effectiveness testing results showed an increase in students' cultural literacy skills after using ethnophotography-based teaching materials. Cultural literacy encompasses the ability to understand, appreciate, and apply cultural values in everyday life. According to Rahimipour (2021), cultural literacy is a form of life skill that helps individuals adapt and actively participate in a multicultural society. An increase in N-gain of 0.43 indicates that these teaching materials have a moderate but significant impact on strengthening cultural literacy.

Observations showed that students showed greater enthusiasm when learning economic concepts related to community activities around them, such as farming, trading, and making handicrafts. This approach supports Ramadhani et al., (2025) findings that cultural literacy can be enhanced through the integration of local culture into learning, as it provides authentic learning experiences and raises students' awareness of their cultural identity.

Furthermore, the use of ethnophotography has powerful cognitive and affective effects. Photographs of local community activities stimulate students' curiosity and social empathy for their local professions and traditions. According to Wardani et al., (2024)Ethnophotography plays a crucial role in representing cultural values through visual symbols that are easily understood by

students. Thus, the integration of ethnophotography into science learning strengthens the internalization of cultural values in students.

The innovative development of ethnophotography-based science and science teaching materials also makes a significant contribution to the implementation of the Independent Curriculum, particularly in strengthening the Pancasila Student Profile. Through these teaching materials, students not only acquire scientific knowledge but also develop values such as mutual cooperation, critical thinking, and global diversity. Cultural reflection activities within the teaching materials encourage students to assess the socio-economic diversity of their region as a national strength.

This aligns with Erman & Wakhidah (2024) opinion that the primary goal of science and science learning is to equip students with scientific thinking skills, social attitudes, and an appreciation of cultural values in community life. Ethnophotography-based teaching materials successfully connect the cognitive and affective dimensions within a unified learning process, in line with the integrative principles of 21st-century education (Ramadani, 2025).

Furthermore, a local culture-based approach has a long-term impact on student character development. According to Ecca (2025), local wisdom-based learning not only preserves cultural values but also fosters identity awareness and a sense of social responsibility. In this context, the developed teaching materials can serve as a medium for cultural preservation as well as a contextual learning tool relevant to students' social realities.

The results of this study have theoretical and practical implications for the development of teaching materials in elementary schools. Theoretically, this research reinforces the concept that combining an ethnographic visual studies approach with modern learning design can improve cultural literacy and student learning outcomes. Practically, ethnophotography-based teaching materials can serve as a model for developing interactive digital teaching materials that align with the spirit of Freedom to Learn.

Furthermore, the results of this study demonstrate that the integration of technology and culture is not contradictory, but rather complementary. The use of digital platforms like Canva allows teachers to package local wisdom in engaging visual forms that are relevant to today's digital world of students. Thus, ethnophotography-based science learning is not only a pedagogical innovation but also a cultural strategy in elementary education.

CONCLUSION

The development of IPAS teaching materials based on ethnophotography is a valid, practical, and effective innovation in improving the cultural literacy of primary school students. Based on the results of expert validation of content, media, and language, the teaching materials obtained an average validity score of 88.5% in the highly valid category, indicating that the product has met the standards of content, design, and language. The practicality test showed positive responses from teachers and students with an average score of 90.2%, indicating that the teaching materials are easy to use, interesting, and support active learning. Meanwhile, the effectiveness test results showed a significant increase in students' cultural literacy skills with an N-gain value of 0.43 (moderate category). These findings prove that the integration of ethnophotography in teaching materials is able to connect IPAS concepts with real socio-cultural experiences, making learning more contextual, meaningful, and character-oriented.

Substantially, ethnophotography-based IPAS teaching materials not only strengthen students' mastery of scientific knowledge but also foster an appreciation of local cultural values that are part of national identity. The visual and contextual approach through ethnophotography makes the learning process more relevant to students' lives, in line with the spirit of the Merdeka Curriculum and the Pancasila student profile, which emphasises the values of critical thinking, creativity, cooperation, and global diversity. The results of this study also contribute theoretically to the development of local wisdom-based learning and practically to teachers in providing innovative, inclusive, and culturally-rooted digital teaching materials. Thus, ethnophotography-based IPAS teaching materials can be used as an alternative model to strengthen contextual learning in primary schools and as a strategic strategy to foster cultural literacy among the younger generation in the global era.

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