

CURRENT STATUS OF EXPLOITING LOCAL CULTURAL ELEMENTS IN STEAM PROJECTS TO DEVELOP VIETNAMESE COMMUNICATION SKILLS FOR 5-6 YEAR OLD ETHNIC MINORITY CHILDREN IN TUYEN QUANG PROVINCE

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ARTICLE INFO	ABSTRACT
<i>Received:</i> 02/01/2026	Developing Vietnamese communication skills for ethnic minority children is a paramount task to prepare a solid foundation for them before entering first grade. This article analyzes the current status of exploiting local cultural elements in organizing STEAM projects at three kindergartens in ethnic minority areas of Tuyen Quang province. Through a survey of 35 teachers and 10 administrators using questionnaires combined with in-depth interviews, the results indicate that although teachers have a correct perception of the role of integrating local culture (Mean = 3.99), the actual implementation remains very modest (Mean = 3.03), mainly occurring at the "occasionally" level. Elements such as culinary culture and typical festivals are implemented more frequently than historical-cultural relics and folk performances or music. This discrepancy stems from a lack of specialized instructional materials, financial difficulties, and the absence of specific tools to assess communication skills. Based on these findings, the author proposes orientations for capacity building in integrating local culture into STEAM projects to create a practical linguistic environment, helping ethnic minority children confidently communicate in Vietnamese based on their cultural identity.
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<i>Local culture;</i>	
<i>STEAM project;</i>	
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1. INTRODUCTION

Vietnamese communication skills (VCS) play a foundational role in determining the adaptability and academic outcomes of ethnic minority (EM) children when they enter Grade One. For EM children, proficiency in Vietnamese is not merely a tool for communication but also a medium for acquiring knowledge, developing thinking, and integrating into the general education environment.

In the context of early childhood education (ECE) reform, the STEAM education model has demonstrated its advantages by encouraging children to explore, experience, and solve real-world problems. Particularly, when STEAM is closely integrated with the local cultural context (LCC), it creates a learning environment that is familiar, meaningful, and highly practical for EM children. The integration of local cultural elements into STEAM projects not only facilitates children's access to scientific knowledge but also stimulates discussion, interaction, and a natural need to use Vietnamese, thereby enriching their Vietnamese vocabulary.

Tuyen Quang, a mountainous province, is characterized by diverse cultural identities of various ethnic groups such as Tay, Dao, Hmong, and Cao Lan, which constitute a valuable source of learning materials. However, the integration of these cultural values into STEAM projects to develop Vietnamese communication skills remains relatively new and faces several challenges. Therefore, this study focuses on objectively assessing the current situation of exploiting local cultural elements in organizing STEAM projects in preschools in Tuyen Quang province. The findings provide an important scientific basis for proposing pedagogical measures to enhance Vietnamese communication skills for EM children in the current context.

2. RELATED WORKS

The development of communication skills for EM and bilingual children is a central issue in multicultural education. International studies by (Espinosa, 2008) and (Lieberman et al., 2017) have challenged misconceptions about bilingual language development, affirming that early exposure to multiple languages brings significant cognitive and social benefits. Conversations embedded in local cultural contexts help children develop coherent expression (Figueras-Daniel & Li, 2021), (Webb, 2022). In Vietnam, developing Vietnamese communication skills for EM children is considered a strategic task. However, children in mountainous areas often face major barriers in vocabulary and tend to be shy (Giang Thi Gam, 2019). (Nguyen Thi Phuong Thao, 2016) indicated that EM children lack a Vietnamese-speaking environment at home and in the community; Vietnamese is mainly used in classroom settings, leading to limited vocabulary for daily communication. (Kim Thi Hai Yen, 2022) analyzed factors affecting communication skills in mixed-age classrooms, emphasizing teachers' professional competence and the local cultural environment as key variables. A study conducted in Phu Tho (Kim Thi Hai Yen, 2024) revealed that although teachers recognize the importance of Vietnamese communication skills, practical effectiveness remains limited due to a lack of techniques for organizing meaningful interactive activities. STEAM education is considered a modern approach to developing holistic competencies and 21st-century skills (Ng et al., 2022) emphasized the critical role of teachers in designing experiential learning environments. In Vietnam, STEAM implementation has proven effective in enhancing children's discussion and problem-solving skills (Nguyen Thi Hong Loan and Dao Thi Hien, 2022). However, a survey conducted in preschools (Bui et al., 2023) showed that teachers still face significant challenges due to limited interdisciplinary knowledge and insufficient learning materials.

Integrating local culture into STEAM helps bridge cultural gaps and enhances educational relevance for EM children. (Insura & Pimvichai, 2024) and (Matindike & Ramdhany, 2025) argued that using heritage and indigenous knowledge as learning contexts enables children to connect theory with real-life applications. (Peng, 2020) suggested that STEAM projects should be based on

children's natural interests and local cultural contexts. (Nguyễn Thanh Tâm et al, 2022) emphasized that local cultural education should be implemented through heritage-based learning materials. (Bui et al., 2023) initially confirmed that STEAM projects grounded in local culture enhance children's storytelling abilities and multicultural awareness.

Despite these contributions, there remains a significant research gap in investigating the current status of integrating local cultural elements into STEAM projects to develop Vietnamese communication skills for EM children. Most existing studies only provide general evaluations of cultural education or STEAM education separately and have not clarified how teachers in EM areas utilize local culture to create authentic communication environments.

3. PROPOSED METHODOLOGY

The study surveyed 35 preschool teachers and 10 administrators from three preschools in EM areas of Tuyen Quang province: Tri Phu Preschool (MN.01), Son Phu Preschool (MN.02), and Khuon Ha Preschool (MN.03). Schools were selected using purposive sampling to ensure the presence of STEAM activities and a high proportion of EM children.

The study employed a combination of research methods, including questionnaire surveys, in-depth interviews, and mathematical statistical analysis. The questionnaire survey method was used to collect information from preschool teachers regarding the investigated content. Data were collected through an online survey using Google Forms. In addition, in-depth interviews were conducted with preschool teachers and educational administrators to clarify the underlying causes of the current situation and identify the need for professional support in integrating local cultural elements into STEAM projects. Data collection was carried out through questioning, listening, note-taking, audio recording, and subsequent data processing. The data were analyzed using SPSS software (version 20.0) in combination with mathematical formulas to process numerical data and generate tables and charts. A five-point Likert scale was applied to the survey items, with an interval of 0.8 between levels, categorized as follows: Strongly agree/Very frequently ($4.2 \leq M \leq 5.0$); Agree/Frequently ($3.4 \leq M < 4.2$); Neutral/Occasionally ($2.6 \leq M < 3.4$); Disagree/Rarely ($1.8 \leq M < 2.6$); Strongly disagree/Never ($1.0 \leq M < 1.8$).

4. RESEARCH RESULTS

4.1. Key Concepts

- **Local culture**: is defined as the culture of a particular community, ethnic group, or region. It is characterized by cultural identity, distinctiveness, and unique values specific to each locality and ethnic group. Cultural identity represents the most fundamental and general aspects of a culture; all elements within this identity belong to that culture, although not all cultural elements are necessarily part of its core identity (Bui Thi Lam, 2022).

- According to Tran Viet Nhi (2024): a **STEAM project** refers to a sequence of complex learning tasks designed to produce a product that addresses real-world problems within the context of an educational theme of interest to children. It involves the integration of knowledge and skills from science, technology, engineering, mathematics, and the arts (Tran Viet Nhi, 2024).

4.2. The Role of Integrating Local Cultural Elements into STEAM Projects for Developing Vietnamese Communication Skills in Ethnic Minority Children

- *Enhancing children's confidence and fostering familiarity in communication:* The incorporation of local cultural elements into STEAM projects creates a familiar and meaningful learning environment. When learning contexts are no longer unfamiliar, children's anxiety about making mistakes when speaking Vietnamese gradually diminishes, giving way to increased confidence and comfort.

- *Providing authentic vocabulary related to local places and cultural heritage:* Local culture serves as a rich resource that enables ethnic minority children to expand their Vietnamese vocabulary in a natural and meaningful manner. Rather than learning isolated vocabulary through pictures, exposure to real objects and authentic contexts supports deeper retention and contextualized language use.

- *Encouraging questioning and explanation in Vietnamese:* STEAM projects grounded in local cultural contexts stimulate children's curiosity about their surroundings. Children are encouraged to ask questions such as "Why?" and "How?" in Vietnamese to explore underlying causes. The process of seeking answers and explaining them to peers enhances both linguistic competence and communication skills.

- *Promoting the use of scientific terminology through concrete experiences:* Through participation in STEAM activities associated with local culture, children are introduced to mathematical and scientific terminology in a direct and experiential manner.

- *Fostering cultural pride and motivation to communicate in Vietnamese:* When their cultural heritage is integrated into STEAM projects, children develop a sense of pride and a desire to affirm their cultural identity. Vietnamese thus becomes not merely a compulsory subject but a medium through which children can express and share their cultural values.

- *Developing coherent presentation skills:* The concluding phase of each STEAM project provides valuable opportunities for children to practice presenting in Vietnamese by introducing the products they have created. This process helps them organize ideas logically and communicate them effectively.

- *Enhancing group discussion and argumentation skills:* STEAM projects present authentic challenges that require collaborative problem-solving. This promotes discussion and argumentation, positioning Vietnamese as a language of interaction and enabling children to develop both communication and problem-solving competencies within a social context.

4.3. Local Cultural Elements Utilized in STEAM Education

- **Historical and cultural sites:** Tan Trao Special National Historical Site (Na Nua Shack, Tan Trao Communal House, Tan Trao Banyan Tree), Kim Binh Historical Site; Lung Cu Flag Tower, Dong Van Old Quarter, Vuong Palace, etc.

- **Natural landscapes and scenic sites:** Na Hang – Lam Binh Special National Landscape, Dong Van Karst Plateau, Ma Pi Leng Pass, Nho Que River, Hoang Su Phi terraced fields, etc.

- **Traditional costumes:** Indigo garments of the Tay and Nung; intricately embroidered costumes of Dao Tien and Cao Lan women; vibrant attire of the Flower Hmong and Lo Lo; distinctive costumes with silver ornaments of the Red Dao, etc.

- **Folk performances and music:** Then singing and the Tinh lute (Tay), Sinh ca singing (Cao Lan), Pao Dung singing (Dao), Hmong panpipe dance, etc.

- Traditional festivals: Thanh Tuyen Festival, Long Tong Festival, Mother Goddess Procession Festival, etc.
- Traditional crafts: Chiem Hoa black sticky rice cake production, brocade weaving, traditional paper-making of the Dao, Hmong blacksmithing, Lo Lo bronze casting, yin–yang tile making, etc.
- Culinary culture: Chiem Hoa black cake, Na Hang corn wine, ancient Shan Tuyet tea, five-colored sticky rice, ant egg cake, bamboo-tube rice, *thang co*, *men men* (ground maize), smoked pork, buckwheat cake, etc.
- Architecture: Stilt houses (Tay, Nung, Cao Lan); rammed-earth houses (Hmong, Lo Lo, Ha Nhi); stone fences (Hmong), etc.

4.4. Research Results

4.4.1. Teachers' Perceptions of the Necessity of Integrating Local Cultural Elements into STEAM Projects to Develop Vietnamese Communication Skills for Ethnic Minority Children

The study investigated teachers' perceptions of the necessity of integrating local cultural elements into STEAM projects to develop Vietnamese communication skills for ethnic minority children. The results are presented in Table 2.

Table 2. Teachers' Perceptions of the Necessity of Integrating Local Cultural Elements into STEAM Project

Content	Result	Mean	Standard Deviation	Level
1. Reducing shyness and creating a sense of familiarity for ethnic minority children in communication		4,14	0,42	Agree
2. Providing practical vocabulary related to local places and cultural heritage		4,25	0,44	Strongly agree
3. Encouraging children to ask questions and explain phenomena in Vietnamese		3,88	0,93	Agree
4. Enhancing the use of scientific terminology through real-life objects		3,91	0,3	Agree
5. Motivating children to feel proud and actively share their cultural identity in Vietnamese		3,74	0,85	Agree
6. Developing coherent presentation skills when sharing traditional cultural products in Vietnamese		4,02	0,61	Agree
7. Promoting group discussion skills in Vietnamese when solving problems		4,0	0,24	Agree
Mean		3,99	0,54	Agree

The results presented in Table 2 indicate that the overall mean score ($M = 3.99$), corresponding to the level of "Agree," suggests that most teachers are aware of the importance of integrating local cultural elements into STEAM projects. This finding aligns with current educational innovation trends and reflects the psychological and developmental characteristics of ethnic minority children, who often face language barriers and lack confidence in communication.

The item “Providing practical vocabulary related to local places and cultural heritage” achieved the highest mean score ($M = 4.25$), at the level of “Strongly agree.” This confirms that, in multicultural educational contexts, authentic materials and familiar local cultural elements serve as effective bridges for children to transition from their mother tongue to Vietnamese. When children are exposed to familiar local cultural elements in STEAM projects, vocabulary acquisition becomes more natural, enabling deeper retention compared to learning words in decontextualized settings. In addition, the item “Reducing shyness and creating a sense of familiarity for ethnic minority children in communication” ($M = 4.14$) also received strong agreement. This reflects teachers’ appropriate awareness and serves as an important foundation for enhancing children’s Vietnamese communication skills. Similarly, the roles of “Developing coherent presentation skills when sharing traditional cultural products in Vietnamese” ($M = 4.02$) and “Promoting group discussion skills in Vietnamese when solving problems” ($M = 4.00$) were highly endorsed. However, the item “Encouraging children to ask questions and explain phenomena in Vietnamese” showed the highest standard deviation ($SD = 0.93$), indicating inconsistency in teachers’ perspectives. This suggests that some teachers remain uncertain or lack confidence in children’s ability to engage in critical thinking in Vietnamese. In STEAM education, questioning is a fundamental feature of inquiry-based learning. Such inconsistency may lead teachers to adopt directive approaches or provide explanations themselves, rather than creating opportunities for children to express their own scientific thinking.

Notably, the item “Motivating children to feel proud and actively share their cultural identity in Vietnamese” recorded the lowest mean score ($M = 3.74$). This raises a concern for the researcher. If Vietnamese language teaching focuses solely on terminology and vocabulary without fostering emotional engagement and cultural pride, children’s communication may lack intrinsic motivation. Sustainable language development should be grounded in cultural confidence; children need to perceive Vietnamese as a meaningful tool for sharing the values and beauty of their own cultural identity with others.

In summary, most teachers recognize the necessity of integrating local cultural elements into STEAM projects to develop Vietnamese communication skills for ethnic minority children. However, there is a need for specialized professional development programs to support teachers—not only in using local culture as a tool for vocabulary instruction but also in fostering positive emotions and cultural identity among children. Integrating local cultural elements into STEAM is not only a strategy for developing communication skills but also an effective approach to narrowing educational gaps and supporting ethnic minority children’s integration while preserving their cultural roots.

4.4.2. Frequency of Using Local Cultural Elements in STEAM Projects to Develop Vietnamese Communication Skills for Ethnic Minority Children

To examine how preschool teachers actually utilize local cultural elements and the frequency of their use in STEAM projects, a questionnaire based on a five-point Likert scale (ranging from 1 = Never to 5 = Very frequently) was developed. In addition, in-depth interviews were conducted to complement the survey data. The results are presented in Table 3.

Table 3. Frequency of Using Local Cultural Elements in STEAM Projects to Develop Vietnamese Communication Skills for Ethnic Minority Children

Local Cultural Elements \ Result	Mean	Standard Deviation	Levels
1. Historical–cultural sites	2,8	0,56	Occasionally
2. Natural landscapes	2,2	0,86	Rarely
3. Traditional costumes	3,17	0,82	Occasionally
4. Folk performing arts and music	2,57	0,94	Rarely
5. Traditional festivals	3,57	0,69	Occasionally
6. Traditional occupations	3,28	0,85	Occasionally
7. Local cuisine	3,48	0,91	Occasionally
8. Housing architecture	3,22	0,91	Occasionally
Mean	3,03	0,81	Occasionally

The results presented in Table 3 indicate that the overall mean score ($M = 3.03$) for the extent to which local cultural elements are exploited corresponds to the level of “Occasionally.” This finding reflects a practical reality: although teachers are aware of the role of local culture in developing Vietnamese communicative competence, its implementation remains limited, occurring only “rarely” or “occasionally”. Elements that are highly visual and closely connected to daily life, such as traditional festivals ($M = 3.57$) and local cuisine ($M = 3.48$), are the most frequently utilized. Through projects such as the *Long Tong Festival*, *five-colored sticky rice*, or “*bánh dày*” project, children not only develop STEAM-related skills but also immerse themselves in a rich Vietnamese-language context. A teacher (M.T.L.) from site MN.01 shared: “*When organizing the ‘bánh dày’ project, children were very excited because it is a familiar food. They already possess substantial vocabulary in their mother tongue, so when introduced to the corresponding Vietnamese terms, they acquire them quickly. However, we only implement such projects occasionally due to the time required for preparation and procedures*”.

In contrast, elements such as natural landscapes ($M = 2.20$) and folk performing arts and music ($M = 2.57$) are only implemented at a “Rarely” level. In reality, folk performing arts in Tuyên Quang are highly diverse—such as *Then singing*, *Tinh lute*, *Sinh ca*, *Pao dung*, and *Hmong flute dancing*—which not only nurture children’s emotional development but also serve as effective tools for Vietnamese pronunciation due to their rhythm and melody. The limited integration of these elements makes STEAM projects more technical and less artistic (Art component). When asked about this issue, a teacher (Tr.T.P., MN.03) stated: “*We would like to integrate folk songs and traditional musical instruments into projects, but designing and embedding them is very challenging. Most teachers only know how to teach singing and dancing in a simple way; we have not been trained to develop these into inquiry-based STEAM projects on sound or musical instruments*”.

The findings also reveal that historical–cultural sites are only used “occasionally” ($M = 2.80$), suggesting missed opportunities to develop children’s presentation and argumentation skills. Local historical sites could provide meaningful contexts for role-play activities (e.g., acting as tour

guides), thereby enhancing children's confidence and coherent Vietnamese expression. This limitation narrows the scope of language development, resulting in children's communicative competence remaining at the level of short responses rather than advancing toward explanatory and critical thinking.

In summary, although teachers have initially utilized local cultural elements, they have not yet fully exploited their potential to develop Vietnamese communicative competence within STEAM projects. The discrepancy between teachers' awareness ($M = 3.99$) and actual implementation ($M = 3.03$) indicates a need for more specific and practical guidance to effectively integrate local cultural elements into STEAM-based activities for ethnic minority children.

4.4.3. Advantages and Challenges in Integrating Local Cultural Elements into STEAM Projects to Develop Vietnamese Communicative Competence for Ethnic Minority Children

To examine the advantages and challenges in integrating local cultural elements into STEAM projects for developing Vietnamese communicative competence among ethnic minority children, a survey was conducted with preschool teachers. The results are presented in Table 4.

Table 4. Advantages and Challenges in Integrating Local Cultural Elements into STEAM Projects to Develop Vietnamese Communicative Competence for Ethnic Minority Children

Content	MEAN	Standard Deviation	Level
Advantages			
1.The richness and diversity of local cultural elements as abundant resources for STEAM projects	4,11	0,79	Agree
2.Support and facilitation from school administrators	3,77	0,77	Agree
3. Teachers' professional competence and creativity	3,8	0,96	Agree
4. Active participation and support from parents and the community.	3,97	0,70	Agree
5. Children's curiosity and interest in activities related to familiar local cultural elements	4,02	0,56	Agree
6. The ability to utilize locally available, low-cost materials for teaching and learning resources	3,74	0,88	Agree
Mean	3,90	0,77	Agree
Challenges			
1.Time constraints due to multiple workload demands	4,45	0,56	Strongly agree
2. Lack of specialized instructional materials	4,37	0,68	Strongly agree
3. Limitations in funding, facilities, and learning materials for implementing projects.	3,77	0,73	Agree
4.Lack of assessment tools to evaluate ethnic minority children's Vietnamese communicative competence through STEAM projects	3,97	0,78	Agree
Mean	4,14	0,68	Agree
Overall Mean	4,02	0,73	Agree

The results indicate six key advantages in integrating local cultural elements into STEAM projects. The most prominent is the *richness and diversity of local culture as an abundant resource for STEAM projects* ($M = 4.11$). This suggests that teachers recognize local culture in Tuyên Quang as a valuable resource for educational integration. Additionally, *children's curiosity and interest in activities related to familiar local cultural elements* ($M = 4.02$) is another significant advantage. When learning content is closely connected to their own cultural identity, ethnic minority children tend to overcome psychological barriers, become more proactive, and are more willing to communicate. Furthermore, support from school administrators ($M = 3.77$) and cooperation from families and the community ($M = 3.97$) are also important facilitating factors. While the average score for advantages is relatively high ($M = 3.90$), the challenges reported are even more substantial ($M = 4.14$). Notably, *time constraints due to teachers' heavy workload* received the highest mean score ($M = 4.45$). A teacher (M.T.D., MN.02) shared: “*A preschool teacher's day is fully occupied with caring for children, including meals and rest time. Designing a STEAM project integrated with local culture requires additional time for research and preparation, often late at night. Without institutional requirements, such projects are rarely implemented.*” In addition, the *lack of specialized instructional materials* poses a significant challenge. A school administrator (H.T.D., MN.01) stated: “*Teachers are already overloaded with childcare and educational responsibilities. The absence of ready-to-use instructional materials forces them to spend considerable time on self-study, leading to reluctance in implementing complex projects, despite recognizing their effectiveness in developing children's Vietnamese communicative competence.*”

Another major concern is the *lack of assessment tools to evaluate children's Vietnamese communicative competence through STEAM projects*. Many teachers reported that they are unable to determine the extent of children's progress after completing a project or to measure how communicative competence has developed through these activities. Although teachers receive encouragement from school leadership and support from parents and the community, they still face *limitations in funding, facilities, and learning materials* ($M = 3.77$). While school administrators provide moral support and encourage innovation, and parents contribute local materials and effort, the lack of financial resources for essential supplies—such as colored paper, glue sticks, crayons, or basic technological and measurement tools—remains a major barrier. In many cases, teachers must cover these costs themselves, which significantly discourages the implementation of STEAM projects. These findings suggest that, to effectively develop Vietnamese communicative competence among ethnic minority children, it is necessary to implement timely solutions, including increased financial support, the provision of detailed instructional materials, and the development of context-specific assessment tools. Without such support, teachers may continue to implement STEAM projects in an unsystematic and less effective manner.

5. CONCLUSION AND FUTURE DEVELOPMENT

This study confirms that integrating local cultural elements into STEAM projects is an innovative approach that creates an authentic language environment for sustainably developing Vietnamese communicative competence among ethnic minority children. The findings reveal a significant gap between teachers' awareness of the importance of local culture ($M = 3.99$) and their actual implementation ($M = 3.03$). Teachers tend to focus primarily on easily accessible elements

such as cuisine and festivals, while underutilizing deeper cultural resources such as historical-cultural sites and folk performing arts. This gap can be attributed to systemic challenges, including workload pressure, lack of specialized instructional materials, and the absence of appropriate assessment tools. These results indicate that the potential of local cultural resources in Tuyen Quang has not yet been fully exploited. To optimize effectiveness, it is essential to provide financial investment and organize specialized training programs for preschool teachers, thereby enhancing their capacity to integrate local cultural elements into STEAM projects for the effective development of Vietnamese communicative competence among ethnic minority children.

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