



Challenges and Opportunities in Integrating Indigenous Culinary Practices into the Technology and Livelihood Education Curriculum

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Abstract

Indigenous culinary practices (ICP) in culturally rich regions such as the Cordillera are vital for cultural heritage, sustainability, and local identity. However, these practices receive limited attention in the Grade 9 Technology and Livelihood Education (TLE) curriculum in Philippine secondary schools. This study explores the challenges and opportunities faced by TLE teachers in integrating ICP into lessons to enhance both skills and cultural appreciation among students.

A qualitative descriptive design was used, employing purposive sampling of five TLE teachers from public secondary schools in Sagada District, Mountain Province. Data were gathered through face-to-face interviews and analyzed thematically.

Findings revealed that teachers integrate ICP through cooking activities, ingredient substitution, and storytelling despite the lack of formal curriculum support. Challenges include limited resources, curriculum rigidity, lack of training, cultural sensitivity issues, low student engagement, inadequate assessment tools, minimal community collaboration, and weak institutional support. Teachers address these through community partnerships, creative curriculum adaptations, capacity building, and available funds.

Recommendations highlight financial assistance, teacher training, curriculum flexibility, resource development, and stronger community engagement. The study underscores teachers' role as cultural stewards, stressing that institutional support and culturally responsive pedagogy are crucial for sustaining ICP integration in education.

Keywords: *Community collaboration, curriculum reform, cultural preservation, resource availability, teacher training*

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Introduction

Indigenous foodways offer rich knowledge systems passed down through generations, reflecting a community's sustainable interaction with its environment. These food traditions, grounded in identity and survival, persist in many upland areas of the Philippines, such as Sagada, Mountain Province. Dishes like etag (salted smoked pork), linapet (sticky rice cake wrapped in leaves), and pinikpikan (ritual-based chicken dish) are more than meals—they are markers of heritage, environmental wisdom, and social cohesion.

Food is central to identity formation and is often interwoven with language, customs, and rituals. In the Cordillera, food preparation is not only a means of sustenance but also a community event that connects people across generations. For example, during begnas or community feasts, elders pass down stories and values through shared meals and cooking practices. These traditions are dynamic and evolve through adaptation, but their cultural essence remains deeply rooted.

Despite their cultural and pedagogical value, such practices are often absent or underrepresented in the formal curriculum, especially in subjects like Technology and Livelihood Education (TLE). While the Grade 9 TLE curriculum in the Philippines highlights competencies in food processing, its implementation often follows standardized, industrial approaches, overlooking locally relevant knowledge. Although national initiatives like the K to 12 curriculum and the MATATAG Agenda advocate for localization and contextualization, the mechanisms to integrate indigenous content remain limited.

Scholars such as Brako (2024) and Gasingan (2025) argue for the institutional inclusion of indigenous culinary practices in the curriculum as a response to the erosion of cultural knowledge. In their studies, they emphasized that embedding food heritage in education enhances students' sense of belonging, develops critical thinking, and fosters intergenerational understanding.

In Sagada, where culinary traditions are actively practiced in homes and rituals, the disconnect between community knowledge and classroom instruction becomes more apparent. Teachers, as curriculum implementers, play a central role in bridging this gap. Yet, their experiences in adapting indigenous culinary practices into teaching remain largely undocumented.

This research examines the efforts of TLE teachers to embed ICP into their classroom instruction. It explores the challenges they face, the creative strategies they use, and how these practices impact learners' cultural appreciation and engagement. Anchored in the frameworks of culturally responsive pedagogy and experiential learning, this study contributes insights into promoting education that reflects and respects indigenous heritage.

Methodology

A qualitative descriptive research design was employed to capture the authentic experiences of teachers in integrating indigenous culinary practices (ICP) into Technology and Livelihood Education (TLE). The study was conducted in public secondary schools in Sagada District, Mountain Province, involving five TLE teachers who teach food preservation

or cookery. Using purposive sampling, the researchers selected participants with relevant knowledge and experience in both education and indigenous culinary practices.

Data were collected through semi-structured face-to-face interviews and focus group discussions. An interview guide with open-ended questions was used to elicit teachers' experiences, challenges, strategies, and recommendations. With consent, sessions were audio-recorded and transcribed. Data were analyzed thematically, following coding, categorization, and validation through member-checking and peer debriefing. Triangulation of data sources ensured credibility. Ethical clearance and informed consent were secured prior to data collection.

Results/Findings

Background Information on Teachers' Experience and Integration of Indigenous Culinary Practices

The background of TLE teachers in Sagada District reflects varied experiences and levels of integration of Indigenous Culinary Practices (ICP) into their teaching. The five interviewed teachers had teaching experience ranging from two to more than ten years, with most handling Cookery for Grades 9 and 10 and some teaching across multiple TLE strands. Their familiarity with indigenous culinary traditions differed—two had strong cultural knowledge while others showed moderate understanding and interest in further training. All participants reported incorporating ICP into their lessons, but mostly through informal approaches driven by personal initiative, as there were no formal curriculum guides or teaching materials to support the integration.

Experiences of TLE Teachers in Integrating Indigenous Culinary Practices

The study revealed five key themes on TLE teachers' integration of indigenous culinary practices: (1) hands-on cooking activities and use of native recipes, (2) motivation rooted in cultural preservation and pedagogy, (3) frequent use of indigenous dishes, ingredients, and techniques, (4) positive student responses of curiosity and pride, and (5) reliance on community, school, and digital resources. Teachers positioned themselves as both educators and cultural stewards, while students showed strong engagement and appreciation. Support came from parents, elders, school funds, and collaborations that enriched the teaching of indigenous culinary traditions.

Challenges Encountered in Integrating Indigenous Culinary Practices

The repertory grid analysis identified eight main challenges: resource scarcity, curriculum constraints, limited teacher knowledge and skills, cultural sensitivity, low student interest, difficulties in assessment, weak community engagement, and lack of institutional support. Teachers struggled with the unavailability of authentic ingredients, traditional tools, and relevant materials, alongside time limitations and misaligned competencies. Many lacked training, raising concerns about accurate cultural representation. Student engagement was often low unless paired with cultural context.

Assessments were difficult to design to reflect both skills and cultural value. Community collaboration faced logistical barriers, while systemic issues—insufficient funding, resources, and administrative backing—further hindered sustainable integration of indigenous culinary heritage in TLE teaching.

Strategies in Integration of Indigenous Culinary Practices into the TLE Curriculum

Teachers in Sagada District employ several strategies to integrate indigenous culinary practices (ICP) into the TLE curriculum. They begin with awareness and capacity building, ensuring that students, parents, and teachers themselves recognize the value of indigenous knowledge, supported by training and background preparation. They also build partnerships with indigenous communities by documenting recipes, techniques, and food histories through collaborative projects, publications, and digital platforms.

Innovation and promotion play a role as well, with teachers incorporating local ingredients and traditional methods into engaging and accessible classroom activities. Institutional support further strengthens integration, as teachers utilize school funds for skills competitions and seek training opportunities at the district level. To sustain these efforts, teachers identified the need for stronger financial support, better facilities, and explicit budget allocations for indigenous tools, equipment, and ingredients.

They also highlighted the importance of ongoing training, access to teaching resources, and formal partnerships with elders and cultural experts who can serve as co-teachers. Participants emphasized the shared responsibility of stakeholders: The Department of Education should provide model guides and contextualized curriculum materials, school administrators should facilitate community linkages and allocate resources, and indigenous communities should actively participate in teaching and school activities.

Teachers envisioned a more inclusive and entrepreneurial education that links ICP to tourism and local enterprises, while fostering respect for indigenous knowledge systems among students.

Recommendations for Sustaining and Enhancing the Integration of Indigenous Culinary Practices in the TLE Curriculum

Teachers proposed several strategies to strengthen the integration of indigenous culinary practices in the TLE curriculum. They recommended more flexible class schedules, the creation of tailored learning materials, and dedicated budget allocation for indigenous tools and ingredients. They also emphasized experiential learning through demonstrations and immersive activities, and called for aligning indigenous practices with formal learning competencies to ensure recognition and assessment within the curriculum.

Discussions

Background Information on Teachers' Experience and Integration of Indigenous Culinary Practices

The findings show that most TLE teachers in Sagada are highly experienced, with some having taught Cookery for over a decade. Their long teaching experience builds confidence in integrating Indigenous Culinary Practices (ICP), though they emphasize the need for structured materials and institutional support. Even novice teachers, however, demonstrated strong cultural familiarity, suggesting that personal background also plays a key role in ICP integration.

Teachers handling Cookery subjects (TLE 9 & 10) had more opportunities to include indigenous food knowledge, while those covering multiple strands used ICP only occasionally. Across all participants, integration was informal and teacher-driven due to the absence of official modules, professional training, and sufficient resources.

The study highlights that while teachers value ICP and recognize its cultural importance, sustainable integration requires systemic backing through curriculum reform, training, and culturally relevant materials. Globally, organizations such as FAO and UNESCO affirm the role of indigenous food systems in sustainability and cultural preservation, with case studies from the U.S., Namibia, and Zimbabwe showing how schools can formally embed such practices.

In the Philippines, rich highland traditions like fermentation and smoking are often sidelined by the TLE curriculum's focus on industrial methods, revealing a gap between policy (e.g., K to 12 and MATATAG Agenda) and practice. This study addresses that gap by documenting teachers' lived experiences and underscoring the need for structural reforms to fully realize ICP integration in TLE.

Experiences of TLE Teachers in Integrating Indigenous Culinary Practices

TLE teachers demonstrate a strong commitment to preserving culture and contextualizing instruction by integrating indigenous culinary practices (ICP) into their classes. Their experiences highlight three main themes: integration efforts, motivation to integrate, and use of indigenous dishes, ingredients, and techniques.

Teachers actively integrate ICP through cooking demos, recipe innovations, and ingredient substitutions. Teacher 1 shared: "Yes, using local ingredients as substitute to what is specified in the recipe. Cooking indigenous dishes made the students wonder and become interested." Similarly, Teacher 2 affirmed: "Yes, students are actively engaged since they can relate." Teacher 3 emphasized hands-on activities: "Yes, through hands-on learning, cooking demos, and use of local ingredients." Teachers 4 and 5 added: "Integration made students more interactive," and "Often integrate indigenous culinary practices to develop students' creativity and resourcefulness." These responses affirm the role of experiential and participatory learning in strengthening engagement.

Teachers' motivations stem from cultural preservation and pedagogical value. Teacher 1 stressed: "It is a need. It is for the students to know these practices so they will not be ignorant. Part of reviving our cultural practices in cooking that are palatable and nutritious." Teacher 2 framed it as a cultural responsibility: "Deep respect for our culture. It is a way of honoring the legacy of our ancestors." Teacher 5 reinforced this: "Motivated by the unique culinary practices of the community that need to be preserved." From a

pedagogical perspective, Teacher 3 stated: "Introducing indigenous culinary practices can make lessons more interactive and meaningful. It equips students with valuable cooking skills." Teacher 4 agreed: "Learners can easily relate and understand the lesson."

Teachers incorporate specific food traditions into instruction. Teacher 1 cited: "Starch dish – binaod, poultry dish – pinikpikan, fish dish – sinigang using tapey, guava, lemon as substitute." Teacher 2 mentioned: "Dish – pinikpikan; uses traditional smoked or salted meat (etag), and pising (taro)." Teacher 3 added: "Dishes taught include pinikpikan, linapet, binaod." Teacher 4 taught "Pinikpikan and diket (sticky rice)," while Teacher 5 shared: "Innovated pinikpikan and etag to make them more marketable."

They also highlighted indigenous ingredients such as etag, ube, sayote, bamboo shoots, bisukol (snails), ket-an, and pako. Teacher 3 emphasized: "Used etag, ube, sayote, bamboo shoots, freshwater snails like bisukol and ket-an, and wild edibles like pako and damayan." Traditional methods were likewise integrated. Teacher 3 explained: "Applied techniques like food preservation, fermentation, leaf wrapping, boiling, stewing." Teacher 4 added: "Taught traditional slaughtering of native chicken and wrapping sweetened rice in banana leaves." Teacher 5 noted: "Used other methods aside from boiling to prepare dishes."

The teachers' accounts show that integrating ICP enhances cultural appreciation, develops practical cooking skills, and sustains indigenous heritage within the TLE curriculum. Their lived experiences reveal that beyond textbooks, cultural familiarity, personal motivation, and hands-on practices are central to meaningful integration.

Students demonstrated highly positive and participative engagement in lessons involving indigenous culinary practices. Teacher 1 estimated that "85% of students were interested and at least eager to try the dishes." Teacher 2 observed that "students showed increased cultural awareness and respect, and were actively engaged during discussions and activities." Teacher 3 emphasized that "students responded positively, especially with hands-on learning; they became more curious about traditional cooking." Teacher 4 noted that "students became more interactive and participative," while Teacher 5 highlighted that "students were amazed by their output, seeing how indigenous dishes could be applied to modern cooking." These accounts reveal evidence of transformative learning, where students not only gain technical skills but also develop cultural pride, respect, and a stronger sense of identity (Mezirow, 1997).

Resources and Support Utilized

Teachers consistently emphasized the role of parents, elders, and community members in integrating indigenous culinary practices (ICP). Teacher 1 shared: "Support from parents and elders through interviews and research about how local dishes are cooked. Home practicum with parental supervision." Teacher 2 affirmed: "Utilized the expertise of some community members and available ingredients." Similarly, Teacher 3 stated: "Involved community partnerships and elders to discuss traditional dishes." Teacher 4 recognized "parents' involvement and co-teachers' suggestions," while Teacher 5 echoed this synergy: "Parents and local cooks were invited as guest speakers and demonstrators." These

collaborative efforts validate the social dimension of learning and align with community-based education, which underscores shared responsibility in transmitting indigenous knowledge (Bray, 2000).

Institutional and digital resources further enriched the process. Teacher 4 maximized the school's MOOE (Maintenance and Other Operating Expenses) funds and collegial collaboration. Teacher 3 integrated modern platforms, noting the use of "online learning platforms, hands-on learning, and educational toolkits." This blending of traditional and digital strategies exemplifies a hybrid learning model that is culturally grounded yet technologically adaptive.

The integration of ICP in TLE emerges as a multifaceted practice rooted in cultural advocacy, pedagogical enrichment, and experiential learning. Teachers utilized contextualized content to engage learners while fostering cultural pride, with community partnerships and institutional support ensuring sustainability. These findings underscore the crucial role of culturally responsive pedagogy in TLE, demonstrating education's potential as a vehicle for both heritage preservation and social transformation.

The results highlight that ICP integration is strengthened by cultural commitment, pedagogical value, and community collaboration. This aligns with existing literature affirming the role of indigenous food traditions in fostering food sovereignty and cultural identity (Heaney et al., 2024; Brako, 2024). Within Sagada, etag-making not only represents a preservation method but also a living cultural practice that enriches learning, mirroring traditional methods in Ilocos Sur (Azarias et al., 2022) and culinary heritage programs in Batangas (Zerrudo, 2018). Institutional initiatives such as the Etag Festival (Gasingan, 2025) and rising youth participation (Angeles, 2024) further reinforce the value of this integration.

Grounded in Kolb's experiential learning, Vygotsky's sociocultural theory, Gay's culturally responsive pedagogy, and Mezirow's transformative learning, this approach validates ICP as both an instructional strategy and a cultural anchor. Alignment with DepEd's K to 12 curriculum and UNESCO's heritage education principles further affirms its national and international relevance. Thus, curriculum planners are encouraged to embed indigenous culinary traditions within TLE modules, while teacher training institutions should provide capacity-building for culturally integrative instruction (DepEd, 2016; UNESCO, 2003).

The integration of ICP into TLE instruction positions education as a conduit for cultural preservation and identity formation. Teachers act as cultural transmitters who bridge traditional knowledge with formal learning, supported by parents, elders, and institutions. By engaging students in practices that reflect their heritage, classrooms become dynamic spaces of cultural empowerment where learning fosters pride, belonging, and motivation—proving that education is never culturally neutral, but always shaped by lived experiences and socio-cultural contexts.

Challenges Encountered in Integrating Indigenous Culinary Practices

The integration of indigenous culinary practices (ICP) in TLE faces multiple challenges that span resources, curriculum, teacher preparedness, cultural sensitivity,

student engagement, assessment, community involvement, and institutional support. Teachers consistently reported difficulty accessing authentic indigenous ingredients, traditional tools, and adequate teaching materials, limiting the authenticity of instruction. Curriculum constraints—such as limited time, pressure to prioritize mainstream skills, and misalignment with prescribed competencies—further restrict integration.

Many teachers also acknowledged lacking the training and confidence to effectively teach indigenous food traditions, underscoring the need for professional development. Cultural concerns emerged as well, with teachers emphasizing the importance of authenticity, respect, and avoiding appropriation. Student biases and disinterest toward indigenous dishes also present barriers, requiring innovative approaches to foster curiosity and appreciation. Additionally, the absence of appropriate assessment tools complicates efforts to evaluate both technical skills and cultural understanding. Community engagement remains weak, as logistical and institutional barriers hinder the involvement of elders and cultural bearers in classrooms.

Finally, the lack of funding and administrative support exacerbates these challenges, making sustainability difficult. These findings highlight not only logistical barriers but also deeper cultural and emotional responsibilities teachers carry in preserving local identity. They underscore the urgent need for stronger school-community partnerships, teacher training, and institutional commitment to ensure that indigenous culinary knowledge is transmitted authentically and meaningfully to future generations.

Strategies in Integration of Indigenous Culinary Practices into the TLE Curriculum

Teachers in Sagada employ a range of strategies to integrate indigenous culinary practices into the TLE curriculum, drawing from both tradition and innovation. Community-based instruction is central, as teachers collaborate with elders and local cooks to provide authentic learning. One teacher shared, “We invite elders to teach the students about the meanings and rituals associated with local dishes” (T2), while another noted, “Sometimes we bring students to the community so they can experience the food culture first-hand” (T4).

Experiential learning and demonstrations also play a vital role, with teachers emphasizing hands-on practice. As one explained, “We let students try making local dishes themselves using whatever materials are available” (T1), while another observed that “demonstrating food preparation the traditional way excites them more than just showing pictures” (T5).

Faced with resource constraints, teachers adopt alternative approaches, making adjustments while maintaining cultural essence: “We sometimes use modern tools to simulate the traditional process if we don’t have the actual equipment” (T3), and “I let students substitute local vegetables or herbs with what we can find in the area” (T2).

Finally, teachers integrate cultural content through curriculum mapping and modularization, embedding indigenous practices within existing competencies: “I integrate indigenous recipes in modules under ‘regional cuisines’ or ‘cultural cooking’” (T1) and “I map out which topics can accommodate indigenous practices so it doesn’t feel forced” (T3).

Together, these strategies reflect teachers' dual role as educators and cultural stewards, ensuring that culinary heritage remains alive within formal education despite systemic limitations. By combining community partnerships, hands-on experiences, resource adaptability, and curriculum alignment, they not only enhance students' technical skills but also nurture cultural pride and intergenerational learning.

Recommendations for Sustainability and Effectiveness

Teachers emphasized that the sustainability and effectiveness of integrating indigenous culinary practices into the TLE curriculum depend on institutional support, teacher training, culturally relevant materials, curriculum policy inclusion, and strong school-community partnerships.

They stressed the need for formal backing from DepEd and school heads, with one teacher noting, "This kind of teaching needs to be encouraged officially through memos or integration guides" (T5), while another warned, "Without admin support, our efforts won't be sustainable" (T3).

Continuous professional development was also highlighted, as teachers expressed the need for specialized training: "We need seminars or workshops focused on indigenous food knowledge" (T2) and "Training helps us teach with more confidence and accuracy" (T4).

The lack of instructional and assessment materials was seen as a major gap, with one teacher admitting, "We need modules and assessment tools that are designed around indigenous content" (T1) and another adding, "Right now, we are just improvising" (T3).

Teachers further argued that integration should be institutionalized through curriculum policy: "It should be part of the curriculum guide, not just a side topic" (T5) and "If it's part of the MELCs, teachers will have to include it" (T2). Finally, they advocated stronger partnerships with communities, suggesting, "We need to formalize our partnerships with community elders" (T1) and "Maybe schools can adopt a community or culture to focus on" (T4).

These recommendations reveal that teachers view themselves not only as educators but also as cultural stewards. Their responses point to the need for a multi-stakeholder approach—one that combines policy support, teacher capacity-building, community collaboration, and culturally grounded materials to ensure that indigenous culinary knowledge such as etag-making is preserved, transmitted, and valued in formal education.

Conclusions

The study concludes that Technology and Livelihood Education (TLE) teachers integrate Indigenous Culinary Practices (ICP) primarily through informal, teacher-driven initiatives such as cooking demonstrations, ingredient substitution, and storytelling. Despite these efforts, they face multiple challenges, including scarce resources, rigid curriculum requirements, limited training opportunities, cultural sensitivity concerns, weak institutional support, and low initial student engagement.

To overcome these barriers, teachers employ strategies such as community collaboration, creative curriculum adaptation, capacity building, and the innovative use of available school funds. However, sustaining and strengthening ICP integration requires greater financial support, continuous professional development, curriculum flexibility, the creation of appropriate teaching and assessment resources, and formalized partnerships with community knowledge bearers.

The study advances the field by demonstrating that ICP integration in TLE not only develops students' technical and entrepreneurial skills but also fosters cultural preservation, identity formation, and sustainability within the educational system.

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Conflicts of Interests

The author declares no conflict of interest.

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