INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH
2026, Vol. 7, No. 11, 4902 – 4914
http://dx.doi.org/10.11594/ijmaber.07.11.13

Research Article

From Ritual Food Practice to Digital Heritage Learning: Developing and Validating a Digital Magazine on Atang in Ilocos Norte, Philippines

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Article history:
Submission 31 October 2026
Revised 15 November 2026
Accepted 23 November 2026

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ABSTRACT

This study examined how Atang, an Ilocano ritual food offering in Ilocos Norte, Philippines, can be documented and translated into a digital heritage learning resource to support cultural preservation and intergenerational learning. The study employed an exploratory-sequential mixed-methods design with a developmental component. Qualitative data were gathered through interviews, focus group discussions, and participant observation with elders, a cultural practitioner or local cook, youth participants, and community members from selected municipalities in Ilocos Norte. The documented findings served as the basis for developing a digital magazine, which was evaluated by experts using a modified learning resource validation tool. Findings showed that Atang functions as spiritual remembrance, family obligation, cultural identity, and intergenerational knowledge. Its preparation involves indigenous ingredients, traditional tools, manual techniques, symbolic food arrangements, and orally transmitted recipes. The practice is affected by economic constraints, migration, modernization, changing household patterns, and reduced youth exposure. Rather than indicating disappearance, these changes reveal adaptive continuity, where core meanings persist despite simplified offerings and transformed forms. Expert validation indicated that the digital magazine met acceptable standards in content and instructional quality, although improvements were needed to connect the material more strongly with youth users' prior experiences. The study concludes that digital documentation can support the preservation and promotion of Atang by making its meanings, recipes, preparation methods, and cultural stories more accessible to younger generations, educators, cultural workers, and community institutions.

Keywords*: Atang, Digital Magazine, Ilocano Culture, Intangible Cultural Heritage, Heritage Education, Ritual Food Heritage*

How to cite:
Agmata, R. R. V., Realo, J. R. G., Gamayon, J. L., Asuncion, N. E. J., Malagday, A. J. A., & Fabro, R. B. (2026). From Ritual Food Practice to Digital Heritage Learning: Developing and Validating a Digital Magazine on Atang in Ilocos Norte, Philippines. *International Journal of Multidisciplinary: Applied Business and Education Research*. *7*(11), 4902 – 4914. doi: 10.11594/ijmaber.07.11.13

Introduction

Intangible cultural heritage represents the living practices, expressions, knowledge systems, rituals, and skills that communities recognize as part of their cultural identity. These practices are not preserved only through objects or written records but through repeated performance, observation, memory, and intergenerational participation. In the Philippine context, food-related rituals are significant because they connect everyday material culture with spirituality, family relationships, community identity, and remembrance. The 1987 Philippine Constitution recognizes the responsibility of the State to conserve, promote, and popularize Filipino culture and heritage, including artistic, historical, and cultural resources that shape national identity (Philippine Constitution, 1987).

One such practice is Atang, an Ilocano ritual food offering commonly associated with honoring the dead, remembering ancestors, and sustaining spiritual and familial connections. In several Ilocano communities, Atang involves the preparation and presentation of food, candles, prayers, and symbolic objects during occasions such as Undas, wakes, death anniversaries, or household rituals. Public cultural accounts describe Atang as part of broader Filipino and Ilocano practices of remembrance, where food offerings are understood as gestures of respect, continuity, and spiritual communication (Cacáy, 2025; Manila Bulletin, 2022; National Museum of the Philippines, 2021; Villegas, 2024).

Despite its cultural importance, Atang remains underdocumented in formal academic literature, particularly in relation to its food preparation practices, tools, ingredients, recipes, symbolic meanings, and transmission among younger generations. Existing discussions tend to describe the practice as part of death-related customs or superstitious beliefs, but fewer studies examine it as a ritual food heritage system that carries embodied knowledge, family memory, and community identity. De Leon (2024) provides an important discussion of Atang as a cultural linkage between lowland and upland communities, while other Philippine studies emphasize the value of documenting culinary heritage and community-centered food traditions (Gabriel, Jao, Leus, Amutan., 2025; Mercado & Andalecio, 2020). However, there remains a need to examine how Atang may be documented and translated into a learning resource for cultural preservation.

The urgency of documenting Atang is linked to social and generational change. Migration, modernization, economic pressures, urban lifestyles, and changing family structures may reduce opportunities for young people to observe and participate in ritual preparation. Since many ritual food practices are transmitted informally through household participation, reduced exposure can weaken intergenerational cultural learning. This concern is not unique to Ilocano communities. Studies on intangible culture and resilience in the Philippines show that cultural practices remain important sources of meaning, identity, and community continuity, especially when communities face social and environmental pressures (Delina et al., 2025; Lawangen & Roberts, 2023).

Digital technology offers new possibilities for cultural preservation and education. Digital preservation, digital libraries, metaverse applications, knowledge graphs, artificial intelligence, and multimedia storytelling are increasingly used to document, organize, and communicate cultural heritage (Ashikuzzaman, 2023; Barbuti, 2020; Buragohain et al., 2024; Li, 2026; Li et al., 2025; Lian & Xie, 2024; Mendoza, De La Hoz Franco, & Gomez., 2023; Ren & Lam, 2026; UNESCO, 2023; Wang, 2025). However, digital heritage materials must move beyond mere archiving. They should support meaningful learning, cultural reflection, and connection to lived experience, especially when intended for youth and educational settings. In education, digital materials become more effective when they are aligned with learners' prior experiences, instructional needs, and contextual realities (Singzon, 2024).

This study addresses these concerns by documenting Atang practices in selected municipalities of Ilocos Norte and developing an expert-validated digital magazine based on the documented cultural meanings, ingredients, tools, preparation methods, recipes, and continuity challenges. The study is positioned as a documentation-to-digital translation inquiry: community-based cultural data are documented, interpreted, and transformed into a digital heritage learning resource. Through this approach, the study contributes to cultural preservation, heritage education, digital storytelling, and applied instructional material development.

Methodology

This section presents the research design, locale, participants, sampling technique, research instruments, data analysis procedure, trustworthiness strategies, and ethical considerations used in the study.

Research Design

The study employed an exploratory-sequential mixed-methods design with a developmental component. The qualitative phase documented Atang practices through interviews, focus group discussions, and participant observation. The findings from this phase informed the development of a digital magazine. The quantitative component consisted of expert validation using a modified learning resource evaluation tool.

The design was appropriate because the study first sought to understand Atang as a cultural practice before developing a digital heritage learning resource. The exploratory phase generated community-based data on meanings, ingredients, tools, recipes, preparation procedures, and challenges. These data were then translated into magazine sections, visual materials, glossaries, reflection prompts, and cultural explanations. The expert validation phase assessed the quality of the developed digital magazine in terms of content and instructional value.

Respondents and Locale of the Study

The study was conducted in selected municipalities of Ilocos Norte, particularly Bangui, Pagudpud, Paoay, and Sarrat. These sites were selected because they represent communities where Atang is known, practiced, remembered, or discussed as part of Ilocano ritual life. The locale was appropriate because Ilocos Norte has strong cultural associations with Ilocano foodways, family rituals, religious observances, and ancestral remembrance.

The study used purposive sampling. Participants were selected based on their knowledge, experience, or exposure to Atang. The cultural documentation participants included elders, a cultural practitioner or local cook, and youth participants. Expert validators were selected based on their background in Ilocano culture, instructional material development, education, or digital media.

Table 1. Participant Profile

Participant Group	Number	Selection Criteria	Role in the Study
Elders	3	Knowledgeable about Atang traditions and family-based ritual practices	Shared historical background, cultural meanings, and transmission practices
Cultural practitioner/ local cook	1	Experienced in preparing Atang and familiar with traditional food preparation	Described ingredients, tools, recipes, and preparation techniques
Youth participants	10	Members of families familiar with or exposed to Atang	Shared awareness, perceptions, and experiences related to youth exposure

Participant Group	Number	Selection Criteria	Role in the Study
Cultural expert	1	Knowledgeable about Ilocano culture, traditions, and Atang	Evaluated cultural accuracy and appropriateness of the magazine
Instructional material expert	1	Experienced in developing or evaluating instructional materials	Evaluated instructional quality and organization
Education experts	2	Licensed teachers or education professionals with relevant experience	Evaluated educational relevance and learner appropriateness
Digital media expert	1	Experienced in digital publishing, multimedia design, or digital content development	Evaluated design, usability, and digital presentation
Total	**19**		

The participants were grouped into two categories: cultural documentation participants and expert validators. The cultural documentation participants generated the qualitative data used to describe Atang practices and inform the magazine content. The expert validators evaluated the developed digital magazine.

Research Instruments

The study used four main instruments: a semi-structured interview guide, a focus group discussion guide, a participant observation checklist, and an expert validation questionnaire.

The semi-structured interview guide was used to gather narratives from elders and the cultural practitioner or local cook. It included questions on the meaning of Atang, occasions when it is practiced, ingredients used, tools involved, preparation procedures, changes over time, and challenges to continuity.

The focus group discussion guide was used with youth participants to explore their awareness, exposure, perceptions, and learning experiences related to Atang. It also helped identify the extent to which younger participants had observed or participated in Atang preparation.

The participant observation checklist was used to document visible aspects of Atang preparation and presentation, including food items, tools, arrangement, sequence of preparation, ritual setting, and symbolic objects. Local terms were recorded and clarified with knowledgeable participants.

The expert validation questionnaire was adapted from learning resource evaluation criteria and modified to fit the purpose of evaluating a digital heritage magazine. It assessed content quality and instructional quality, including accuracy, relevance, organization, cultural appropriateness, learner suitability, clarity, visual support, and integration with users' prior experience. The tool used a rating scale with descriptive interpretation.

Data Analysis Procedure and Trustworthiness

Qualitative data from interviews, focus group discussions, and observation notes were analyzed through thematic analysis. The researchers familiarized themselves with the data, generated initial codes, grouped related codes into themes, reviewed the themes against the data, and refined them according to the research questions. Narrative analysis was also used to interpret participant accounts related to memory, family obligation, ritual meaning, and intergenerational transmission.

Observation data were used to support and verify interview and focus group findings. The documentation of tools, ingredients, procedures, and symbolic arrangements helped strengthen the descriptive accuracy of the

study. Local terms were retained when necessary to preserve cultural meaning and were explained in the discussion.

Quantitative data from the expert validation questionnaire were analyzed using weighted mean and descriptive interpretation. The validation results were used to determine the acceptability of the digital magazine in terms of content and instructional quality. The results also informed recommended revisions, especially in relation to integrating the material with youth users' prior experiences.

To ensure trustworthiness, the study employed credibility, transferability, dependability, and confirmability strategies. Credibility was supported through triangulation of interviews, focus group discussions, and observation. Transferability was addressed by providing thick descriptions of the research locale, participants, and cultural context. Dependability was strengthened through systematic documentation of data collection and analysis procedures. Confirmability was supported by maintaining research notes and ensuring that interpretations were grounded in participant accounts and observed practices.

Ethical Considerations

The study observed ethical principles of informed consent, voluntary participation, confidentiality, cultural sensitivity, and respect for community knowledge. Participants were informed about the purpose of the study, the nature of their participation, their right to withdraw, and the intended use of the data in research and magazine development. Personal identities were protected unless participants gave explicit permission to be identified.

Because Atang involves family memory, spirituality, and ritual practice, the researchers treated participant narratives and cultural details with respect. Photographs, names, and culturally sensitive information were used only with permission. The study avoided presenting sacred or private practices in a sensationalized or commercialized manner. The digital magazine was developed as an educational and preservation-oriented resource rather than as a replacement for family-based ritual transmission.

Results and Discussion

This section presents the findings according to the research questions of the study. The discussion integrates participant narratives, observation findings, expert validation results, and related literature.

Cultural Meanings of Atang

The first research question examined the cultural and historical significance of Atang as an Ilocano ritual food practice. Findings showed that Atang is understood as a practice of remembrance, prayer, respect, and continuing connection with deceased family members. Participants described Atang not merely as the placement of food but as a meaningful family act that expresses love, obligation, and spiritual continuity

Atang is commonly associated with death-related observances such as wakes, death anniversaries, and Undas. In these contexts, food offerings are prepared and arranged with candles, prayers, photographs, or other symbolic objects. This finding is consistent with public accounts of Filipino and Ilocano Undas traditions, where food, candles, and prayers are used to honor the dead (Manila Bulletin, 2022; National Museum of the Philippines, 2021; Villegas, 2024). Cacáy (2025) similarly describes Atang as a practice of honoring the dead among Ilocano families.

The meaning of Atang goes beyond superstition. While some may interpret food offerings as folk belief, the practice carries social and emotional significance. It allows families to remember deceased loved ones, affirm family bonds, and perform respect for ancestors. Naima (2025) explains that offerings often function as religious, symbolic, and cultural practices. In this study, Atang operated in all three ways: it was spiritual because it involved prayer and remembrance; symbolic because food stood for care and continuity; and cultural because it reflected Ilocano values and family identity.

Atang also functions as food memory. Food becomes a material expression of remembering. The preparation and offering of food allow the living to maintain a relationship with the dead through familiar tastes, family recipes, and ritual gestures. This supports the idea that culinary heritage is not only about dishes but also about memory, identity, and social meaning (Manik et al., 2024; Soyombo, Kupa, Ijomah, & Toromade., 2024; Vishwakarma et al., 2025).

Preparation Practices and Materials

The second research question focused on the ingredients, tools, techniques, and recipes used in Atang. Findings showed that Atang preparation involves both culinary and ritual knowledge. Participants identified food items commonly prepared or offered, traditional tools used in preparation, and local terms associated with the practice. These included items such as rice-based foods, native delicacies, fruits, drinks, and other foods associated with family preference, local availability, and ritual meaning.

The preparation process was often learned through observation. Elders and cultural practitioners emphasized that younger family members typically learned Atang by watching parents or grandparents prepare food, arrange offerings, light candles, and say prayers. This demonstrates that Atang is transmitted as embodied knowledge. It is learned through participation, repeated exposure, and family-based instruction rather than through formal teaching.

The material culture of Atang is important. Traditional tools, ingredients, and preparation techniques reveal the relationship between food heritage and local knowledge. In some cases, participants mentioned traditional kitchen implements and local food terms that younger participants no longer fully recognized. This indicates that the loss of vocabulary and tool familiarity may also weaken cultural understanding. Mercado and Andalecio (2020) argue that documenting culinary heritage requires attention not only to food names but also to preparation, context, and cultural significance. The present study supports this view by showing that Atang must be documented as a complete cultural process, not only as a list of food offerings.

Atang preparation also reflects flexibility. Some families prepare traditional foods, while others use commercially available items or simplified offerings depending on budget, time, and accessibility. This flexibility does not necessarily mean that the practice has lost meaning. Rather, it shows that ritual food heritage can adapt to changing economic and social conditions while retaining its core symbolic purpose.

Challenges to Continuity

The third research question examined the challenges affecting the continuity of Atang. Findings showed that the practice is influenced by economic constraints, migration, modernization, changing family structures, and reduced youth exposure. Participants noted that some families simplify offerings due to limited resources or lack of time. Others practice Atang less frequently because younger family members live away from home or are less familiar with ritual procedures.

Modernization has also changed how Atang is understood. Some youth participants reported limited knowledge of the practice or recognized it only as something done by elders. This suggests that Atang remains visible in some households but may not always be deeply understood by younger generations. The issue is not only whether Atang continues to be performed, but whether its meanings, procedures, and values are being transmitted.

This finding connects to broader discussions of intangible cultural heritage. Cultural practices survive when communities continue to perform, explain, and value them across generations. Delina et al. (2025) and Lawangen and Roberts (2023) show that intangible culture can strengthen resilience and community continuity. However, when the social settings for transmission weaken, cultural knowledge becomes vulnerable. Atang faces this kind of vulnerability because much of its transmission

depends on family observation and participation.

The study also found that Atang should not be interpreted only through decline. Although some forms are changing, participants continued to recognize its importance. The concept of adaptive continuity is useful here. Atang persists by adjusting to new conditions. Offerings may become simpler, ingredients may change, or ritual arrangements may vary, but the core values of remembrance, respect, and family responsibility often remain. This interpretation avoids a simplistic narrative of disappearance and instead recognizes cultural transformation.

Table 2. Summary of Atang Documentation Findings & Alignment of Findings and Magazine Features

Content A: Summary of Atang Documentation Findings		
Area Documented	**Key Findings**	**Cultural Significance**
Cultural meaning	Remembrance, prayer, respect, family obligation	Maintains connection between living and deceased family members
Food items	Native delicacies, rice-based foods, fruits, drinks, family-preferred foods	Expresses care, memory, and symbolic offering
Tools and materials	Traditional kitchen tools, serving materials, candles, photographs or altar items	Shows the material culture of ritual preparation
Preparation process	Mostly learned through observation and family participation	Demonstrates embodied and intergenerational learning
Local terms	Ilocano food, tool, and ritual vocabulary	Preserves cultural language and meaning
Changes in practice	Simplified offerings, use of available food, less youth participation	Reflects adaptation rather than complete disappearance
Content B: Alignment of Findings and Magazine Features		
Documented Finding	**Digital Magazine Feature**	**Educational Purpose**
Atang is learned through observation	Intergenerational interview prompts	Encourages intergenerational learning
Youth have limited exposure to Atang	Reflection questions	Connects heritage to personal experience
Traditional tools are unfamiliar	Photo glossary	Builds cultural vocabulary
Recipes are orally transmitted	Recipe documentation pages	Preserves procedural knowledge
Offerings are simplified over time	Discussion prompts on change	Encourages critical thinking
Atang expresses remembrance	Family memory section	Links food, identity, and memory

Content A shows that Atang combines food, memory, material culture, and ritual performance. The practice is meaningful because it connects domestic preparation with spiritual remembrance. Content B demonstrates that the digital magazine was not developed as a detached product. Its features were directly based on the study findings. This strengthens the applied contribution of the research because the output translates cultural documentation into an educational resource.

Digital Magazine Development

The fourth research question focused on how the documented Atang practices were translated into a digital magazine. Based on the qualitative findings, the researchers developed a digital heritage learning resource containing cultural explanations, stories, recipes, photographs or visual materials, local terms, preparation guides, and reflection activities. The digital magazine was designed to make Atang more accessible to youth, educators, cultural workers, and community members.

The development process followed a documentation-to-digital translation approach. First, community narratives and observation data were documented. Second, the data were organized into major themes such as cultural meaning, preparation practices, tools, recipes, and challenges. Third, these themes were transformed into magazine sections. Fourth, experts evaluated the output. Fifth, recommended revisions were identified.

Digital preservation literature supports this approach. Digital technologies can help document and communicate heritage, but they must be designed with cultural accuracy and user relevance (Barbuti, 2020; Buragohain et al., 2024; Mendoza, De La Hoz Franco, & Gomez., 2023; UNESCO, 2023). A digital magazine is a practical format because it can combine text, images, recipes, stories, glossaries, and reflective prompts. It is less technically complex than metaverse or artificial intelligence applications but remains accessible for schools and community use.

The digital magazine also responds to the problem of reduced youth exposure. Since Atang is traditionally learned through observation, a digital format cannot replace family-based practice. However, it can supplement learning by making information visible, organized, and accessible. It can also encourage youth to ask elders, document family recipes, and reflect on the meaning of Atang in their own lives.

Expert Validation

The fifth research question examined how experts evaluated the digital magazine. The validation results indicated that the digital magazine was generally acceptable in terms of content quality and instructional quality. Experts recognized the value of the material in documenting Atang and presenting it as a cultural education resource. The content was considered culturally relevant, informative, and useful for learners and community members.

However, one important weakness emerged. The indicator on integrating instruction with the target users' previous experience received the lowest rating and was interpreted as not valid in the initial evaluation. This finding is significant because it reveals a common challenge in digital heritage education. A digital material may be accurate and visually organized, but it may still fail to fully connect with young users who have limited direct experience of the practice.

Rather than treating this low rating only as a technical problem, the study interprets it as an important design insight. Digital heritage materials should not merely archive cultural information. They should help users connect heritage knowledge with family memory, personal experience, and community participation. This is especially important for youth who may know Atang only as an elder-led ritual or may not have participated in its preparation.

To address this concern, the study recommends strengthening the digital magazine through family interview prompts, guided reflection questions, recipe documentation activities, QR-linked videos, local term glossaries, and classroom discussion guides. These features can help bridge documented tradition and user experience. This aligns with educational technology perspectives that emphasize the importance of learner-centered and context-sensitive instructional materials (Singzon, 2024).

Table 3. Expert Validation Results of the Digital Magazine

Validation Area	Mean	Descriptive Interpretation	Key Implication
Content quality	2.89	Valid	The magazine content was culturally relevant and informative
Instructional quality	2.83	Valid	The magazine was generally suitable as a learning resource
Integration with users' previous experience	2.00	Not Valid	More reflective and family-based activities are needed

Table 3 shows that the digital magazine was generally validated by experts, but it also requires improvement in connecting with youth users' prior experiences. This result strengthens the study because it identifies a specific design direction for future revision and user testing.

The validation findings support the broader argument that digital heritage resources should combine documentation with participatory learning. As digital cultural heritage research expands, scholars continue to emphasize the need for meaningful access, preservation, and user engagement (Li et al., 2025; Lian & Xie, 2024; Ren & Lam, 2026). In the case of Atang, meaningful digital preservation requires more than storing information. It requires creating opportunities for youth to reconnect with elders, family stories, local language, and ritual practice.

Despite the generally acceptable ratings obtained by the digital magazine, one important limitation emerged in the indicator "Instruction is integrated with the target user's previous experience," which received a mean score of 2.00, interpreted as Not Valid. This was the lowest rating among all the assessed indicators, identifying a significant area that requires improvement. Although the digital magazine presents culturally relevant information through visually organized content, it may not sufficiently connect the documented tradition with the actual experiences of its intended readers. This is particularly important because the target audience includes students and young people who may have limited direct exposure to the traditional preparation and observance of Atang.

The qualitative findings of the study provide further insight into this limitation. Interviews revealed that economic difficulties, migration, changing family arrangements, and modern lifestyles have influenced how families participate in Atang. These circumstances may reduce opportunities for younger generations to observe traditional preparations, assist older family members, and understand the cultural significance of the offerings. As a result, simply presenting information about Atang through a digital publication may not be enough to establish a meaningful connection with readers who have not personally experienced the tradition. This suggests that the low validation score may reflect a gap between the cultural information presented in the magazine and the actual experiences of its intended audience.

This finding highlights the importance of designing instructional materials that not only communicate cultural information but also encourage readers to connect it with their existing knowledge and experiences. UNESCO (2023) emphasized the opportunities provided by digital platforms for safeguarding intangible cultural heritage. However, digital documentation should also provide sufficient context to help audiences understand the meaning and significance of the traditions being presented. Similarly, Buragohain et al. (2024) emphasized that although digital technology offers opportunities for cultural preservation, younger generations also need relevant and experiential learning opportunities to develop an appreciation of traditional practices. Taken together, these perspectives suggest that digital materials should go beyond information presentation

by incorporating activities that promote personal reflection, family interaction, and active engagement with cultural knowledge.

In response to this limitation, succeeding versions of the digital magazine should incorporate more youth-centered and experience-based instructional features. One proposed addition is an "Ask Your Elders" page containing guided interview questions that encourage students to ask their parents, grandparents, or other older relatives about their experiences with Atang. A "My Family Remembrance Story" section may also allow readers to reflect on their family traditions and the ways their households remember deceased loved ones. To strengthen cultural understanding, "What Does This Ingredient Mean?" explanation boxes may introduce the significance of local ingredients, while a "Try to Document a Family Recipe" activity may encourage readers to record traditional food preparations shared by their family members.

Other possible enhancements include QR codes linking to video demonstrations, short Ilocano-English glossary entries, youth-friendly infographics, community photo documentation activities, short quizzes, and guided reflection questions. A user navigation guide and bilingual explanations may further help readers explore the magazine independently and understand unfamiliar local expressions. These features are proposed improvements rather than components already validated in the current version. Therefore, they should be incorporated through careful revision and subsequently reviewed and tested with students to determine whether they improve the material's relevance, accessibility, and instructional value.

Overall, the low rating does not invalidate the digital magazine as a cultural documentation resource. Instead, it identifies a specific instructional gap that needs to be addressed to strengthen the material's effectiveness in promoting Atang among younger audiences. By incorporating opportunities for personal reflection, family-based learning, and active participation, the digital magazine may become more than a source of cultural information. It may also serve as a means of encouraging meaningful connections between documented traditions and the lived experiences of succeeding generations.

Conclusion and Recommendations

This study concludes that Atang remains an important Ilocano ritual food practice that carries meanings of remembrance, spirituality, family responsibility, and cultural identity. Although modernization, migration, economic constraints, changing lifestyles, and reduced youth exposure have transformed the practice, Atang continues through adaptive continuity. Its core meanings persist even when offerings become simplified or ritual forms change.

The documentation of ingredients, tools, recipes, preparation techniques, local terms, and symbolic arrangements shows that Atang is both a culinary and cultural heritage practice. It is learned primarily through observation, family participation, and oral transmission. This makes it vulnerable when younger generations have fewer opportunities to witness or join the practice.

The developed digital magazine demonstrates how community-based documentation can be translated into a digital heritage learning resource. Expert validation showed that the magazine met acceptable standards in content and instructional quality, while also identifying the need to strengthen its connection to youth users' prior experiences. The study contributes a documentation-to-digital translation approach that may be adapted by schools, cultural institutions, local government units, and communities seeking to safeguard underdocumented intangible cultural heritage.

Based on the findings and limitations of the study, several recommendations are proposed.

Schools and teachers may use the digital magazine as a supplementary heritage education material in subjects related to culture, local history, values education, social studies, food heritage, and community-based learning. Teachers are encouraged to pair the magazine

with reflective activities, family interviews, and local heritage documentation tasks.

Youth and students are encouraged to engage with elders and family members to learn about Atang and other local cultural practices. The "Ask Your Elders" prompts, recipe documentation pages, and reflection activities may help young people connect digital learning with family memory and lived experience.

Local government units, tourism offices, cultural agencies, and community organizations may consider using the digital magazine as part of cultural preservation programs. However, any public dissemination or tourism-related use should observe cultural sensitivity, community consent, and ethical representation to avoid commercializing or misrepresenting the practice.

Future developers of the magazine should add more interactive and youth-centered features, such as QR-linked videos, audio narratives, pronunciation guides for Ilocano terms, visual glossaries, printable classroom worksheets, and family interview templates. These improvements can address the validation concern regarding integration with users' prior experiences.

Future researchers may conduct user testing with students and community youth to evaluate readability, usability, cultural relevance, engagement, and learning outcomes. Comparative studies may also examine Atang practices across different Ilocano communities or investigate other ritual food practices in the Philippines using a similar documentation-to-digital translation approach.

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