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CASTING NETS OF KNOWLEDGE: EXPLORING TRADITIONAL FISHING PRACTICES AS INSTRUMENT FOR LEARNING AND SUSTAINABILITY

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ABSTRACT

Traditional fishing practices in coastal communities embody rich indigenous knowledge systems that can serve as valuable resources for contextualized learning. This qualitative research using rapid ethnographic approach explores how traditional fishing practices function as informal learning system that transmits ecological knowledge, cultural values, and life skills across generations. It specifically aims to document traditional fishing practices existing in coastal communities, analyze the ecological values embedded in these practices, and explore their potential integration into formal and community-based educational contexts. Eight (8) key informants, composed of fisher folks, community elders, teachers, and students from the coastal communities in the Province of Capiz, were purposively chosen based on their knowledge of traditional fishing practices, exposure to the fishing community, and willingness to participate. Data were collected through in-depth interview, direct observation, and fieldwork ensuring that needed information from the informants are captured. To identify recurring patterns, data analysis was done using thematic analysis by Braun and Clarke (2006). Findings reveal that intergenerational transmission of knowledge, harmony with nature and ecological stewardship, communal cooperation, life skill values, ecological knowledge, and integration of traditional knowledge in education emerge as major themes. The results demonstrate that traditional fishing activities function as community-based learning spaces where practical knowledge, cultural identity, and environmental stewardship are developed among younger generations. Further, traditional fishing practices are still practiced by Capisnon (people of Capiz) fisher folks. Further, the study highlights the potential of integrating indigenous and community-based knowledge like the traditional fishing practices into formal education to enhance contextualized learning and sustainable education. Incorporating traditional fishing knowledge into curriculum design, experiential learning activities, and instructional materials can strengthen learners' cultural identity while promoting responsible resource management. Thus, traditional fishing practices represent valuable educational resources that can support culturally grounded and sustainability-oriented education in coastal communities.

KEYWORDS: Traditional Fishing Practices, Indigenous Knowledge System, Sustainable Education, Ecological Stewardship, Community-Based Learning.

1. INTRODUCTION

The traditional fishing practices possess an opulent body of indigenous knowledge and information that has flourished through generations of interaction among communities and its inhabitants. It has been linked to humanity since its origin for it traces all aspects of culture and engenders knowledge, skills, and techniques that are handed down from generations (De Madariaga & Del Hoyo, 2018). Anchored in ecological understanding and cultural heritage, these traditional fishing practices exemplify sustainable approaches to resource management that have enabled coastal and riverine communities to thrive while maintaining environmental balance. It holds great significance, deeply ingrained in the fabric of Filipino society and educational landscape, shaping livelihoods, traditions, and education alike (Castilla et al., 2024). In other words, fishing touches a depth of culture and education, not only a source of living. It constitutes an important dimension of the cultural and social lens of coastal communities, accompanying rituals and knowledge transmission modes that are interlinked with local formation identity embedded within governance structures (Gonzalez, 2024).

In the Philippine context, traditional fishing is not only means of daily livelihood and economic survival among fisher folks but also acting as helpful learning systems that transmit environmental knowledge, skills, fishing techniques, and community values. It functions as an informal educational means within coastal communities. Knowledge is passed down from generation to generation through observation from the elders doing fishing activities, actual fishing participation, and oral traditions, allowing younger generations to develop practical skills and environmental awareness. This informal experiential learning process among young ones fosters a deep connection to nature and promotes responsible stewardship of aquatic resources available in the community that are handed on their care. As such, traditional fishing can be viewed as both a cultural practice and an educational instrument for contextualized experiential learning. Research studies revealed that culturally responsive curriculum can significantly improve the understanding and involvement of students which provide a strong theoretical foundation for instructional strategies (Mwanza & Changwe, 2021 as cited in Sevilla et al., 2025).

Furthermore, research shows that culturally responsive curriculum can significantly improve student understanding and involvement, providing a solid theoretical foundation for these instructional strategies (Mwanza & Changwe, 2021). Conversely, young individuals who are engaged in fishing and whose families had been in the fishing industry, particularly those pursuing formal education, develop awareness of the sector's sustainability imperatives. With this, education extends beyond conventional schooling to encompass diverse forms of capacity building that foster responsible and sustainable fishing practices. This perspective stresses the multifaceted function of educational infrastructure in advancing sustainability in the fishery sector (Wirajing & Nanfosso, 2025). According to Karisan and Zeidler (2017), the contextualization improves students' understanding of scientific ideas and gives them the tools they need to understand and participate in debates about challenging socio-scientific topics. Therefore, integrating traditional fishing methods into science instruction enhances students' educational experiences and fosters culturally grounded scientific literacy.

Recognizing the great significance of these indigenous practices, it is deemed necessary to investigate how to integrate traditional fishing knowledge into formal and non-formal education, as well as into sustainable fisheries management programs. Incorporating this local knowledge into curriculum design, contextualized lesson, and authentic learning experience, especially the fishing practices strengthens learners' cultural identity that promotes environmental stewardship. By positioning traditional fishing as both a pedagogical instrument and a model for sustainability, this study highlights the relevance of using local knowledge (LK) and addressing contemporary environmental challenges while preserving cultural heritage through formal and non-formal education. Learners' understanding of scientific ideas gives them the tools they need to understand and participate in activities about challenging socio-scientific topics (Karisan & Zeidler, 2017). Integrating traditional fishing methods into teaching-learning processes improves learners' learning experiences and promotes culturally grounded literacy (Sevilla et al., 2025).

Thus, this study aims to investigate how traditional fishing practices can be utilized as a dual instrument for learning and sustainability. By examining how these local practices contribute to transmission of knowledge and ecological preservation, the research seeks to emphasize their potential role in contemporary education through

curriculum design, instructional materials, and learning activities. Specifically, it seeks answers to the following questions: What traditional fishing practices are still being observed in the fishing community of Capiz? What life skills values and ecological knowledge are embedded on these practices? How can these be integrated into the teaching-learning process? And, how do these practices promote sustainable resource use?

2. LITERATURE REVIEW

2.1. Theoretical Underpinnings: Indigenous Knowledge Systems, Experiential Learning Theory, And Socio-Cultural Theory

The integration of traditional fishing practices into educational or instructional context is supported by Socio-Cultural Theory, Indigenous Knowledge Systems, and Experiential Learning Theory, that collectively affirm the value of local ecological knowledge and wisdom, experiential involvement, and cultural mediation in advancing sustainable education.

Traditional fishing practices are indigenous ecological knowledge handed down through generations. IKS validates these practices as genuine sources of learning rather than treating them as informal or secondary. This safeguards that learners not only acquire technical skills but also appreciate the cultural values and sustainability principles embedded in local traditions. As a result, it bridges heritage and contemporary education, making instruction more meaningful for coastal communities whose identities are tied to fishing.

In addition, the Experiential Learning Theory of David Kolb (1984) is also appropriate in the study for traditional fishing practices are fundamentally experiential, which means that learners gain knowledge by doing, observing, and reflecting. Kolb's cycle of experience to reflection, to forming conceptualization, and finally to application are parallel on how fishing knowledge is acquired by learners in communities. This theory highlights the idea that sustainability can be best understood when learners actively engage in fishing activities rather than listening to lectures, then reflect on their ecological and cultural significance (Englewood Cliffs, 2006).

In parallel, the Social-Cultural Theory of Lev Vygotsky emphasizes how traditional fishing knowledge is transmitted through social interaction like community rituals and storytelling. Through constant interaction, local knowledge is transmitted inadvertently.

Summing up, these theories offer a strong theoretical foundation for framing traditional fishing practices as pedagogical instrument that enhances both formal and non-formal education, while promoting sustainability and cultural preservation.

2.2 Traditional Knowledge as Pedagogical Resource

Research shows recognition of the great role of indigenous knowledge systems as a valuable source of contextualized learning. For instance, in coastal communities, fishing practices represent ecological wisdom, cultural values, and sustainability principles, making them ideal for integration into educational contexts such as curriculum design, lesson scripts, experiential activities, and environmental concern. Sevilla et al. (2025) demonstrated this by developing and validating science lessons based on indigenous fishing practices in Masbate and Albay, showing that local methods can effectively illustrate ecological balance and resource management. Similarly, Barcebal (2023) highlighted how fishers' cultural knowledge and translanguaging practices in Antique inform instructional material development, affirming the pedagogical value of community-based knowledge. Further, Khan (2024) stressed out the sustainability-oriented outcomes of traditional practices when applied in the context of individualized learning. Collectively, these studies demonstrate that integrating fishing practices into education fosters ecological awareness, cultural preservation, and curriculum relevance.

The usage of traditional knowledge and practices in educational setting is supported by UNESCO's Education for Sustainable Development (ESD) framework which promotes the integration of indigenous ecological knowledge into curriculum design and learning activities to promote responsible resource use (UNESCO, 2020). Khan (2024) compared traditional and modern fishing practices globally, noting that traditional methods frequently prioritize ecological balance and community welfare. Generally, ethnographic studies reveal that fishing taboos and rituals function as informal conservation strategies, making them valuable instructional tools for teaching sustainability in both science, language, and social studies.

On the other hand, one of the mandates of the Philippine K–12 curriculum encourages the use of contextualization, indigenization, and localization in teaching-learning process to ensure relevance to

learners lived experiences. The Place-based Education Framework of Gruenewald (2003) supports the contextualization practice by delving instruction in local environments and cultural contexts. Likewise, the fishing practices in coastal communities also provide authentic exemplars for teaching biodiversity, conservation, and cultural identity. The study of Candelario (2025) highlights the use of local knowledge by proposing the integration of the Cuartero folk songs in Music 7 instruction in the Province of Capiz, Philippines. This shows how local heritage can be transformed into instructional materials that strengthen both cultural pride and curricular relevance.

The study of Besmonte and Miña (2021) showed that there are varied Physics principles and concepts gleaned from the indigenous fishing practices of fisher folks. These principles applied by them are ranging from motion and energy, waves and optics, density and pressure, and even electricity, while concepts include force, motion, center of mass, pressure, buoyancy, elasticity, work, momentum, light, and sound. This shows that indigenous fishing practices exemplify applied physics in individual's everyday life, proving how traditional knowledge systems are deeply scientific even without formal terminology. They are not just cultural traditions but carried physics lessons. They can transform how to teach, research, and innovate—rooting science in lived experiences while preserving cultural heritage.

Bibon's (2020) study has proven that integrating folk hunting practices is effective in a culture-based module for teaching biodiversity. He recommended its integration in the learning competencies of science. It affirms that indigenous practices are authentic sources of scientific insight. By embedding them in learning competencies and experiences, education acknowledges the value of local knowledge and positions it alongside mainstream science.

The ethnomathematical concepts of Tolentino (2025) are also embedded in the bubo fishing practices of local fisher folks. His findings show that the fishing community possesses a rich body of ethnomathematical knowledge that offers significant mathematical insights for educational purposes. Such knowledge can serve as a valuable foundation for educators and curriculum designers in the development of context-based curriculum content and the design of culturally relevant teaching and learning materials.

The knowledge, beliefs, and fishing practices of migrant fishers were documented under the narrative ethnography lens. Fisher folks in the Philippines more often depend on their local knowledge (LK) in creating a shared understanding of fishing and aquaculture farming. Their LK becomes the main source of information for this economic activity; it is centrally embedded in their language, Hiligaynon (Suatengco & Joaquin, 2019). Their cultural funds of knowledge and translanguaging praxis were generated that led to the development of contextualized instructional materials such as translingual storybooks and teacher's guides which was rated very acceptable when pilot tested (Barcebal, 2023).

Thus, traditional fishing practices demonstrate how indigenous knowledge systems can be harnessed for educational undertakings. Incorporating these practices into the curriculum, instructional materials, and learning activities provides culturally relevant contexts for learning. It also enriches students' understanding and affirms the value of local heritage within formal education.

3. METHODOLOGY

3.1. Research Design

This qualitative research utilized a rapid ethnographic design. According to Baines and Cunningham (2013) rapid ethnographic research design includes data collection from various sources over a relatively short period. As emphasized by Reeves et al. (2008) rapid ethnography has a shorter and more compressed timeframe for field activities compared with traditional ethnography. Its purpose is to collect rich and contextual data about a specific situation or community within a limited period, often to address urgent research needs and specific questions (Millen, 2000). This approach is beneficial, as the study requires a timely understanding of the experiences and cultural contexts of key informants. Data that were considered relevant only to the study were gathered to gain a deep understanding of how traditional fishing practices can be embedded in educational processes.

3.2. Research Informants

This research utilized eight (8) key informants consisted of two (2) fisherfolks, two (2) elders, two (2) teachers, and two (2) learners. They were purposively chosen based on the merit of the following criteria such as informants have knowledge in traditional fishing or have been doing fishing in traditional way for not less than three (3) years; living in coastal community; and willing to become informants with sufficient time to provide the needed data whenever needed. According to Creswell (2013) purposive sampling is aptly fitted in

selecting informants who possess rich knowledge and experiences related to the research topic in a qualitative study.

3.3. Research Local

The research was conducted in the coastal communities in the 1st and 2nd Districts of the Province of Capiz. Dubbed as the" Seafood Capital of the Philippines", Capiz is a coastal province, which is known for its rich cultural heritage, natural resources, and historical significance. It has an area of 2,595 km2 located in the central section of Western Visayas region. It is located at the northeastern portion of Panay Island, bordering Aklan to the north, Antique to the west, and Iloilo to the south (PDC, 2021).

3.4. Research Instrument

The research utilized interview guide questions, observation checklist, and field notes as research instruments in gathering data. The instruments used postulated a comprehensive view of the rich data. In establishing the validity of the instruments, the experts evaluated the content and relevance of each question. They gave valuable inputs on enhancing interview guide questions that improved the clarity and alignment with the objectives of the study. Moreover, McNiff (2010) emphasizes that usage of multiple instruments enhances the credibility of the study for it offers various perspectives on similar issue.

3.5. Data Collection and Analysis

The key informants were identified based on the set inclusion criteria for choosing the informants of the study. Direct observation, in-depth interview with fisherfolks, elders, teachers, and students, and field work were the data collection techniques used. The observation data were gathered using audio recordings, video recordings, and photographs. In-depth interview was done with the use of interview guide questions, while field notes were gathered through fieldworks. The data collection was deemed complete when sufficient information met the research objectives. All interviews were recorded (with consent from the informants), transcribed, and validated by the key informants for accuracy. Data from interviews, observations and field notes were cross-verified through member checking and critical friend to ensure reliability and validity of findings. The researcher adapted Braun and Clarke's (2006) thematic analysis in analyzing the data, which consisted of (1) familiarizing with the data, (2) generating initial codes, (3) generating initial themes, (4) reviewing themes, (5) defining and naming themes, and (6) writing the report, that helped the researcher in identifying recurring patterns and themes from the narratives of the key informants.

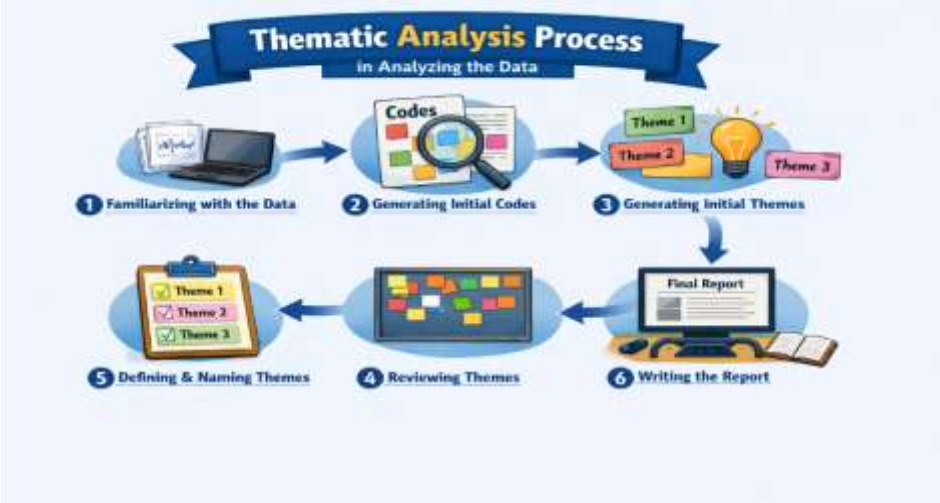

Figure 1: The Thematic Analysis Procedure Adapted from Braun and Clarke (2006).

4. RESULT AND DISCUSSION

4.1. Existing Traditional Fishing Practices

Based on interview transcripts and observation checklist, data revealed that several traditional fishing practices were observed and still practiced by many fisher folks within coastal communities in Capiz. These fishing practices noted included *pamana, hudhud, pamaslay, pamunit, pangasag, pukot, pamanti, pagataw, bubo, timing, panikop, panisi, pamuho, panulo, pangarit, pamintol, arong, padugmon, taba, tangab, surambaw, birabira, pagataw, patuloy*, and *panilag.* It conforms with the study of Joaquin (2021) that traditional fishing methods were observed in

Northern Panay categorized into active fishing, passive fishing, pot fishing, and hand fishing. The Capisnon fisherfolks have continued their livelihood using traditional fishing methods. Notwithstanding the availability of technology, many local fisherfolks still prefer utilizing traditional fishing techniques and fishing gears in catching fish. Zayas (2022) also noted that *bubo* fishing or fish trap, which is a traditional fishing method, is widely used and culturally practiced around the world. Mostly of the fishing gears or materials used by them are made from *kawayan/butong* or bamboo and other locally available materials in the community. This observation was further supported Monteclaro et al. (2017) who documented various traditional fishing gears used by local fisherfolks in Aklan.

Moreover, thematic analysis of the qualitative data revealed major recurring themes underpinning the traditional fishing practices used by many fisherfolks in coastal communities in Capiz, notably ralating to life skill values, ecological knowledge, communal cooperation, harmony with nature and ecological stewardship, intergenerational transmission of knowledge, and integration of traditional knowledge in education.

4.2. Life Skills Values

The analysis of the informants' narrative highlighted that the fishing practices of Capisnon function as an informal avenue for values formation. Virtues of patience, perseverance, discipline, and humility are cultivated through the repetitive nature of fishing activities, where triumph is contingent on endurance rather than immediate outcomes. This aligns with Pratiwy et al. (2019) that traditional fishing ritual encodes norms of politeness, hope, respect, family atmosphere, and advice-giving, forming a value system that guides social interaction and practical conduct. These values are shaped through everyday practice as fisher folks go on fishing. As one fisher folk informant shared, "*Gahulat gid kami sang malawig kay kon kaisa aya-ay gid ang panguha*" (Sometimes, we waited for long because there is no catch). The long hours of waiting for a catch cultivate patience among fisher folks, while recurrent obstacles require perseverance and resilience. Beyond the moral values traditional fishing develops, life skills such as problem-solving, shared labor, and adaptive decision-making emerge naturally as fisherfolks respond to unpredictable environmental conditions and catch fluctuations. According to a Teacher Informant, "*Ang pagpangisda nagatudlo sa aton sang pasensya, pagtimakas kag pagsalig. Indi mo mapilit ang dagat na maghatag kundi maghulat ikaw kag magsalig*" (Fishing teaches us patience, hard work, and faith. You can't force the sea to give; you have to wait and trust). These findings reveal that traditional fishing is not just a financial activity but also a pedagogical process, that forms both the character and competencies of individuals engaged in it. This theme shows how traditional livelihoods like fishing functions as character education. In rural Alaska, fishing is valued not only economically but as a way of life that teaches family cohesion, community solidarity, cultural identity, and a sense of freedom and self-sufficiency to younger generations, even as participation declines (Holen, 2014). Thus, fishing becomes a metaphor for lifelong learning, where patience and perseverance are rewarded, and mistakes are viewed as opportunities for growth.

4.3. Ecological Knowledge

Findings reveal that ecological knowledge is embedded in the traditional fishing practices of Capisnon fisher folks. They develop long-term interaction with their environment particularly with the sea, giving them a deeper understanding of its characteristics and nature. Fisher folks learn to read environmental weather cues, adjust fishing techniques to changing tides, and devise remedy or mitigation to unforeseen weather challenges. It conforms with the findings of Jones et al. (2024) that small-scale and artisanal fishing practices are considered repositories of indigenous and local knowledge used for assessing abundance, effort, and ecological change of fisher folks. They have the special ability to read season patterns and even fish behaviors. "*Ah gapamatyag gid ako kon sano dapat magpalawod kag kon diin banda magkadto. May ara gid tini-on nga bugana ang kuha sang tagsa ka klase sang isda*" (I usually use my instinct when to go to the sea and which part to go. Each species has its own catch season). Fisher folks are usually familiar with fish habitats like coral reefs and mangroves. They even know where and when certain species appear based on tides and lunar cycle. They can predict weather condition without forecasting tools by interpreting animal and plant behavior, and reading cloud formation and wind direction. These help them decide when it is safe and not safe to go to fishing to the sea. These findings align with the review conducted by Morales et al. (2017) on ethnobiology and fisheries which emphasizes that traditional fishing embed complex management systems, where local knowledge provides foundation for social-ecological resilience in aquatic systems.

Likewise, Kitolelei et al. (2021) also documented how time-tested gear, lunar/seasonal calendars, and spatial rules encode ecological understanding of target species and habitats.

4.4. Communal Cooperation or Bayanihan Spirit

Communal cooperation, often shown through the Filipino *bayanihan* spirit appears as another emerging theme from the narratives of key informants. Fishing usually demands collective effort from hauling nets, repairing boats, and sharing catch. These activities develop solidarity, cooperation, and mutual support among community members.

In Vietnam, fishers trust on their collective strength in times of harsh and risky offshore. With cooperation built through kinship and village ties, fishers strengthen their community spirit which is essential for livelihoods and continued fishing engagement (Van Tuyen & Phuong, 2025). Fisher folk informant uttered "*Kon ang isa mangisda ang iban mabulig man. Ginapartida namon ang kuha labi na gid kon ang iban wla gid kuha*" (When one goes fishing, others help. We share the catch, especially when other's net is empty). The virtue of cooperation safeguards labor efficiency and fair distribution of resources, that strengthens trust and social unity among members of the community. Cantor et al. (2024) record the net-casting of fishers that coordinate timing, space, and technique. Fishers learn the practice through social learning within tightly knit fishing groups, reinforcing cooperative norms over time. In life context, the *bayanihan* spirit in traditional fishing mirrors broader community interactions like families helping each other in times of calamities, neighbors helping one another during harvest seasons, or showing sympathy during difficult times. These situations show that fishing is not merely an economic pursuit but a living example of collective identity of people living in the community, where cooperation and teamwork develop both into a survival strategy and customary act. This theme exemplifies how traditional fishing practices promote social learning such cooperation, empathy, and community responsibility, which can be translated into classroom settings through collaborative and service-oriented learning models. For instance, learners will be classified into different 'fishing teams' and given materials like paper fish and string nets. They will be tasked to perform fishing activities. In doing it, they must coordinate their movements to catch fish, realizing that success depends on cooperation and shared effort of everyone involved. After the activity, it will be followed by discussion how empathy is shown when sturdier members assist those who struggle, and how community responsibility is shown when everyone avoids overfishing to preserve resources for others. Through this experience, learners realize that traditional fishing is not just about livelihood but also building teamwork and protecting the common good.

4.5. Harmony With Nature and Ecological Stewardship

Ecological stewardship is an inherent way of life implicitly embodied in the traditional fishing practices that tranlates a sense of harmony with nature. Fisherfolks have the ability recognize the unpredictable rhythms of the sea, the unforeseen seasons, and the spawning cycles even without formal schooling. They learn to adjust their fishing methods using local materials to survive the unanticipated environmental challenges. According to Fisher folk Informant, "*Nagapangisda lang kami kon gusto sang dagat. Kon tyiempo sang pamihod nagapahuway man kami"* (We only fish when it's allowed by the sea. During breeding season, we rest. That's what our elders taught us). In real-life context, fisherfolks show stewardship through observance of closed fishing seasons for some fish varieties to allow fish stocks to generate eggs, usage of non-destructive fishing gear to protect marine habitats, pass down ecological knowledge to younger generations. "*Nahambalan kami ni tatay ibalik sa dagat ang isda nga may bihod"* (Our father said return the fish with eggs in the sea), one Student Informant shared. In Finland, fishers are dependent on detailed knowledge of weather, fish behavior, and lake ecosystem to maintain the economic viability of the fishery sector without depleting stocks (Mustonen et al. 2022). This reflects stewardship ethics, where the environment is considered not merely as a source of living but as a mutual partner in survival. In Indonesia for instance, integrating TEK with modern methods, are considered pathways in improving coastal resilience and biodiversity while sustaining livelihoods, through local marine protected areas and seasonal closures designed and enforced by their communities (Prawira, 2025). These findings speak about ecological stewardship that is rooted in traditional fishing, extending into everyday life, and serving as guiding values for resilience, sustainability, and cultural preservation. Teacher informant shared, "traditional ecological knowledge

(TEK) like traditional fishing practices can be integrated in our Science or TLE classes emphasizing on sustainable resource management, aligning with Sustainable Development Goal (SDG) 14: Life Below Water". This can be done by utilizing TEK into Science classes as real-life examples of sustainable resource management. Teachers can emphasize how initiatives like community-based rules and seasonal fishing refrain overfishing and at the same time protect marine resources, linking them to biodiversity, conservation, and ecosystem scientific concepts. This teaching approach is not only grounded in local culture but also aligns with SDG 14, proving that traditional knowledge contributes to preserving aquatic life and marine resources.

4.6. Intergenerational Transmission of Knowledge

Intergenerational transmission of knowledge emerged as one of the major themes of the informants' narratives. Traditional fishing practices are passed down by the fisher folks to their children through observation, actual fishing participation, and oral instruction. It is evident that knowledge transfer is a bidirectional exchange among generations rather than just one-way teaching. They learned knowledge about fishing seasons, wind directions, and net weaving not from formal schooling alone but from their elders and family members. "*Amon kabataan nag-antigo pangisda pamaagi sa pag-upod sa amon sa dagat. Nagalantaw kag pamati sila sa amon asta nagkaantiguhan sila"* (Our children learn fishing by joining us at sea. They watch, listen, and eventually master the craft) shared one fisher folk. This is called adaptive knowledge transfer. This intergenerational process of knowledge transmission mirrors what Lave and Wenger (1994) referred as situated learning, where knowledge is formed through actual participation in authentic community activities. In a Mexican fishing community, traditional, ecological knowledge, and even scientific are passed on to the youth, adults, and elders through hands-on participation in fishing. They perform navigation, gear handling, and decision-making (Melo, 2024). It can be viewed that learning naturally happens in authentic contexts, making the sea a living classroom and the elders, the acting teachers. From an educational standpoint, this finding reveals that communities already practice informal education through family members and elders that embody critical pedagogical elements like mentorship (parents/elders/guardians to children), experiential learning, and reflective observation.

Additionally, one Teacher Informant said, "Since I am teaching near coastal area, I use authentic examples in our class discussion especially in my English class. I write discourses about fisherman's livelihood and life". This means that teachers can use informational texts or stories about traditional fishing methods for learners to read, and then ask them to write descriptive paragraphs about fishing activities or scenes. Learners may also role-play conversations or dialogues between fisher folks and fish buyers at the market. Likewise, fishing-related words can be used in teaching grammar and tenses. These teaching strategies not only strengthens English language proficiency but also bring learners closer to their culture. In short, it makes learning richer, more practical and culturally grounded.

4.7. Integration Of Traditional Knowledge in Education

The integration of traditional knowledge into educational activities through curriculum design, instructional materials, teaching strategies or approaches, lesson planning, class discussion, and learning activities is an important link between cultural heritage and contemporary learning.

Traditional fishing practices can be embedded in curriculum design by making it as a framework that links learning outcomes with cultural heritage and real-life practices. For instance, in language subjects, dialogues, stories, reading texts/articles can be utilized as authentic learning materials to develop leaners' communications skills. In Mathematics, fishing contexts can be used for problem-solving scenarios like calculating catch weights or estimating/analyzing market prices or income. In Science, traditional fishing practices can illustrate scientific concepts of ecosystem, biodiversity and sustainability.

As technology advances, ETK should not be left behind. This must be introduced to the younger generation for appreciation and preservation. In a fishing community context, fisher folks' indigenous practices and knowledge on reading season patterns, identifying spawning cycles, understanding marine ecosystems, reading wind directions, and applying sustainable techniques offer practical pedagogical content that can complement formal school curricula. For instance, teachers can make contextualized reading passages that describe how fisher folks interpret wind directions or spawning cycles. Learners can be asked to produce procedural texts on sustainable traditional fishing techniques like *surambaw* or *pukot*. Project-based learning like learners creating posters or brochures in

English that promote sustainable traditional fishing methods like *pamunit* or *hudhud*.

Embedding these forms of knowledge in classroom discussion or instruction not only validates local wisdom but also fosters cultural pride and identity among learners. In Libon, Albay, traditional fishing practices were used to design and validate contextualized science lessons for Grade 7. Students who learned science concepts (e.g., forces, buoyancy, ecosystems) through local fishing examples showed higher post-test scores and greater engagement (Sevilla, 2025). A global review of traditional ecological knowledge among fishers emphasizes recording memories and practices as a basis for education and stewardship, positioning TEK as both a content source and a pedagogical resource for sustainability education (Melo, 2024). In real-life context, the integration is evident in community-based learning, where elders and local practitioners talk and share fishing techniques and ecological insights with the children or young ones. This reinforces experiential learning among learners.

Moreover, teachers may embed local songs, local stories, and even rituals into lesson presentation to show how traditional knowledge enriches pedagogy, fostering cultural pride while equipping learners with practical life skills. As shared by Teacher Informant, "We can use the various fishing methods and gears in making our instructional materials, learning tasks or activities, and even mentioning it as exemplars so to make it more authentic". Another Teacher Informant added, "I took pictures of fishing gears or sometimes fisherfolks when hauling boats together. I used it in as springboard activity for my English class. *Namian gid students magdescribe sang pictures. Relate much daw sila"*. (Students liked describing the pictures. They can relate much on the pictures). In Antique, Philippines, the fishers' "funds of knowledge" (beliefs, skills, practices) and translanguaging, were translated into contextualized storybooks and teacher guides for classroom use. These materials were rated "very acceptable/excellent" and are proposed as models for integrating community fishing knowledge across subjects (Barcebal, 2023). Thus, education is not only about academic knowledge and competencies but also about sustaining cultural heritage, nurturing identity, and promoting ecological stewardship. By bridging classroom instruction with community knowledge, learners gain both practical life skills and a deeper appreciation of their cultural roots.

Table 1: Emerging Themes from Informants' Narratives.

Major Themes	Sub-themes	Codes
Life Skills Values	Patience Perseverance Discipline Humility	Endure Persevere Self-control Acceptance

Ecological Knowledge	Predict weather condition	Interpret wind directions Read cloud formation Interpret animal behavior
	Identify fish habitats	Familiar where corals & mangroves are located
Communal Cooperation	Shared labor	Collective work/effort Communal, Consensus
	Collaborative decision-making	Sharing Catch, Unity, hauling /Repairing boats/nets together
	Social Cohesion	
Harmony with Nature and Ecological Stewardship	Observed Fishing Season	Spawning Cycles
	Usage of Non-Destructive Gear	Bamboo, Local Materials
	Pass Down Ecological Knowledge	Telling rituals to children
Intergenerational Transmission of Knowledge	Oral instruction Mentorship/Participation	Storytelling Elder mentorship, joining actual fishing
	Observation Adaptive Knowledge Transfer	Watching elders Adapt what has been observed
	Curriculum Contextualization	Integrate in curriculum, Pedagogical content
Integration of Traditional Knowledge in Education	Instructional Materials	Use in teaching, lesson planning Springboard lesson, use as examples
	Learning Activities	

4.8. Promoting Sustainable Resource Use

The promotion of sustainable resource use is an integral concern in fishing communities for livelihoods of fisher folks depend directly on the vastness of the sea and condition of marine ecosystems. The rich traditional fishing practices carry ecological wisdom handed down from elders like observance of closed seasons for fishing, use of non-destructive fishing gear, and respect on spawning grounds to ensure the availability of fish stocks. In real life, these values are strengthened through community-based resource management like formulation of standing rules and policies for sustainable fishing. For instance, fisherfolks follow the rules for fish catch limits, fishing gear restrictions, and protected areas. "*May ginasunod man kami diri sa amon lugar na policiya sa pangisda kapareho sang lugar kon diin lang pwede kapangisda*" (We are following rules like where to go fishing). In Australia, it is emphasized that "taking enough" to relieve hunger, observing seasonal and abundance-based restrictions, and avoiding harvest during vulnerable stages such as spawning, allow fish stocks to regenerate and ensure high nutritional quality of fish taken (Shamsi et al., 2020). On the other hand, Indigenous Pacific salmon fisheries developed selective gear, habitat-sensitive harvest practices, and local governance that limited catch, protected spawning periods and places, and distributed access within communities, supporting long-term salmon productivity and social resilience (Atlas et al., 2020). Moreover, educational campaigns, youth involvement in coastal clean-ups and environmental protection, and linkages/partnerships with local government units (LGUs) demonstrate how sustainable resource use goes beyond fishing itself, becoming a shared ethics that directs everyday living. "We are doing coastal clean-up with our students. It is part of our school organization's initiatives to protect our nature" uttered by one of the Teacher Informant. It was supported by Student Informant who agreed that "*Upod kami sang amon mga maestra gapamulot plastic sa kilid baybay*" (We are together with our teacher in picking up plastics along the sea side). The findings are reflections that sustainability in fishing communities is not merely a technical strategy but a lived belief, rooted in shared action and cultural respect for nature.

5. CONCLUSIONS

The traditional fishing practices practiced by many fisher folks in coastal communities in Capiz embody a rich ecological wisdom, not learned from formal schooling, but from family members and elders through community-based learning. These traditional fishing practices are related to life skill values, communal cooperation, harmony with

nature and ecological stewardship, intergenerational transmission of knowledge, and integration of traditional knowledge in education. The repetitive nature of traditional fishing activities promotes the gradual formation of virtues such as patience, perseverance, and discipline. These virtues formed are product of long hours endurance in the sea and the uncertain outcomes it may have. Thus, fishing is more than a livelihood. It becomes a formative experience that shapes character through lived experiences. Triumph in fishing is not immediate but contingent upon fisherfolks' endurance. Their resilience and virtue are cultivated through sustained effort amidst nature's unpredictable nature. Communal cooperation among fisher folks is often shown through the Filipino *bayanihan* spirit. These practices are passed down by the fisher folks to their children through observation, actual fishing participation, and oral instruction.

Their knowledge on reading season patterns, identifying spawning cycles, understanding marine ecosystems, reading wind directions, and applying sustainable techniques offer practical pedagogical content that can complement formal school curricula. The integration of traditional knowledge into educational activities through curriculum design, instructional materials, teaching strategies, class discussion, and learning activities is an important link between cultural heritage and contemporary learning. Educational campaigns, youth involvement in coastal clean-ups and environmental protection, and linkages/partnerships with local government units demonstrate how sustainable resource use goes beyond fishing itself, becoming a shared ethics that directs everyday living.

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