EXPLORING ETHNOSCIENCE IN *HABLON* WEAVING OF MIAGAO AS CONTEXT FOR A CULTURALLY RELEVANT SCIENCE EDUCATION

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ABSTRACT

Miagao's *Hablon* weaving traditions shape pride, joy, opportunities, and honor in their weaving communities. This paper explored and examined the science concepts of the hablon weaving traditions as a context for culturally relevant science education. Three hablon weavers were selected from each hablon center in the municipality of Miagao, Iloilo, Western Visayas, Philippines. The data was collected using anthropological tools such as memory banks, field notes, journals, and interview guide questions. The data were analyzed through thematic analysis. *Hablon* is a vivid and creative product that is a source of pride for the people of Miagao. Making the *hablon* is a complex process. Patience, a good hand pulse, and coordinated foot and hand motions are required. Core materials, tools and equipment, and procedural procedures are all factors to consider while creating a *hablon*. A Hablon weave takes about two hours to prepare, including planning, preparing the loom and threads, handloom weaving, and warping the threads. Science principles like the center of gravity, equilibrium, the string's tension, force, stress and strain, tensile strength, and climatic and weather factors that impact the stability of the thread are all visible in the Hablon weaving process. Weavers strive tirelessly to maintain the tradition and carry on the elders' tradition by encouraging the youth to participate and learn the ways of hablon weaving.

Keywords: *Culturally Relevant Education*, *Ethnoscience, Hablon, Science Education*

INTRODUCTION

When the Spaniards arrived on Panay Island, they discovered that the natives wore fabrics of different colors and designs. These were *hablon*, from the word "*habol",* meaning "to weave". The handwoven cloth was traded to Chinese merchants and other groups by the early Panayanons (Castillo, 2015). Miagao is one of the towns in Iloilo that capitalized on its *hablon* industry. In Miagao, the weaver industry has a long history dating back to the Spanish era. It was formerly called "*habol*" or "*hinabol*" and only used natural fibrous materials. There are various materials used in the fabric, including cotton and rayon thread. Apart from the old-time favorites pineapple and jusi, *hablon* displays great potential in the global textile market.

A wide variety of *hablon* products are available today, such as barongs, gowns, and shawls, as well as bags, belts, pillowcases, lamp sheets, table runners, placemats, pencil cases, pouches, and accessories. In addition to local markets, these products are sold in foreign and flea markets.

The concept of ethnoscience can be described as the knowledge of the indigenous people of an area created through their language, customs, culture, ethics, and technology (Sudarmin, 2015). Indigenous knowledge can be tested through literature reviews, scientific explanations, and scientific processes. In the classroom, indigenous knowledge can be used as a source of innovation (Okechukwu et al., 2014). As part of Miagao's Hablon Weaving, the ethnoscience approach in science education can be used to teach Miagao's local wisdom and culture in Miagao, Iloilo, in the Philippines. Students can appreciate and embrace cultural heritage when teaching and learning using an ethnoscience approach.

It is the master weaver of Iloilo's hablon cloth who believes that the younger generation can be enticed to cherish and preserve this fading tradition. She explained that teenagers are more interested in playing games than learning hablon weaving. She hopes that younger generations will give time to learn how to weave. The culture of hablon weaving may not be accessible to all teenagers, but they should at least be

aware of its history. Teenagers lack familiarity with various Ilonggo cultures (Santiagudo, 2019). The culture of *hablon* weaving in Miagao is not adequately transmitted and valued by the young generation. This study documented Miagao's hablon weaving, examined the science concepts, and contextualized these science concepts to develop an ethnoscience module.

This study is anchored on the Research Agenda of the NEDA, Developing, Producing, and Disseminating Information about Filipino Culture, especially on the Western Visayas Culture and Miagao's *Hablon* Weaving. Moreover, this study developed a culturally relevant science education module used by college science instructors/professors in Science, Technology, and Society (STS) course subject. It enhances the teaching-learning process in science, and at the same time, students learn to appreciate and embrace Miagao's *Hablon* Weaving culture.

The study's findings may be relevant to college science students taking the Science, Technology, and Society (STS) course. They might consider integrating culture in their lessons as a context to support the scientific understanding that enables students to appreciate and learn the indigenous knowledge systems and practices of the traditional *Hablon* Weaving of Miagao.

In order to empower learners to understand scientific power more critically, this study may serve as a reference for science instructors/professors to integrate a different approach to science instruction. The Hablon Weavings of Miagao contain distorted and hidden scientific knowledge that they can uncover by working with their students.

Incorporating culturally relevant science education can be achieved through an Ethnoscience module. By using this module, science instructors can teach Science, Technology, and Society (STS) more meaningfully and guide learners independently. Thus, the module developed in this study was a learner's guide. The ethnoscience

approach to the learning process is used in this study to create a creative environment and to plan learning experiences that incorporate Miagao's Hablon Weaving culture.

Research Purpose and Questions

Generally, this study explored and examined the science concepts of Miagao's hablon, weaving cultural heritage and traditions as context for culturally relevant science education centered on Science, Technology, and Society (STS) and developing an ethnoscience approach to instructional material.

Specifically, it seeks to answer the following questions:

1. What are the materials used and processes by the weavers in making hablon?
2. What community funds of knowledge can be drawn in the culture of hablon weaving?
3. What science concepts can be drawn from the community funds of knowledge in the culture of hablon weaving?
4. What ethnoscience module can be developed from the emerging science concepts drawn from the community funds of knowledge?

Epistemological and Theoretical Framework

The constructionist epistemology serves as the foundation for this study. Constructionism reveals how people and groups contribute to creating the social world they see. It entails examining the ways in which human beings develop, institutionalize, and turn social phenomena into traditions. People acting on their perceptions and knowledge to create a socially created world are reproducing a continuing, dynamic process (Hacking, 1999). Social construction is frequently about real-world issues, facts, and how we perceive them. Many modern ideas, probably most notably the developmental theories of Vygotsky (1978) and Bruner (1996), are frequently true and strongly related to this point of view.

Constructionism

Social constructionism aims to uncover how people and organizations construct their seen world. It entails investigating how humans generate, institutionalize, and pass down social phenomena as a technique. They emphasize describing institutions, activities, and so on rather than examining causes and effects. The concept of socially constructed reality describes the dynamics of individuals creating and re-creating reality on the basis of their perceptions and understandings. It is clear from this that social construction depicts subjective rather than objective reality - that is, reality as we see it rather than reality apart from our views.

Villanueva (2010) asserts that the constructionism theory (Crotty, 2003) explains how meaning is not intrinsically produced but rather manufactured. The interpretations of seen aims are created on the basis of human awareness. The only part of a person capable of deriving meaning from what is viewed is their awareness. Based onwhich are communicated through various what was observed, heard, or felt, meanings are assigned to perceptions, and these meanings are communicated through a variety of channels. Objects and the world in which they reside are attributed to these meanings. As a result, learning happens as a result of interaction with the things we deal with on a daily basis. In this study, the research team wanted to explore the ethnoscience of hablon weaving of Miagao as a context for a culturally relevant module for students in the tertiary level of Science, Technology, and Society (STS) course subject.

Ethnoscience

The word "ethnoscience," which dates back to the 1960s, is generally characterized as the area of study that focuses on discovering the conceptual schemata used by indigenous peoples to categorize their experiences of the environment (Roth, 2019). Among others, the subfields of ethnoscience include ethnoarchaeology, ethnoastronomy, ethnobotany, ethnolinguistics, ethnomedicine, ethnopedology, ethnopsychology, and ethnopsychiatry. The focus of early ethnoscientific research was on how different cultures transformed the experienced chaos of their

surroundings into conceptual frameworks. According to Sturtevant (1964), culture is the accumulation of all folk categories within a society.

Ethnoscience examines the knowledge that locals have on biology, zoology, and astronomy. This field of study examines social categorization schemes and cultural knowledge. As a result of this process, an ethnography would have all the guidelines and concepts required for a person to successfully navigate their particular culture (McGee & Warms, 2004). Traditional ethnographic study, which was perceived to be skewed toward Western conceptual categories, gave rise to ethnoscience in the middle of the 1950s. Floyd Lounsbury and Ward Goodenough provided information about the semantic analysis of kinship words in 1956. The aim of ethnoscientists was to "reproduce a cultural reality as it was perceived and lived by members of a society." It contrasted the Trunk of the Pacific with the Pawnee system of American Indians. These publications provided a technique for determining ideal units and examining the arrangement of classificatory phrases. The fundamental ideas may be applied to various domains even if they were created primarily to assess kinship words (Randall, 1976). This approach was used by Berlin, Breedlove, and Raven in the 1970s to study how individuals classify information about plants and animals. Their idea highlighted the requirement for fewer distinguishing characteristics across species. Attribute reduction, which reduces the number of criterion attributes, was one method utilized by informants. The primary focus for the researchers was configurational recoding, where characteristics are combined to generate a single attribute identified as a distinct trait or more simply, "If it quacks, it's a duck." To put it another way, this method is related to "kinds of things"; for instance, a husky is a kind of dog since it embodies all that is canine. There are just a few levels in this system of classification, and each one has a rank based on what it categorizes. The word "unique beginner" is a catch-all phrase that refers to anything classified under the taxonomy, such as the term "plant." This category may be divided into many types of living things, such "trees," "flower plants," and "vines."

In addition, the level of generic terms separates categories, such as "palm," the next level establishes the particular characteristics of the generic term, such as "a peach palm," and the ultimate level is varietal, which is uncommon and used to differentiate objects of cultural significance (Dandridge, 1995). Robert Randall criticizes this study, claiming that the anthropologist may have shaped the structure by directing the informant's answer through the formulation of the questions. In spite of criticism, this approach is still employed today to compare languages using color-based classifications, and it has an impact on the growth of the field of ethnobotany (Dandridge, 1995).

The adoption of ethnoscience techniques, first applied by Harold Conklin in 1954 with his history research among the Hanunoo, was one part of the developing field. With more than 1,800 distinct plant words in their language, he discovered that the locals could recognize their plants. His research focused on how individuals arranged this data (McGee & Warms, 2004).

In this study, Ethnoscience was used to explore the meanings and concepts of science that can be drawn from the community funds of knowledge of the *hablon* weavers of Miagao. Furthermore, the project developed an ethnoscience module that contextualizes the community funds of knowledge in every lesson and activity to enable students to appreciate and give importance to the culture of hablon in Miagao.

METHODOLOGY

Research Approach

This study made use of the ethnographic technique known as ethnoscience, which concentrates on a community or culture and is carried out in a real-world environment or in a naturalistic setting (Angrosino, 2007). This approach entails fieldwork and immersion in the study area where the *hablon* weavers are present.

The study of how people's perceptions, knowledge, and classifications of the world are represented in their use of language is known as ethnoscience. Ethnoscience has been applied in several fields. According to Bentley and Rodriguez (2001), the majority of ethnoscience research has focused on certain areas, such as traditional medicine, classifications of flora, fish, and birds, and pest control. In order to study how different soil types affect the adoption of novel maize seed varieties, local taxonomic categories have been used. Ethnoscience is the ethnography and ethnology of knowledge, orethno-epistemology, or descriptive epistemology (Werner, 1969).

Ethnoscience emerged and developed in anthropology not as a result of a clearly defined plan or a deliberate effort to create a new paradigm, but rather from an awareness of a significant obstacle that needed to be overcome by anthropology in order for it to become a science of culture capable of producing generalizations or generalizations resembling laws about cultural phenomena: the comparability of its data. Anthropologists should use a cross-cultural comparison approach to research cultures to create robust generalizations about cultural phenomena (Jorgensen, 1979). Unfortunately, the substance and writing styles of the ethnographies created by anthropologists differ.

Indeed, the issue of variations in ethnographical data, their interpretations, and the conclusions drawn from the analyses has been a significant challenge in anthropology. The discipline of anthropology aims to understand and explain human societies and cultures through cross-cultural comparison, which involves examining similarities and differences across different communities or cultural groups. However, to make valid comparisons and produce meaningful generalizations, it is crucial to ensure that the facts being compared are truly comparable, as Tyler (1969) noted.

This study focuses on documenting native terms, processes, and practices related to *hablon* weaving and exploring the participants' experiences and attitudes toward the cultural development of *hablon* weaving. Additionally, this study employs immersion

and in-depth interviews to capture *hablon* designs and processes and decipher the scientific concepts embedded within them.

Research Site

The research site was located in the hablon community of Miagao, specifically in Barangays Indag-an, Baraclayan, and Valencia in Miagao, Iloilo, Region 6 – Western Visayas.

Figure 1

Indag-an Primary Multi-Purpose Cooperative

Figure 2

Reyden's Weaving Center

Figure 3

Baraclayan Weaving Center

Figure 4

Valencia Weaving Center

Participants of the Study

The research team selected three (3) hablon weavers in each hablon centers in Barangay Indag-an (2 hablon centers, 6 hablon weavers), Baraclayan (1 hablon center, 3 hablon weavers), and Valencia (1 hablon center, 3 hablon weavers) in Miagao, Iloilo, Western Visayas, Philippines. The total participants of the study were twelve (12) hablon weavers. The study participants selected by the research team were based on the inclusion criteria and voluntarily chosen without coercion. The weavers in each center were asked if they would like to participate voluntarily in this study. The research team then enlisted the participants and asked again for their consent by filling out the free and prior consent form and giving an orientation about the conduct of the study. The participants must be qualified by the inclusion criteria, (1) A resident of the barangay for at least one (1) year; (2) Hablon weaver experience for more than three (3) years; (3) Experience in making different hablon products of Miagao; (4) Experience in using the native processes or procedures in making hablon; (5) Knowledge about the utilization and meanings of the different tools used in hablon weaving; and (6) Knowledge about the culture of Miagao's hablon weaving.

Table 1

Hablon Weavers Participants Profile

***Hablon* Weavers (*Manughabol*)**	**Sex**	***Hablon* Weaving Center**	***Hablon* Weaving Experience**	***Hablon* Designs (Expertise)**
1.) Dodoy	Female	*Indag-an* Primary Multi-Purpose Cooperative	12	➢ Pick-up Design ➢ 4 Pedals Design ➢ All over Rotex Design ➢ Chequered/Stripes Design
2.) Annie	Female	*Indag-an* Primary Multi-Purpose Cooperative	16	➢ Pick-up Design ➢ 4 Pedal Design ➢ Patadyong-stripe Design
3.) Layya	Female	*Indag-an* Primary Multi-Purpose Cooperative	25	➢ Chequered and Abstract ➢ All-over design ➢ Barong Design ➢ Bestida (Chinipa)
4.) Anie	Female	*Baraclayan* Hablon Weaving Center	3	➢ All over Rotext Barong ➢ 4 Pedal Design ➢ Chequered Design ➢ Bibet & Balabag Designs
5.) Neneng	Female	*Baraclayan* Hablon Weaving Center	2	➢ Shawl Design ➢ 4 pedals ➢ Gown Design [Tela]
6.) Mads	Female	*Baraclayan* Hablon Weaving Center	5	➢ Patadyong Design ➢ 4 pedals Design ➢ Bibet Design ➢ Shawl Design
7.) Vacion	Female	Valencia Hablon Weaving Center	50	➢ Bestida Design ➢ Patadyong Design

8.) Pering	Female	Valencia Hablon Weaving Center	30	➢ Shawl & Barong Designs ➢ Abstract Design
9.) Lisa	Female	Valencia Hablon Weaving Center	12	➢ Chequered/Stripes Design ➢ Abstract Design
10.) Connie	Female	Reyden's Hablon Center	56	➢ Stripes Design
11.) Shane	Female	Reyden's Hablon Center	4	➢ Patadyong Design ➢ Barong Design ➢ Dress Textile Design ➢ 4 Pedals Design ➢ Shawl Design ➢ UP Sablay Design
12.) Jiji	Female	Reyden's Hablon Center	11	➢ Patadyong Design ➢ Shawl & Barong Designs ➢ Sanefa & 4 pedals Designs ➢ UP Sablay Design ➢ Table Runner Design ➢ Barong Design ➢ UP Sablay Design ➢ Sanefa Design ➢ Shawl Design ➢ Patadyong Design

Considering some ethical issues, the project leader used pseudonyms to represent the participants' names. The participants chosen were based on the recommendation of the Chairman or Manager of the Hablon weaving center.

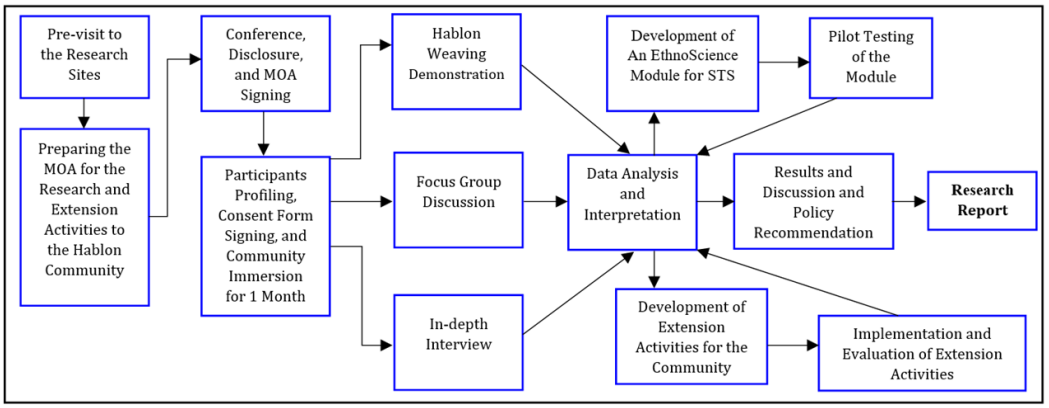
Procedure of the Study

Ethnoscience research has revealed that traditional, local knowledge is not necessarily inferior to scientific knowledge. Traditional knowledge systems,

developed over generations through long-term adaptation processes, have proven to be highly suitable and effective for the local people within their specific cultural and ecological contexts. This recognition emphasizes the importance of documenting, combining, and developing traditional, local knowledge alongside scientific knowledge (Putra, 2021). Finding the relevance of *hablon* weaving to science education and embedding science concepts from the culture of *hablon* weaving should be well-organized, systematic, and factual. Below is an overview of the procedure of this study.

Figure 5

Overview of the Procedure of the Study



Data Sources and Tools

The research team utilized the anthropological tool of memory banking (Nazarea, 1998) to collect and categorize artifacts and document community knowledge. More so, the taking of field notes during focus group discussions on *Hablon* weaving was done. Observational note-taking occurred when the research team analyzed the data to identify patterns, construct themes, and note similarities and differences. All journals/reflections, both oral and written, served as crucial sources of data (Stratton, 2007) and were used to identify emerging themes from interviews and to construct knowledge in the form of ethnoscience lessons for Science, Technology, and Society (STS) focusing on *Hablon* weaving of Miagao. Collaboration between the research team and *Hablon* Weaver communities was the key to realizing this endeavor.

Guide questions were supplied to the participants. There were two sets of questions for the Focus Group Discussion (FGD): Set 1 questions are raised to the group hablon weavers in each hablon center for the Focus Group Discussion, and set 2 questions are presented to individual participants, which are also the hablon weavers in each hablon centers for the In-depth Interview. These questions served as guides to the research questions.

Data Analysis

The research team utilized Thematic Analysis by Braun & Clarke (2006) to analyze the interview transcripts. The thematic analysis by Braun and Clarke (2006) has five phases: Phase 1 is Familiarizing yourself with the Data, Phase 2 is Generating initial codes, Phase 3 is Searching for themes, Phase 4 is Reviewing Themes, and Phase 5 is Defining and Naming Themes. Descriptive coding was used in this study, and these codes were validated through Invivo software for the accuracy of codes.

In creating culturally relevant science education, thorough data analysis was done. This study began with the creation of narratives with the transcription of data. The transcripts emphasized identifying words or phrases to decipher science concepts and meanings, called initial coding. Forming a story was followed, then arranging the keywords from the transcripts and key events in *Hablon*.

Specific case narratives and group narratives were synthesized and examined to develop themes, cultural memory bank of *hablon*, and an ethnoscience instructional module for students in the Science, Technology, and Society (STS) course. The results of coding and identifying major categories and themes with their respective discussion and explanations guided by the research questions were placed in the research report's results and discussions.

To validate the science concepts embodied in *hablon* weaving, contextualized in the module, the research team returned to the research sites and conducted an indirect interview. After validating the science concepts in the module to the community, the

research team implemented, or pilot tested the module for college students taking Science, Technology, and Society (STS) course subject at Iloilo Science and Technology University – Miagao Campus. A student experiential module was accomplished in this study.

RESULTS AND DISCUSSIONS

Miagao's *hablon* weaving industry plays a vital role in the local economy, where opportunities for jobs and income are also evident. *Hablon* is a commodity, culture, and tradition of the Miagaoanons, passed by their ancestors through time. With the advent of time, indigenous materials and equipment were then placed by modern tools to speed up the process of *hablon* weaving. Local knowledge of *hablon* weaving was very rich and still in use today, but preserving this local knowledge is a need. Cultural documentation and module development are ways to preserve, promote, and transmit this knowledge. The researchers documented and shared it through education, specifically in science education. Education plays a vital role in preserving, promoting, and transmitting local knowledge by introducing our local culture and tradition to them. The researchers in this study explored the culture and tradition of the *hablon* weaving process, in which themes were presented.

A Glimpse of History, Culture, and Tradition of *Hablon* Weaving at Miagao

In the Philippines, weaving on handlooms has a rich and colorful tradition. This background illustrates how the purpose, significance, and value of handloom weaving in the Philippines have changed over time. Handloom weaving has evolved from a hobby to a significant source of income for women and, over time, a cottage business. The effects of under pressure from industrialization, mass production, globalization, and digitalization, this industry underwent advances in manufacturing technology and market access, but many people, especially weavers, were left behind.

Indigenous fabrics, including those produced by local weaving communities, have gained significant recognition and popularity in the high fashion industry. The spotlight on these communities has intensified, particularly Iloilo's *hablon* weaving

commerce, with Miagao as a notable hub. The international design industry has witnessed a remarkable increase in demand for handwoven textiles in recent years, leading to a growing reputation for *hablon* weaving (Villarico, 2019). Support for regional, ethical, and environmental products has grown. Fabrics made by hand are in demand. In light of this, the connections between the Weavers, dealers, designers, and retailers are crucial to developing textile items. These various economic initiatives affected the growth across the sector's value chain. With this, let us look into the history, culture, and traditions of *Hablon* Weaving at Miagao in the following generated themes.

History of Hablon at Miagao

The weaving culture of Miagao dates back to late 1945. The traditional materials used were cotton (*Bunang)*, Abaca, *Mague*, *Rapya*, and Piña. As time passed, the weavers added a unique piece to their hablon, making it their identity mark, a Rotex. Rotex is a Japanese metallic yarn that is usually gold in color. Hablon weavers use it in Miagao to make their hablon more artistic, vibrant, and intrinsic design. However, not all hablon designs of Miagao have Rotex, and others are plain. Miagao is widely recognized for having a large population of weavers. This is exemplified in the excerpt of the transcripts below;

> "*Diri sa Miagao diri ang duro makit-an ang duro nga manughabol* [Here in Miagao has a large population of weavers.]" (Line numbers 52-53 in In-depth Interview with Mads).

Habol, a locally used word that means "weaving," is whence the name Hablon originated. As a result, the term "hablon" refers to the weaving technique and final product. This is exemplified in the excerpt of the transcripts below;

> "*Hablon man gihapon kay naghalin ina sa tinaga nga habol* [It is still *hablon* from the term *habol*]" (Line numbers 15 in Focus Group Discussion).

The terms Hablon and Habol were clearly defined by the weavers together with the researcher by developing concrete definitions.

Habol. It is the process of making the *hablon* textile and designs using different thread combinations in a *tiral* or weaving loom.

Hablon. It is a piece of cloth or textile containing distinctive patterns, colors, and designs used to make *Barong*, UP Sablay, table runner, Lei, *patadyong*, shawl, handkerchief, etc.

Weavers also emphasized that the terms *Habol* and *Hablon* came from their elders, which they referred to as the *patadyong* (rectangular or tubelike wraparound skirt). This is exemplified in the excerpt of the transcripts below;

> "*Naghalin gid siya sa tinaga sang mga kamal-aman kauna diri sa mga kamal-aman nga nagahabol sang patadyong.* [The term came from the elders in the past that weave the *patadyong*]" (Line numbers 6-7 in In-depth Interview with Mads).

After the international port of Iloilo was established in 1855, hablon was also exported to other nations. The introduction of English textile created by a machine, which is softer and less expensive, *hablon's* abaca material tends to be harsh, was also made possible. The sugar sector also developed. Hablon weaving fell out of favor as more people opted for less expensive textiles, and more businesspeople financed the production and export of sugar. The DTI assisted in reviving the hablon business in 1991, making hablon Miagao's One-Town, One-Product (OTOP) (Great Women Project Management Office, 2013). This is exemplified in the excerpt of the transcripts below;

> "*Ang weaving diri sa Indag-an gin revive lng ni in 1991.* [The weaving industry in Indag-an, Miagao, Iloilo was revived in 1991]" (Line numbers 195 in In-depth Interview with Dodoy).

By fusing them with artificial fibers that were first used in the early 1920s, the weavers invented new textiles that came to be known as "*Hablon*." With its peak occurring between the 1950s and the 1970s, Hablon has developed into a significant participant in the Philippine textile industry. It suffered a slump because less labor-

intensive, machine-woven textiles dominated the global market in the 1980s. This caused a rapid decline in the number of weavers as they started seeking alternate revenue streams and decreased interest in weaving among the younger generation. The Iloilo government and the Department of Tourism teamed up in the early 2000s to rekindle widespread interest in this local legacy that dates back a century.

Local fashion designers were drawn to the resurgence of hablon. Thus, they used hablon to create a distinctive couture that several fashion companies in the UK, Singapore, Hong Kong, and the United States now use. Thanks to Senator Loren Legarda, a staunch ally of the neighborhood, a financial grant from the British Embassy to expand Hablon weaving was accepted later in 2003.

Sales of Hablon products significantly increased again due to these events, assisting more people who started to rely on weaving for their daily necessities and reviving interest in the Miagaowanons' almost completely lost local tradition. The Omote-sando neighborhood, Tokyo's most affluent and up-and-coming area, will host The Hablon this year. This fabric will be displayed globally as Filipiniana clothing from various eras of Philippine history. The Moda and Kultura Fashion Show included the Hablon Filipinianas of the Spanish Period (1521-1898), the American Period (1898-1946), and the Modern Era. Like its nation of origin, the small hablon has made significant advancements.

Culture, Designs, and Traditions in Hablon Weaving

Hablon weaving has been practiced for a long time in some parts of Miagao, and according to the weavers, the elders were only weaving in the comforts of their homes. It is where the present-day weavers learned from their aunts about hablon weaving. The good thing about the culture of hablon is it promotes gender-fair work because it is not only limited to women. It also involves men if they are dedicated to learning the intricacy of making a hablon. This culture is already seen in some fashion shows both locally and internationally.

The designs of hablon were usually influenced by the things in the surroundings, like the colors, patterns, and more, but sometimes depending on the customers' preference. These designs are **diamond, striped, checkered, abstract, flower, or plain**. These designs are used in making *barong*, *patadyong*, musketeers, uniforms, lays, recent masks, and much to mention.

Back then, the weavers only used '*tiral*' with four pedals made of wooden structure, and this time they used those made of steel. Yet, the product is not that sturdy because it cannot strengthen the threads, which will affect the output.

Table 3

Hablon Designs and Placements

Base Designs	Overlay Designs	Placements of Overlay Designs
Plain	Pick-Up (*Bibit*)	Scattered (*Pugtak*)
Stripes	4 pedals	Edging (*Sanipa/Sanefa*)
Checkered	Abstract (*Patarasak*)	All Over (*Puro*)
(*Patadyong*)	Barong	
	UP Sablay	
	Shawl	
	Chinipa (*Bestida*)	
	Dress Textile	
	Table Runner	
	Gown	

Hablon Weaving Preparations

Hablon weaving has a complicated process, which requires weavers to have further training and knowledge about it. As stated by some of the weavers, in creating a hablon product, they must consider the designs they will use and their color combination as it gives beauty to the finished product. Other weavers search the internet for the best color combination that suits their designs. Weavers emphasize the words concentration, patience, determination, and creativity needed to create

quality products for them to be marketable. This is evident in the excerpt of transcripts below;

> "*Kinahanglan ang imo nga pasensya kag ang imo nga pagka gusto sa imo nga gina obra, kinahanglan gid sang isa ka manughabol para ang human kang imo hinabol mangin manami.* [You need to be patience and passion in doing weaving which is needed for being a hablon weaver so that your weaving will be good.]" (Line numbers 5-7 in In-depth Interview with Mads).
>
> "*Nag tuon kami kay kinahanglan gid namon mag tuon para makamaan kami.* [We are determined to learn weaving so that we will know how to weave.]" (Line numbers 99-100 in In-depth Interview with Mads).
>
> "*Dapat ang sa imo tagipuso-on ga halin ang imo pag obra nga bukas sa ano mo bala ang design nga himuon mo. Ang isip mo bala, focus ka gid sa obra mo, amo ra nga manami man ang obra mo.* [We are determined to learn weaving so that we will know how to weave.]" (Line numbers in Focus Group Discussion).

The Importance of Hablon to the Weavers

Hablon weaving plays a significant role in the community of Miagao, especially to hablon weavers, as they gained knowledge and skills from it. Research findings revealed that hablon weaving served as a livelihood for people and a primary source of income for women. As mentioned by Annie, one of the key informants, she earned extra income by warping and adding pick-up designs. Weaving supported their children's education, including tuition fees and allowances. It also supported their family's needs, especially food and electricity bills.

Hablon weaving allows weavers to equip themselves with skills and knowledge for improving their well-being. Findings revealed that Hablon is a vital source of livelihood for the people in the community of Miagao. This is evident in the excerpt of transcripts below;

> "*Makadugang income gid sa ila kag makadugang sa ila nga pangabuhian sa pang adlaw-adlaw nga kinahanglanon makabulig gid, kun bahol incomon mo sa hablon, makapa-graduate kaw kang imo kabataan sa imo nga kinitaan.* [It could

be a source of income for them and could add to their daily budget especially if the profit is big. It could help our children in their studies.]" (Line numbers 61-64 in In-depth Interview with Mads).

"*Ang importante nga nahimo kang hamblon sa amon kabuhi ang financial kay amo gid ra amon nga kinahanglan, source of income namon sa adlaw-adlaw namon nga pang gastos sa sulod balay, tuition sang amon kabataan, mga baraydan nga mga kuryente.* [The important thing that hablon weaving contributes in our life is our financial needs. It is our source of income for our daily needs in our homes, tuition for our children, and payment for bills.]" (Line numbers 93-95 in Focus Group Discussion).

Hablon Brings Honor and Pride

Hablon brings honor and pride not just to the weavers but also to the town of Miagao. Its existence allows people to explore their skills and creativity to promote hablon products in the Philippines and other countries. Tourists may therefore gain first-hand knowledge of the processes involved in producing hablon goods. Weaving brings honor and joy to the weavers. Seeing their work worn by people makes them more proud and inspires them to love hablon weaving. Some Miagao weavers felt lucky as they could weave in a National museum in Australia and Canada. They even exported hablon products in London. This is evident in the excerpt of transcripts below;

"*Ang importante nga nahimo kang hamblon sa amon kabuhi ang financial kay amo gid ra amon nga kinahanglan, source of income namon sa adlaw-adlaw namon nga pang gastos sa sulod balay, tuition sang amon kabataan, mga baraydan nga mga kuryente.* [The important thing that hablon weaving contributes in our life is our financial needs. It is our source of income for our daily needs in our homes, tuition for our children, and payment for bills.]" (Line numbers 93-95 in Focus Group Discussion).

"*Ako ang isa ka ma swerte kay madamo nga design ang akon ma create kag makabulig kag makita ko nga gina suk-suk kang iban nga taho ang akon ubra.* [I am a very lucky person because I created hablon design that could help

other people and happy especially if they will wear my hablon product made.]" (Line numbers 8-9 in Annie).

"*happy ako sa gina obra ko, kag proud pagid.* [I am happy and proud.]" (Line numbers 141-142 in Dodoy).

"*Ang atun nga Hablon na belong kita sa tourist destination. Ang hablon diri amo ang gina dayo kang mga other countries kag iban man nga mga lugar.* [Our hablon is a tourist destination. Our hablon is always visited by tourist in other countries and places]" (Line numbers 16-18 in Neneng).

"*Ga habol kami to sa Manila, facemask nga hablon nga iya ka tourism nga gina export namon to London.* [We also do hablon weaving for Manila like facemask hablon used by the Department of Tourism, which is also exported in London.]" (Line numbers 183-184 in Mads).

Preservation, Problems Encountered, and Need of Hablon Weavers

Preservation of Hablon Weaving. Despite the popularity of hablon weaving, weavers are troubled that they might lose their tradition in not certain time because most of them are already in their middle ages, and only a few of the younger generation is interested in this field of work. However, weavers are persevering to preserve the culture and continue the legacy of the elders by encouraging the youth to participate in the progress of hablon weaving. They started to grab the interest of their children and trained them at a very young age. They aim to preserve hablon weaving and improve it by incorporating technologies to create new designs and promote the products.

Problems encountered in Hablon Weaving. The pandemic greatly impacted the lives of the weavers as the sales of the hablon started to decrease gradually. As a result, the association of the weavers struggled to support the expenses, especially in buying the materials needed because of the limited movement and for some were inaccessible. This made an indication to stop for a while due to the restrictions brought by the quarantine measures that the government strictly implemented. Another problem they encountered was the need for more skills in managing

different threads, which resulted in unnecessary breakups. In addition, many workforces are also required due to the pile of orders from other customers, so the weavers are doubling their efforts to cope and satisfy the customers.

Needs of Hablon Weaving. The demand for hablon is accelerating; therefore, weavers should be equipped with skills to improve their work further. Skills training is essential to bring quality performance and quality products. Another thing that hablon weaving needs to expand the market and properly distribute the products. It requires massive support from the local government and private associations to promote the product. Lastly, since artificial dyeing of threads is not in demand anymore for the customers, weavers should have training in doing natural dyeing. The ideas from the professionals in this matter are a great help for the advancement of hablon products.

The *Hablon* Science of Weaving

By right-angle-crossing two sets of threads, cloth is made during weaving. A loom that is powered by hand or motor is frequently used for this. In the *Hablon* weaving process, the concepts of science are evident such as the center of gravity, equilibrium, the tension of the string, force, stress, strain, tensile strength, and climate and weather conditions that affect the stability of the thread.

The Center of Gravity in the Weaving Process

Finding the center of gravity is essential from placing yourself in the "tiral" before starting weaving. This is to help balance the weaver's body to avoid body stress due to prolonged sitting and weaving. Additionally, it will help the weaver to quickly create a balanced output by measuring the width of both sides of the materials in making the hablon beforehand. This is evident in the excerpt of the transcript below;

> "*Ang pagplastar mo daan kang purongku-an mo kung indi ikaw sa tunga kundi makapot ikaw kara kang angkob, kundi naga ano ron ra, kiwi ron ra. magpungko kita sa tiral tunga gid mismo lantawon.* [In setting up the chair. You must be at

the center of the chair holding the Beater or Handle of the weaving equipment.]" (Line numbers 372-382 in an In-depth Interview with Conie).

Tension, Forces, and Speed in the Weaving Process

Weaving is a very intricate process, and having a high-density weaving can correspond to several issues, such as significant damage to the threads and the standard execution of the process is impacted. Therefore, it is essential to reinforce the right amount of tension and force with adequate speed in a step-by-step manner. This is evident during the weaving, wherein the thread in a weaving shuttle passes from one side to another in the broader part of the loom while the textile is being made. In throwing the shuttle, the weaver must apply pulse control for a smoother move in weaving and uniform beating. This will permit the weaver to adjust the thread if it is loose or tighter. This is evident in the excerpt of the transcript below;

"*Kinahanglan kung magsudo ikaw may puros gd halimbawa tapakon mo, may force ka man nga maano dira maapply. Ang imo nga pagweap speed.* [You need to have a force in weaving. For example, when you are stepping the paddle, you apply force.]" (Line number 121 in an In-depth Interview with Jiji).

Temperature and Changes in Moisture Content directly impact the Properties of Textures, such as Tensile Strength, Elasticity, and Friction.

Changes in moisture content and weather directly affect textiles' tensile strength, elasticity, and friction. A decrease in a fabric's equilibrium relative humidity can make it frailer, thinner, less elastic, and more brittle. Additionally, it will contain additional flaws that will lower the caliber of the final products. Knowledge of the thermal characteristics of materials is essential for developing the correct technique in a more economical and viable way.

Based on the assertion of Marites, a weaver, the best time to weave is morning and evening to avoid damage.

"*Ang teknik bala haw is basaon bala siya haw, indi lang siya mainit, kay kung init syempre… ang daw almedol bala aw basa.* [The technique is to to wet the thread or yarn. It should not be hot. Its like an almedol wet.]" (Line numbers 540-542 in an In-depth Interview with Marites).

"*Kon mainit ang panahon ang mag alas-otso sa aga dangat alas kwatro sa hapon nagabugto siya. Kon aga tapos kun gabe-i mo siya i-hablon manami ang resulta ya.* [If it's hot outside, especially between the hours of 8 a.m. and 4 p.m., weaving at those times will result in less thread tensile strength than at night.]" (Line numbers 540-542 in an In-depth Interview with Marites).

Hablon **at Miagao: Materials, Equipment, and Procedures**

Looking into the lens of the weavers is a rich custom, arts, values, and a way of life for miagaoanons called *hablon*. *Hablon* is a vibrant and artistic product that is a pride of Miagao. Making the *hablon* is not an easy task. You need patience, a good hand pulse, and harmonious movements of feet and hands. Aspects to consider in making a hablon are core materials, tools, equipment, and procedural steps. These aspects are discussed in the following sub-themes.

Table 4

Hablon Weaving Materials

Threads Used	Equipment Used
Plain: 1. Polyester/Synthetic 2. Cotton (*Bunang*) 3. Silk 4. Piña 5. Abaca 6. Raffia Combination: 1. CotPi (70% Cotton & 30% Piña)	1. Weaving Loom (*Terral*) 2. Shuttle (*Lansadera*) 3. Hook (*Sukbit*) 4. Paddle (*Pak-ang*) 5. Spooling Tool (*Kalinyasan*) 6. Rapya (*Buri*) 7. Pick up (*Bibit/Purot*) 8. *Binting* 9. Two pedals 10. Four pedals

2. CotPoly (70% Cotton & 30% Polyester)	11. *Sulod*
3. CotAb (70% Cotton & 30% Polyester)	12. Moton
	13. *Sikadan*
Supplemental:	14. *Medulan*
1. Rotex	15. *Tayubong*
	16. *Bitlag*
	17. *Saligsig*

Hablon Core Materials

Miagao is known to be a weaving industry that started in the late 18th century. Materials in weaving before were made of indigenous materials. Rarely indigenous materials are used in weaving today. According to Momblan (2019), in the past, the raw materials in weaving were also sourced in Miagao. The process is traditional, from harvesting to processing the materials into yarn, weaving, and making it into garments. Indeed, materials in the past are indigenous. This is evident in the excerpt of the transcript below;

> "*Kang una may jan kami daad nga piña. Gagamit kami sang piña, abaca, rapya, mague*. [In the past, we used pineapple yarn. We also use pineapple, abaca, rapya, and mague plants in making yarn.]" (Line numbers 105-108 in In-depth interview with Connie).

Another weaver also supports Connie's statement. She said:

> "*Natural fiber amo ni ang cotton, pinya kag abaca. Amo tana ang natural fiber nga ginagamit is pure cotton*. [The natural are cotton, pineapple, and abaca. Cotton is usually used as natural fiber.]" (Line numbers 13-14 in In-depth interview with Mads).

***Bunang* (Cotton).** The *kinaray-a* term for cotton. There are areas in Miagao wherein cotton is planted and harvested to convert it to raw materials in making hablon. This is exemplified in the excerpt of the transcript below;

> "*Preserve ka kang pareho ka cotton, ang cotton nga gina tanom anay, tapos i-convert mo sa materials para sa magamit sa paghabol.* [We preserve it like

> cotton. Cotton is planted and converted to materials in making hablon.]." (Line numbers 415-416 in FGD with Agatha & Mel).

However, cotton is not easy to weave because of its soft fiber. Weavers need to control the cotton when weaving not to break. Cotton is easily broken if it is not properly handled. It is better if cotton is only used in the weft. This is supported in the excerpts of the transcripts below;

> "*Ang pinaka weak gid ab isa tanan sir amo ang cotton. Kay ang cotton wala siya ti fiber.* [The weakest among the natural fibers is cotton because cotton has no fiber.]" (Line number 126 in In-depth Interview with Mads).
>
> "*Okay lang cotton kun i-weft lang.* [It is ok if cotton is used in the weft.]" (Line number 274 in FGD).

Even though cotton is the weakest yarn, cotton is the best in terms of quality and comfort to customers. Having 100% cotton is quite a challenging part for weavers. On the other hand, according to one of the weavers, abaca is the best. However, abaca is rarely weaved.

Abaca. It is the strongest and best yarn. This is exemplified in the excerpt of the transcripts below;

> "*Abaca gid ma'am ang pag-on.* [Abaca is the strongest ma'am.]" (Line number 124 in In-depth Interview with Mads).

Mague. One of the oldest sources of making yarn in Miagao by the weavers. It is a pineapple-like thread. This is supported in the excerpt of the transcripts below;

> "*Ang Mague sir, daw pinya like thread na siya nga gina usar sang una. Subong wala na gawa na usar.* [The mague plant sir is used in the plant, which is a pineapple-like thread. Currently, we are not using it.]." (Line numbers 109-110 in In-depth Interview with Connie).

***Rapya* (Raffia).** Another indigenous source of thread. It is the leaves of the raffia palm in which fiber is taken and used to make a thread. This is supported in the excerpt of the transcripts below.

> "*Rapya sir gina usar man namun sang una, daw buri.* [Raffia is also one of the sources of making a thread in the past sir like a buri.]" (Line numbers 112 in In-depth Interview with Connie).

Other natural fiber used by the weavers, which is rarely used, is ***pinya*** or **pineapple thread**. This thread is also hard to weave and quite expensive to buy, especially when it is already a product.

Currently, the weavers use modern threads: **Polyester** (a synthetic type of thread) and **Rotex** (a Japanese thread that is usually gold or silver in color). Weavers also used thread combinations to make the hablon product more sturdy and intricate, like 70% cotton and 30% abaca, called **AbaCot**. 70% cotton and 30% Polyester, which is called **PolyCot**. 70% cotton and 30% Pineapple thread which is called **PinyaCot.** This is exemplified in the excerpt of the transcripts below;

> "*Pineapple cotton is nasa 70% then 30% pineapple, 70% cotton then 30% abaca, 70% polyester kag, 30% cotton.* [The cotton is 70% and 30% pineapple. 70% cotton and 30% abaca. 70% polyester and 30% cotton.]" (Line numbers 18-20 in In-depth Interview with Mads).

Hablon Processing Equipment and Tools

Since the advent of modern technologies, workers tend to complete tasks more quickly and efficiently than they did in the past. In a short time, technologies could manufacture many more goods for consumers. The quick product cycles made possible by technology are essential to the global market. To maintain their production level in fierce competition, the local textile sector must work harder to manufacture more textile products. In the weaving industry in Miagao, technology plays a vital role in the processes and outputs of the quality of products. Below are the weaving equipment and tools used by the *hablon* weavers.

Tiral **(Loom weaving).** It is rectangular-shaped equipment with pedals, motons, etc. Weavers sit in the trial and do the weaving of cloth out of the fabric at a right angle. According to casioyvonne (2013), weaving is a production fabric interlacing two sets of yarn to cross each other manually or in the machine-assisted loom. Two

kinds of loom weaving existed in miagao; (1) Traditional Loom Weaving and (2) Modern Loom Weaving, as shown in Figures 6 and 7.

Figure 6

Traditional Loom Weaving

Figure 7

Modern Loom Weaving

Traditional Loom Weaving. It is made of wood, and some are made of bamboo.

Modern Loom Weaving. It is made of steel and iron. DTI donated the modern loom weaving to the weavers of Baraclayan Weaving Center.

***Lansadera* (Shuttle).** It is used for wefting and comprises a spool or bobbin and a wooden boat shape wherein the spool is inserted. A textile is created on a loom by passing other threads over and under the crosswise threads.

Figure 8

Lansadera (Shuttle)

***Pakang* (Paddle).** It is a piece of flat wood used to set up for pick-up design wherein threads are counted to balance the size of the design. This is exemplified in the excerpt of the transcripts below;

> "*Kung magset up nab ala kang pick-up design nga ibutang mo, isipon mo gid na ang thread para magbalance ang kadaku-on sang mga buki sang design.* [When you are setting up the pick-up design that you put, you count the number of threads to balance the size of the design.]" (Line numbers 480-484 in In-depth Interview with Annie).

Figure 9

Pak-ang (Paddle)

***Kalinyasan* (Spooling Wheel).** It is usually a wooden or iron wheel for winding thread onto a spool or bobbin.

Figure 10

Kalinyasan (Spooling Wheel)

***Pakaw* (Wood lock).** It is used to lock the big wooden roller wherein the angkub and warp are in place.

Figure 11

Pakaw (Wooden lock)

***Binting* (Hanged Threads).** It is a Hiligaynon term that refers to the hanging threads on the *baston*.

Figure 12

Binting (Hanging Threads)

***Sukbit* (Thread Inserter).** It is a hook-shaped used to insert the warp threads into the *Sulod* or Reed.

Figure 13

Sukbit (Thread Inserter)

***Angkob* (Beater or Handle).** The beater or handle is used to beat the weft in a loom attached to the reed up against the web quite closely.

Figure 14

Angkub (Beater or Handle)

***Baston* (Thread Hanger).** A cylindrical wooden stick wherein the thread is hung.

Figure 15

Baston (Handle)

***Sulod* (Reed).** It resembles a comb and is a component of a weaving loom. It is utilized to press the weft threads into position, guide the shuttle's movement across the loom, and separate and space the warp threads.

Figure 16

Sulod (Reed)

***Purot* (Pick-up Stick).** It is a wooden stick used to hang the pick-up design thread.

Figure 17

Purot (Pick-up Stick)

***Moton* (Warping roller).** After *Sab-ong*, the yarn is placed in a moton for warping. Moton is a big cylindrical wood with four squared wooden stick that resembles a roller wherein the yarn is being rolled and function as a warping roller.

Figure 18

Moton (Warping Roller)

***Sikadan* (Loom Pedals).** It is used to lift the *binting* or pick up design, up and down. With the use of wooden tilars, bamboo sticks, and native/synthetic yarns, the weavers weave the design patiently with the pedals.

Figure 19

Sikadan (Loom Pedals)

Hablon Making Procedures

Hablon weaving is a challenging endeavor. The residents of Miagao use it as a source of recreation and money. Miagao has a long history of *hablon* weaving culture and custom. Weaving skills have been handed down from generation to generation since late 1945. Villareal (2019) claims that *hablon* weavers teach their daughters the craft so they can pass on their knowledge and expertise to future generations. National and international designers also respected *hablon* weaving in addition to local ones. It is a key tourist and cultural hub for the Miagao Municipality. Learning *hablon* weaving takes a lot of work and dedication. A *Hablon* weave requires two hours to prepare, including planning, setting up the loom and threads, weaving on a handloom, and warping the strands to create the fabric (Casioyvonne, 2013). Table 5 shows the Stages in the *Hablon*-Making Process.

Table 5

Stages in the Hablon Making Process

No.	Stage	Procedure
1	Planning	The first stage is before preparation for weaving. It is the stage wherein the weaver plans the number of yarns to be used and the length of the hablon. The weavers do some calculations in this stage with the number of strings before doing the *Sab-ong*. The weavers will also decide on the colors of the yarn and its combinations. The chosen colors the customer should use to weave the cones. After that, the cones will be set up in a specified manner.
2	Warping (*Sab-ong*)	On the warping tool, position the threads. The threads are gathered and wrapped in the warping frame's bamboo pegs. The length and width of your product determine how many threads are manually counted. The weaver creates a warp of thread that will serve as the base for the hablon. This thread warp is usually composed of 14 yarns, and the color depends on the customer's request. In doing *Sab-ong*, typically lasts for half a day or one day if it is in a rush order. A weaver in this stage should possess a sense of mind, concentration, and patience. She needs to remember the number of threads during the process.
3	Beaming (*Paglikis*)	The process of putting the warp threads into a piece of a bamboo stick. After being positioned on the warp frame, the warp threads will be rolled along the weaver's beam. The cylindrical bamboo structure at the part of the loom's top back.
4	Hedding (*Pagsulod sa Binting*)	Every warp thread goes through the heddle's holes. Each thread laid on the warp must pass through the hole of the heddles to separate the warp threads for the passage of the weft.
5	Reeding (*Pagsulod sa Sulod*)	After the beaming process, reeding is where the warp of threads is inserted into a pair of wooden sticks with a covered yarn. This pair of wooden sticks functions up and down when the weavers step on the tiral or loom weaver pedals. Using a "reed hook," each thread is then placed on each opening of the metal reed (they use a bamboo hook)

6	Tie-up (*Higot sa Baston*)	The threads' ends will be attached to a wooden cane at the loom's base called the cloth roll. The ends of the threads are tied into the cloth roll after reeding. A wooden container at the store serves as the cloth roll in the loom's ground.
7	Spooling (*Pangalinyas*)	Spinning a wheel of thread to a piece of metal or wood tube put in a *lansadera* or spool boat. Weft the shuttle's required thread. The main thread used in weaving is called the weft. The conventional spooling wheel will then be used to spool it. The thread tossed back and forth between the warp threads is held in place by the shuttle.
8	Weaving (*Habol making*)	After undergoing all seven processes above, it is time for the weaver to start weaving until the product is done. The weaver presses down on the bamboo pedal to raise or lower the heddle. A shuttle moves back and forth across the loom while moving the weft. The reed then carefully presses the wefts up against the fabric's fall.
9	Pick-Up Forming of Design	The last stage before creating your product is weaving. The final output of weaving is formed into a design.

Making Sense of the Funds of Knowledge through Cultural Memory Banking

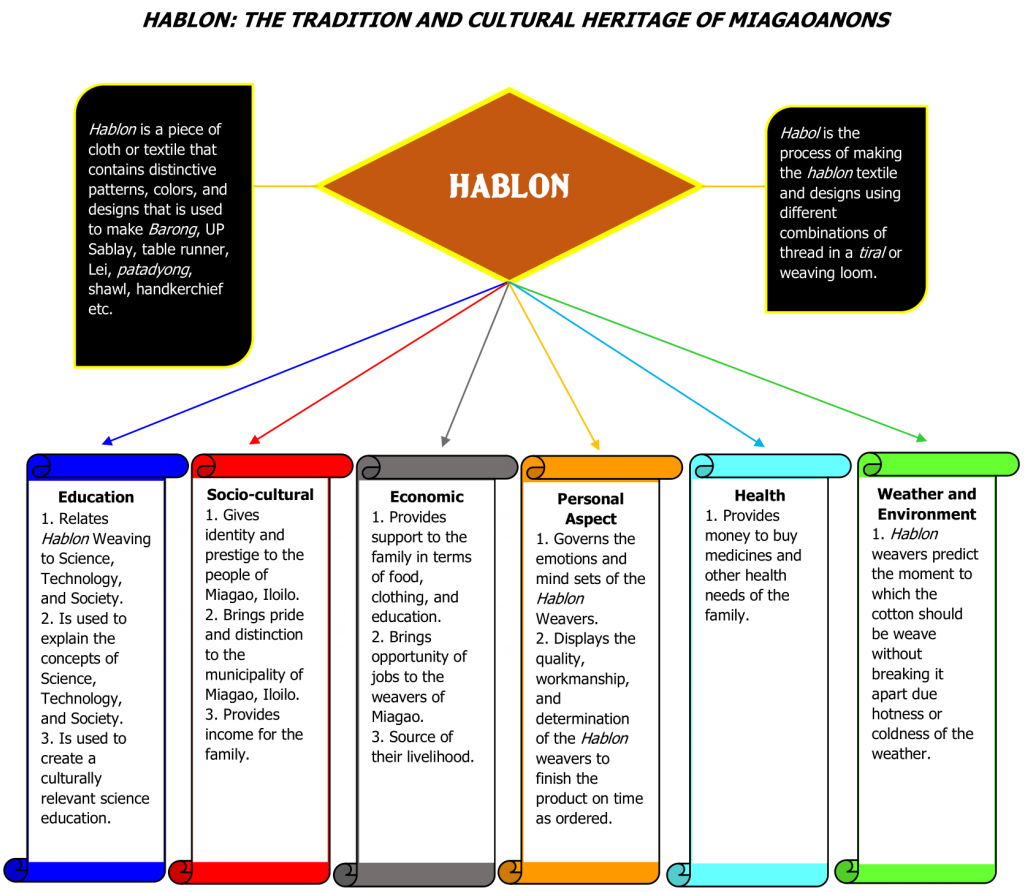
The researcher utilized memory banking (Nazarea, 1998) to collect data on the local practice of *Hablon*. It is employed in this manner to merge ideas related to *Hablon*. This memory banking shows how *Hablon* influences the educational, health, socio-cultural, personal, economic, and environmental elements of the research site's participants.

What is *Hablon*? *Hablon* is a cloth or textile containing distinctive patterns, colors, and designs used to make *Barong*, UP Sablay, table runner, Lei, *patadyong*, shawls, handkerchiefs, etc. At the same time, *Habol* is the process of making the *hablon* textile and designs, using different combinations of thread in a *tiral* or weaving loom. *Hablon* plays a vital role in their life and society; it is a mere symbol and a culture passed on

to them by their ancestors. Moreover, their life, income, need, and culture is worth passing on to their children and their children. A memory bank in *Hablon* entitled "*Hablon:* The Tradition and Cultural Heritage of Miagaoanons" is presented in Figure 20.

Figure 20

Cultural Memory Banking Chart of Hablon



CONCLUSION

Looking through the lens of the weavers reveals a rich tradition, arts, values, and way of life for the *miagaoanons* known as *hablon*. *Hablon* is a vivid and creative product that is a source of pride for the people of Miagao. Making the *hablon* is a complex process. Patience, a good hand pulse, and coordinated foot and hand motions are required. Core materials, tools and equipment, and procedural procedures are all factors to consider while creating a *hablon*. In the past, the core materials used were made of indigenous materials like *Bunang* (Cotton), *Abaca*, *Mague*, and *Rapya* (Raffia). Today, Indigenous materials are rarely used. Weavers used modern threads like Polyester (synthetic thread) and Rotex (Japanese thread, usually in gold or silver color). To make the weave sturdy and intricate, the weavers created some combinations of threads like AbaCot (Abaca and Cotton), PolyCot (Polyester and Cotton), and PinyaCot (Pineapple and Cotton). Equipment and tools in weaving play a vital role in the production process like trial (weaving loom), *lansadera* (shuttle), *pakang* (paddle), *kalinyasan* (spooling wheel), *pakaw* (wood lock), *binting* (hanged threads), *Sukbit* (Thread inserter), *angkob* (Beater or handle), *Baston* (Thread hanger), *sulod* (Reed), *purot* (Pick-up stick), *moton* (Warping roller), and *sikadan* (Loom pedals). Most weaving centers still use traditional loom weaving, while some use modern loom weaving equipment. This equipment and tools help the weavers to complete the hablon product more quickly and efficiently. *Hablon* weaving takes a lot of practice and commitment to master. A Hablon weave requires around two hours to prepare, including planning, setting up the loom and threads, weaving on a handloom, and warping strands to hablon fabric. These are the stages in the *hablon* process: (1) Planning, (2) Warping (*Sab-ong*), (3) Beaming (*Paglikis*), (4) Hedding (*Pagsulod sa Binting*), (5) Reeding (*Pagsulod sa Sulod*), (6) Tie-up (*Higot sa Baston*), (7) Spooling (*Pangalinyas*), (8) Weaving (*Habol Making*), and (9) Pick-Up Forming of Design.

Handloom weaving is a rich and colorful heritage in the Municipality of Miagao. This historical context demonstrates how the purpose, meaning, and value of handloom weaving in Miagao have evolved through time. The main source of income for the

residents of Miagao is now handloom weaving. Under the demands of industrialization, mass production, globalization, and digitization, this industry developed in manufacturing technology and market access, but many workers, particularly weavers, fell behind. In some areas of Miagao, hablon weaving has been practiced for a long time, and according to the weavers, the elderly exclusively wove in the comfort of their homes. The current weavers inherited hablon weaving from their aunts or grandparents. The positive aspect of hablon culture is that it encourages gender-equitable employment because it is not just for women. Men can also participate if they are committed to understanding the complexities of producing a hablon. Some local and international fashion shows have previously featured this culture. Hablon weaving allows weavers to equip themselves with skills and knowledge for improving their well-being. Hablon weaving brings honor and joy to the weavers. Seeing their work worn by others makes them more proud and inspires them to love and preserve the culture of hablon weaving. Most Miagao weavers felt lucky as they could weave for a National or International event.

Although hablon weaving is quite popular, weavers are concerned that they may lose their tradition in the near future because most of them are already in their middle ages. Very few of the younger generation are interested in this line of work. The pandemic greatly impacted the lives of the weavers as the sales of the hablon started to decrease gradually. Hablon demand is increasing; thus, weavers should be prepared with the abilities necessary to advance their skills. For great performance and high-quality products, skills training is essential. The right distribution of the products is another important factor for hablon weaving to grow its market. The local government and private organizations must provide great support to market the product.

By crossing two sets of threads at an angle, weaving makes the cloth. A loom powered by hand or motor is frequently used for this. Science principles like the center of gravity, equilibrium, the string's tension, force, stress and strain, tensile strength, and

climatic and weather factors that impact the stability of the thread are all visible in the Hablon weaving process.

Hablon is a cloth or textile containing distinctive patterns, colors, and designs used to make *Barong*, UP Sablay, table runner, Lei, *patadyong*, shawls, handkerchiefs, etc. At the same time, *Habol* is the process of making the *hablon* textile and designs, using different combinations of thread in a *tiral* or weaving loom. *Hablon* plays a vital role in their life and society; it is a mere symbol and a culture passed on to them by their ancestors.

RECOMMENDATIONS

In today's multicultural society, a holistic approach to education can help spread respect for different traditions. Education should be encouraged to preserve cultural heritage sustainably. It is a technique for safeguarding both material and immaterial cultural property.

Culturally relevant education recognizes and values students' cultural backgrounds, experiences, and identities, integrating them into teaching and learning. This study explores how community referents and interactions shape the implementation of culturally appropriate teachings in science classrooms. It may involve examining how local cultural knowledge, practices, and perspectives are incorporated into science curriculum and instruction and how students' cultural backgrounds influence their engagement and understanding of scientific concepts.

Future studies that build on this study could potentially recruit weavers who are not members of the Miagao Hablon group. Researchers may develop tools to assess the effects of culturally appropriate instruction in science, technology, and society course topics from the viewpoint of the weavers rather than from the Miagao Hablon community. A student data sheet may be used in future research to gather student demographic and background data. An additional tool that may be developed for future research is a validated survey to determine what students think about

culturally appropriate science instruction. Students may also be asked in this survey to identify the specific elements of culturally relevant education that, in their opinion, aid scientific learning.

This research is in response to the NEDA's Research Agenda of Developing, Producing, and Disseminating Information on Filipino Culture, particularly Western Visayas Culture and Miagao's Hablon Weaving. Furthermore, this research created a culturally relevant science education module that will be utilized by college science instructors/professors in the Science, Technology, and Society (STS) course subject. It improves scientific teaching-learning while teaching students to respect and accept Miagao's Hablon Weaving tradition. Utilizing the ethnoscience module in teaching the STS course subject to the university is highly recommended.

To preserve the *Hablon* culture, it should be transmitted to new generations through instruction. Furthermore, *Miagaoanon* should engage in it as a sort of leisure in their daily life. On the other hand, weavers strive tirelessly to maintain the tradition and carry on the elders' tradition by encouraging the youth to participate and learn the ways of hablon weaving.

This research may aid in the advocacy for a policy environment that is favorable to the development of the hablon weaving industry, the sustainability of hablon weaving as an intangible cultural heritage, and the protection of its primary stakeholders (the weavers), given that the role of culture in sustainable development is constantly evolving. The lack of policies that foster the growth of the Hablon sector, which is a key competitor in the world market. In the hablon industry, where weavers are marginalized in several dimensions, such as economic, social, gender, education, and governance, there is a need for policies and programs to promote gender equality between weavers and artisans—supporting local festivals celebrating the town's products to encourage hablon products and enhancing the DTI's OTOP (One Town One Product) initiative by emphasizing Hablon goods and utilizing them as a commerce, cultural, and tourism tool. By improving the immediate implementation

and monitoring of programs, it can strengthen the reach of cultural projects to local governments by promoting a school of living traditions that NCCA or LGU could support.

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