Analysis of Local Wisdom of Mendale Village Fisherman Communities in the Fishing Process

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ABSTRACT
Local knowledge is knowledge owned by a community in the form of information that is people's knowledge. As a country with diverse cultures, Indonesia has a variety of local knowledge which has become an icon of the community, used in maintaining natural conditions and survival. One of the community's local knowledge areas is the process of fishing in the Gayo community. The Gayo ethnic group is a native of Central Aceh District, located in the Gayo highlands. Local knowledge possessed by the community is inseparable from global influences that continue to grow. Global forces will shape culture, modify value systems, and affect social identity. This research was conducted in Mendale Village, Kebayakan District, Central Aceh District. This study aims to analyze local and global knowledge and find out the acculturation of people in fishing. The research method used is a qualitative method with a new ethnographic approach. Data collection techniques are interviews, observation, and documentation studies. The results of interviews and observations were analyzed thematically and grouped under the same theme. Each theme is discussed in detail and then interpreted to obtain data that can provide answers to research problems. The research results show that local knowledge of fishing is a culture passed down from generation to generation. Local fishing knowledge cannot be applied in all catches, only used in fishing in the lake. Existing local knowledge is mixed with global knowledge so that local knowledge of fishing is not the same as the culture left by fishermen in the past.

INTRODUCTION
Indonesia has the world's largest maritime and archipelagic territory, consisting of 17,504 large and small islands with an area of water reaching 5.8 million km² or around 63%, equal to three-quarters of Indonesia's total territory. Indonesia's coastline is the second longest in the world after Canada (Abidin As, 2019). This is not surprising considering that two-thirds of Indonesia's environment is the ocean, which reaches 3.25 million km² or around 63% of Indonesia's territory (Andesfi & Prasetyawan, 2019). Indonesian waters contain 27.2% of all flora and fauna species worldwide. This flora and fauna includes 12% mammals, 23.8% amphibians, 31.8% reptiles, 44.7% fish, 40% molluscs, and 8.6% seaweed of all species worldwide (Syah, 2021). Besides being rich in marine resources, Indonesia is also rich in the variety of cultures found in communities in coastal areas (Ariadi et al., 2022).

Based on BPS data for 2013, it is known that there are only 2.2% of households in Indonesia where the head of the family works as a fisherman. The number is around 1.4 million fishermen household heads. Meanwhile, if seen as a whole, the number of fishermen in Indonesia is estimated at 2.17 million people. Most of the fishermen live in 3,216
villages which are categorized as fishing villages. The data shows that Indonesia has relatively high fishing human resource potential. Even though the education level of most of these fishermen is still relatively low, they have a local knowledge system for living their lives catching fish in the sea (Karina, 2019).

Local knowledge, or in some foreign literature referred to as indigenous knowledge, is the knowledge possessed by a community in the form of information that is organized or local so that it is also referred to as "people's knowledge" or "community knowledge". Culture and traditions are closely related to society and local knowledge, passed down from generation to generation without realizing it has helped people solve various life problems (Nurmalasari, 2023). Local knowledge, such as the techniques and types of fishing gear used for fishing, sea and ran rituals and traditions, and the social organizations formed, become cultural capital and a form of identity (Nopianti & Somantri, 2020).

A culture is a process of adaptation. Because of this, some argue that the conception of culture is a strategy of adaptation to the environment in which humans live and develop themselves, which is patterned and diverse (Nurcahyawati et al., 2022). Indonesia, with its many ethnic groups and various religious beliefs, makes it possible to find patterns of cultural acculturation in people's lives, including in the condition of multicultural and religious coastal communities. Acculturation refers to the process of intra-individual change resulting from continued contact with a new culture and has traditionally been researched by cross-cultural psychologists. Acculturation arises when groups of individuals with different cultures relate directly and continuously, and changes occur in one of the original cultures or both groups (Doucerain, 2019). This is inseparable from modernization's influence. Those who are acculturated will retain their authentic culture and assimilate into the second culture, creating new cultural seeds that develop both the original and second cultures (Ani et al., 2019; Anakotta et al., 2019; Sulaiman, 2019).

Recently, an effort has been made to acculturate local knowledge based on local customs and beliefs and global knowledge based on modern science. Although efforts to connect the two do not always produce results in several areas, there is a desire to connect the two in the hope of providing more optimal results in the development of science. This research examined the acculturation between local and global knowledge found in the fishing process among Gayo Ethnic fishermen in Mendale Village.

The Gayo ethnic group is an indigenous people in Central Aceh District, which is in the Gayo Highlands known as Tanah Gayo. The Gayo Highlands are almost right in the middle of Aceh Province. The Gayo Highlands area is almost entirely composed of forests and agricultural regions. Based on statistics from the Central Aceh District BPS, it is known that most of the population in this district work as farmers and only a small portion work outside the agricultural sector. However, there is an exception for the Mendale Village area in Kebayakan District, Takengon City, where the data shows that most people work as fishermen. It is not surprising that this field is the choice of the residents considering that Mendale Village is located right on the shores of Lake Laut Tawar.

A process of cultural acculturation between local and global knowledge is a phenomenon that is easy to find worldwide. Local knowledge derived from cultural practices, customs and beliefs rooted in the local environment does not always conflict with modern science. Therefore both can be linked and practised simultaneously, given that some of the knowledge contained in global knowledge originates or is a development of local expertise.

The influence of the current flow of globalization has attracted the whole
society to an interdependent unity. Globalization shapes culture, modifies value systems, influences social identities, and ultimately changes the disposition and behaviour of consumers around the world (Cleveland, 2018). Cultural globalization has led to increased contact between cultures and emerged as a defining influence on contemporary societies worldwide (Ozer & Schwartz, 2022). This has increased the connectivity and interaction between people from different cultural schools of origin through complex and diverse acculturation processes (Bâş, 2019) and creates sociocultural changes (Ozer et al., 2019). According to (Ozer et al., 2020), the resulting intercultural contact is examined using the globalization-based acculturation theory.

Globalization can cause the acceleration of human relations on Earth, including the rapid spread of ideas, products and the migration of people to various regions. Migration is considered one of the most actively developing global issues today because more and more people are crossing the borders of their countries/regions for one reason or another (Ulmasov & Kurbanov, 2018), including economic, political reasons, wanting to continue school/education, factors security or just a desire to see other areas. Migration often occurs due to movement from low-income countries/regions to high-income countries/regions (Segal, 2019). In the process, migrants usually This adaptation will produce a cultural acculturation that will impact not only immigrants but also the people in the environment where they immigrate (Armansyah, 2022). In this case, migration is a fundamental factor that drives cultural evolution (Mesoudi, 2018). The culture brought from the place of origin will meet the culture in the destination area of migration. This cultural meeting led to the emergence of cultural acculturation. This study aims to analyze local and global knowledge and determine community acculturation in fishing.

**RESEARCH METHODS**

The research method used is qualitative and a new ethnographic research approach. Qualitative research conducted in natural settings can provide depth of insight to obtain the expected data from research informants. Through in-depth interviews accompanied by probing, researchers can dig deeper into information related to the informants' direct experience in utilizing local knowledge and global knowledge in their work as fishermen, as well as being able to observe through observation how they apply these two pieces of knowledge in their work.

Ethnographic studies describe the culture and life of a particular community in detail. Culture includes, among others: patterns of activity, language, beliefs and rituals, livelihoods, and art. In ethnographic research, the sample is determined purposively or deliberately (purposive sampling). This new ethnographic method is called cognitive anthropology (Spradley, 1997). According to Spradley, this new ethnographic/ethnoscience method was analyzed using an ethnoscience analysis model (for example, using taxonomic analysis, component analysis, and domain analysis).

The data collection technique used in this research is through interviews, observation/observation and documentation studies. All interview results were audio recorded and verbally transcribed for the researcher's capture tools using a camera; some were recorded using video. The results of interviews and observations were analyzed thematically and grouped under the same theme. Each theme is discussed and interpreted to obtain data to answer research problems.

**RESULTS AND DISCUSSION**

**Regional Typology and Geographical Location of Mendale Village**

Mendale Village is in Kebayakan District, Central Aceh District, and has an area of around 2,000 square kilometres. This place has quite a large and diverse lake resource potential, including depik fish
(Rasboraleptosoma), relo fish (Rasbora Tawarensis), pomfret (Cyprinus carpio), bado/snake fish (Ophiocepalus gracilis), tilapia (Tilapia Loricaria), tilapia (Tilapia Mosambica), shrimp, lobster, and several other freshwater fish. Until now, Mendale Village has become the primary source of freshwater fish for the surrounding area, especially for the needs of local people in Central Aceh District and Bener Meriah District. Geographically, to the west, it is bordered by Jongok Bathin Village, to the east by Kelitu Village, to the north by Bener Meriah Regency, and the south by Kala Lengkio Village (source Central Aceh District, 2019). Most of this village is a coastal area located right on Lake Laut Tawar's shore.

There are three hamlets in Mendale Village: Lelabu Hamlet, Pasir Hamlet, and Mentari Lelabu Hamlet (Mendale Village Data 2020). In 2021 the total population will be 890 people, with the densest settlements in the Pasir hamlet. This village is passed by a highway that connects the city of Takengon with Bintang District, or you can also go directly to Gayo Luas and Southeast Aceh districts. Most of the settlements of the villagers are located along the waters of Lake Laut Tawar, to the point that it is directly adjacent to Kota Takengon District. Along the edge of this lake are rice fields, which are also one of the district's most significant rice field locations. Along these locations, fishermen work, including setting nets, fish traps, and others. For some types of fish, fishermen do it a little to the middle of the lake.

Laut Tawar Lake is located at an altitude of approximately 1,200 meters above sea level. With an area of around 57 square kilometres, it is the largest lake in Aceh Province. The lake is surrounded by forest that has undergone intensive logging. Plantations, rice fields, and human settlements have existed since ancient times. Formed by the Dorman volcano and surrounded by Mount Bukit Barisan, with the highest peak, Mount Burni Telong (2058 meters). The only river with water in this lake is the Krueng Peusangan River. Lake Laut Tawar has an endemic fish known as rasbora Tawarensis, which the locals call Depik fish. Depik fish is one of about 60 species of rasbora fish identified worldwide. Rasborra is a freshwater fish easily found in small rivers, lakes, rice fields and peat swamps.

Considering that Mendale Village is one of the immediate development areas of the expansion of the city of Takengon, the ethnic diversity in this area cannot be avoided. This situation has indirectly given Mendale Village ethnic diversity. Most of the population of Mendale Village consists of Gayo people, but many other ethnic groups, such as Javanese, Acehnese, Minangkabau, and others, also live in this village. However, what is interesting, although in terms of population conditions, this village is inhabited by various other ethnic groups outside of Gayo, almost all of the fishermen come from the Gayo ethnic group, whose numbers cover nearly 3.09% of the total population (Mendale Village Data, 2020). Based on the interviews with informants, an explanation was obtained that, in general, ethnic immigrants in the area did not choose to work as fishermen because they were not used to living in a sea/lake environment. They feel more comfortable selecting the type of work they are familiar with, such as being a farmer or working as an employee in a government or private office, being a trader, and so on.

**History of Fishing in Mendale Village**

According to various sources, including those from selected informants, the administrative and geographical area, now called Mendale Village, was formerly part of the Kebayakan Village area. Previously Mendale was only a tiny village that was not too prominent and was known by people from outside. This village has become famous in Indonesia and abroad since the discovery of Gayo humans in excavations carried out by several archaeologists from the Medan Archaeological Center in 2006. The excavation results show that Gayo humans are more than 6000 years old, including the
oldest compared to some other early humans in Indonesia.

It is not known for specific data how long the people in Mendale Village have been involved in the profession of fishing, but what is clear is that knowledge of fishing that someone masters are usually acquired and passed down across generations, from parents to children, from children to grandchildren, and so on. Although in the village of Mendale, quite a lot of people are fishermen, it is rare for them to make fishing their only profession. Generally, they also work as coffee farmers or grow rice in the fields, employees or small traders. Someone who gets this knowledge from their parents generally not only gets technical knowledge about fishing or the types of fish caught, they usually also get knowledge transmission about what is permissible or not to do at sea, or when it is better to go out to sea, or when abstinence/prohibited from going to sea, as well as other matters that are directly or indirectly related to this work.

### Acculturation of local and global knowledge in fishing by Gayo fishermen in Mendale Village

a) Factors Encouraging Fishermen to Survive Work as Fishermen.

The Gayo Highlands are one of the world's Arabica coffee-producing areas. For Indonesia, this area is the largest Arabica coffee producer known to the world as Gayo coffee, with production reaching around 30,000-40,000 tons per year (AEKI, 2020). Arabica coffee plantations spread to almost all of Gayo Land, which consists of 3 districts, namely: Central Aceh, Bener Meriah, and Gayo Luwes. Compared to the other two districts, coffee production in Gayo Luwes is relatively small and of lower quality. The superiority of Gayo coffee is primarily determined by its nature which is very suitable for coffee growth. This includes soil conditions, altitude, rainfall and others that support the development and quality of the coffee produced.

The growing popularity of Gayo coffee in the world has encouraged more and more people to be interested in choosing jobs as coffee farmers or employment outside of agriculture that is still related to coffee, such as traders, exporters, coffee collectors/collectors, as well as opening coffee shops and cafes. Similarly, the phenomena that occur around the research area. Even though the Mendale Village area is currently narrower for opening coffee plantations because it is still in the same place, it is not closed for residents to work in the coffee sector, for example, buying and selling coffee or opening gardens in other nearby villages.

However, for some residents of this village, several people still continue to work as fishermen. When asked why they can continue to be fishermen during the "glittering" world of coffee? Some said they survive with this job because they do not have enough land to open a coffee plantation.

Other reasons that encourage them to remain, fishermen include: they are used to and are comfortable being fishermen because they already know the area where fish are found, they already know the 'character' of each fish; they never worked as a farmer, can't crank it; but the most common answer is because this job is exceptionally promising economically. After all, no one doesn't like fish, even though now many fish are brought from Bireuen (sea fish). However, for the Gayo people, freshwater fish are still preferred even though the price is relatively higher than types of sea fish such as tuna, puffer fish, dencis fish, or milkfish from ponds in salty water on the coast.

b) Forms of Local Knowledge, Global Knowledge and Acculturation carried out in the Fishing Process by Gayo Fishermen.
1. Local knowledge

The fishing knowledge still being carried out by fishermen in this village includes using fishing gear called traps, which are made of wire nets shaped like tubes. This bubu is no longer original because previously, fishermen used a tool that looked similar but was made of bamboo and rattan, which they called Serue. Bubu is a substitute for Serue because it is easier to work with and lasts longer. Another tool is the dedesen which is specifically used to catch depik fish. Apart from using dedesen, fishermen usually also use a method called sangkulen. Pengangkulen consists of several tools, namely a mushroom (a house measuring about 2x3 meters) for fishermen to catch fish and shelter from the cold wind in the lake during the depik fish season). In front of the mushroom is a small terrace called a lepo, where a fishing net is installed / the dedesan. Generally, a petromax lamp called a rime is provided to complement the mushroom. Other equipment is a barrel (container for draining water from the lake and a device for holding depik fish), segapa (a fishing rod made of cone-shaped bamboo), and just sweeps (a fishing rod made of conical bamboo).Trash cleaner attached to the barrel).

In addition to fishing techniques, it turns out that fishermen also still use their local knowledge to carry out a series of processes before catching fish, which method has nothing to do with fishing tools or techniques. However, they still do it, such as believing when we should go out to sea and when not to go down We all have to go out to sea, and we have to follow all of this; if we don't comply, there will be unwanted incidents, for example, the fish don't want to come out/hide, or it could also be an accident when the boat is driven upside down, the fish yield is low, and so on. After all, we also feel more confident and relieved when we go to sea; we have complied with all that is prohibited.

As far as possible, all fishermen do not violate all customary regulations/norms inherited from their ancestors. The fewer violations committed, according to them, the results obtained will be more optimal. These rules are maintained through traditions generally passed down orally and direct examples from parents and relatives carried out with complete sincerity—respect for customary rules enshrined in oral tradition. Many management-related regulations control fishermen's behaviour regarding manufacturing and deploying traditional fishing gear.

The persistence of fishermen using traditional methods that they have been doing since the beginning of their work is partly due to following what our parents used to do, and the results are pretty good. Most of the local knowledge is related to fishing in this village. This also includes ways to manage fish resources so that they can survive and always provide for their fish needs.

According to them, this type of livelihood has enabled the construction of various ethnic cultures that they have had since ancient times, including maintaining and inheriting local fishing knowledge. The local knowledge system is transmitted through multiple cultural products that align with the habits they support and continue to practice for the next generation. According to one fisherman, Aman Ani, who will if we don't preserve the traditions and noble values of our customs? According to him, there are not many places in Gayo Land that know fishing; only around Mendale it reaches Bintang; other than that, there is none.

2. Global knowledge

In its development, the technical implementation of fishing carried out by Mendale fishermen does not entirely refer to local knowledge. The Gayo Highlands being open to the presence of people from other regions means they
cannot wholly reject the company of innovations. Moreover, considering that Tanah Gayo is one of Indonesia’s largest Arabica coffee-producing regions, most of the coffee production is exported to foreign countries. This situation encourages many people from other regions or countries to come to this area. Thus, there was so much innovation in the field of coffee in Gayo. This situation also inevitably affects other fields outside of coffee, including fisheries.

This is not just a phenomenon that occurs at present because the Gayo Highlands have been open to accepting the presence of groups and communities from outside since the colonial era. For example, when a Dutch company opened pine, sugarcane and coffee plantations, it not only encouraged the arrival of foreigners to this area but also opened opportunities for the entry of other ethnic groups from all over Indonesia, especially the Javanese. Javanese ethnic who came during the pre-colonial period worked as labourers on these plantations. The Javanese who initially worked as labourers on the plantations generally became permanent residents. Their descendants have spread throughout the Land of Gayo and have become a relatively large ethnic group in Gayo.

The global knowledge referred to in this study is not only knowledge that comes from modern Western science but also the wisdom that comes from outside Gayo Land, for example in this case, it includes knowledge possessed by Javanese migrants, such as technical knowledge about fishing, as well as about the introduction of types of fish. In this case, an example is using nets of various wire sizes. We can easily find Doran in other areas as well. The use of Doran and traps is often carried out alternately by the fishermen. Using oars to run canoes is also rarely done now, because more fishermen use motorized canoes to carry out their daily activities.

3. local and global knowledge acculturation

We are currently used simultaneously among fishermen. Some of them stated that they don’t like change. As Mr Aja (67 years) said, "Actually, we are lazy to change; we are used to using the old way. But apparently, now the fish are pande, they don’t want them to touch the net anymore, because it’s for certain occasions, for example, occasionally used using a new method. Even though it’s a shame, it often damages our environment. But because we have to, we do it too because if we don’t, we can’t buy rice."

Specifically, while looking for fish, most local fishermen still practice the habits that fishermen have done before them. Fishermen engage in fishing practices that are the same as those of their ancestors. Three possibilities are generally chosen by fishermen regarding this fishing process. Namely: (1). For depik fish types, typically, they still use old/local knowledge. That is, they will use them simultaneously. (2). Depik fish is an endemic fish from Lake Laut Tawar, so almost all fishermen think they have to follow the various ‘rules’ outlined by their parents and relatives who have been fishermen before. This is because there was no single example of handling depik fish according to a ‘formula' from outside. After all, not many outsiders knew depik fish. Thus local knowledge of the Gayo ethnicity is also rooted in Gayo cultural values, and an intense relationship with the surrounding environment that has been believed and followed by the local community for a long time has stood the test of time. Various situations have continued to this day (3). Other types of fish, such as fish

CONCLUSION

From the results of the research that has been done, it can be concluded that:
Fishermen in Mendale Village generally continue to catch fish using local knowledge rooted in local culture that has been passed down from generation to generation. But on the other hand, they also show that they accept modern and science-based global knowledge/technology in fishing. These two knowledge systems go hand in hand in the context of the present time. Where fishermen use them together depends on the type of fish or other lake products they catch.

Each piece of knowledge has its advantages and disadvantages. Where not all knowledge is suitable to be applied in all types of their catches. In almost all fishing processes in this lake, the fishermen acculturate/combine local and global knowledge. For example, as explained above, they still use a tool that is the same as a serum when catching fish but has been replaced with a wire. Likewise, they still row the canoe a little to the middle of the lake, but now the oars have been replaced, no longer row manually using wood. They also use nets/dorans, but the dorans already use wire which can be bought at the shop.

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