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Indigenous Knowledge of Banyuwangi in Television Program "Bocah Petualang TRANS7"

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ABSTRACT

Banyuwangi is famous for its culture as proven by national and international awards. One of the components of culture is indigenous knowledge. The cultural elements of Banyuwangi have also been covered by television stations. TRANS7 created a program that raised the theme of Banyuwangi culture, for example *Bocah Petualang.* The program, which is known as Si Bolang, not only covered culture, but also practiced indigenous knowledge of Banyuwangi. This study aims to identify local knowledge of Banyuwangi represented by the *Bocah Petualang* television program. The results of the study show that the Banyuwangi community has local knowledge about traditional games (cars and river rafts), sources of animal protein (*bibis, wader*, and eel), cooking spices (*kecombrang* flower), healthy drinks (*jamu cabe Jawa* and *wedang jahe susu*), healthy food (watercress decoction and stir-fried durian flowers), livestock (freshwater fish and honey bees), plantations (*ranti* tomatoes and dragon fruit), handicrafts (bamboo weaving), and dance. The conclusion of this study is that the indigenous knowledge of Banyuwangi in the television program *Bocah Petualang* is about traditional games, high protein aquatic animals, the benefits of *kecombrang*, healthy beverages, healthy foods, animal husbandry, plantations, woven ethnomathematics, and motor stimuli in dance art. This study found that insects (spiders) can be used to eradicate pests. The results of this study can be a source of reference for studies about the nutrition of durian flowers. The results of this study can also be a source of inspiration for creative industry practitioners to innovate in creating contents based on local knowledge.

Keywords: indigenous knowledge; Banyuwangi; Bocah Petualang; Bolang; TRANS7

ABSTRAK

Pengetahuan Lokal Banyuwangi dalam Program Televisi Bocah Petualang TRANS7. Banyuwangi terkenal dengan budayanya yang dibuktikan dengan penghargaan nasional dan internasional. Salah satu dari komponen budaya adalah pengetahuan lokal. Unsur budaya Banyuwangi juga telah diliput oleh stasiun televisi. TRANS7 membuat program yang mengangkat tema budaya Banyuwangi, contohnya Bocah Petualang. Acara yang terkenal dengan sebutan Si Bolang ini tidak saja meliput budaya, namun juga mempraktekkan pengetahuan pribumi khas Banyuwangi. Penelitian ini bertujuan untuk mengidentifikasi pengetahuan lokal Banyuwangi yang terepresentasi dari program televisi Bocah Petualang. Hasil penelitian menunjukkan bahwa masyarakat Banyuwangi memiliki pengetahuan lokal tentang permainan tradisional (mobil-mobilan dan rakit sungai), sumber protein hewani (bibis, wader, dan belut), bumbu masak (bunga kecombrang), minuman kesehatan (jamu cabe jawa dan wedang jahe susu), makanan kesehatan (rebusan selada air dan tumis bunga durian), peternakan (ikan air tawar dan lebah madu), perkebunan (tomat ranti dan buah naga), kerajinan tangan (anyaman bambu), dan seni tari. Kesimpulan dari penelitian ini adalah pengetahuan lokal Banyuwangi yang terdapat dalam program televisi Bocah Petualang adalah tentang permainan tradisional, jenis hewan air berprotein tinggi, manfaat bunga kecombrang, minuman kesehatan, makanan

kesehatan, peternakan, perkebunan, etnomatematika anyaman, dan stimuli motorik dalam seni tari. Penelitian ini mendapat temuan bahwa serangga (laba-laba) dapat digunakan untuk membasmi hama. Hasil dari penelitian ini dapat menjadi sumber referensi bagi penelitian lain tentang nilai gizi bunga durian. Hasil dari penelitian ini juga dapat menjadi sumber inspirasi bagi pelaku industri kreatif untuk terus berinovasi menciptakan konten berbasis pengetahuan lokal.

Kata kunci: pengetahuan lokal; Banyuwangi; Bocah Petualang; Bolang; TRANS7

1. Introduction

Indigenous knowledge is closely related to the ethnic group that owns it. They are the creators, preservers, agents, practitioners, and right owners of it. This ethnic group is represented by the people who occupy a region, such as Banyuwangi, one of the regencies in East Java-Indonesia. Banyuwangi is increasingly creating programs that prioritize culture, community wisdom, and local knowledge. Banyuwangi's existence as a cultural city has also been recognized by the Indonesian government and received international awards.

Setiawan et al. (2020) explained that Indonesia has three regencies that are used as examples of Cultural Governance to Support Cultural Advancement; Banyuwangi (East Java), Gianyar (Bali), and Purwakarta (West Java). The three regions have a good track record of cultural management as evidenced by various awards. The Banyuwangi Regency Government is able to optimize the potential of local wisdom to support cultural advancement. For example, the Gandrung Dance was designated as a national intangible cultural heritage in 2013. The following year, 2014, the Seblang dance and the Tumpeng Sewu tradition received the same award. Banyuwangi also won the UNWTO (United Nation World Tourism Organization) Awards for Excellence and Innovation in Tourism (for the category of Innovation in Public Policy Governance) in Madrid-Spain in 2016.

Over the time, the culture of the Banyuwangi was then covered by various national television stations such as Metro TV, CNN, and TRANS7. We compared television programs that discussed Banyuwangi (Metro TV, CNN, and TRANS7) and found that TRANS7 had the most programs, namely *Special Days in Banyuwangi, I Pedia, Jejak Anak Negeri, Jejak Petualang, Jelajah, Jelang Siang, Ragam Indonesia, Tanah Air Beta,* Trans7 Lifestyle, and *Bocah Petualang*. All of these programs are dedicated to introducing Banyuwangi culture to the wider public, including to foreign countries.

We chose Bocah Petualang as the object of research because the actors in this program are native children of Banyuwangi. They acted naturally, such as playing in the field, hunting animals in the rice fields, looking for queen bees in the garden, fishing in the swamp, releasing spiders in the banana garden, and playing in the river. These little actors practice the way of life and indigenous knowledge typical of their ethnicity, including using traditional equipments.

According to Philip (2015), the terms indigenous knowledge, ethnic knowledge, local knowledge, or ethnoscience are used to refer to specific knowledge related to a particular culture. Botangen et al. (2017) stated that local knowledge is deeply rooted in community practices from generation to generation. This reflects the intellectual creativity typical of their culture. We know it as indigenous knowledge, traditional knowledge, or local knowledge. This type of knowledge includes language, and cultural heritage in the form of stories, songs, dances, traditional ceremonies, and rituals. This knowledge is reflected in dwellings, art, sacred sites, oral history, food, clothing, and traditional medicine.

Arjona-García et al. (2021) exemplified a community that still maintains local knowledge about health; urban communities in Mexico. They still have knowledge about medicinal plant species and understand how to use them. However, they admit that their knowledge is vulnerable to being lost along with urbanization. Therefore, knowledge about medicinal and biocultural flora needs to be continuously identified, studied, and preserved.

Botangen et al. (2017) also have a similar opinion that indigenous knowledge needs to be preserved so that it does not become extinct in the era of globalization. One way is by utilizing information and communication technology. We can utilize one type of product, namely social media to create, share, and discuss cultural content. This platform facilitates reference editing (Wikipedia), social networking (Facebook), and content communities (YouTube). The existence of social media has become a new opportunity for managing local knowledge. We can not only use it for preservation but also share the indigenous knowledge.

TRANS7 utilizes social media for documentation and sharing local knowledge. This national private television network in Indonesia created the *Bocah Petualang* program, which is a television show in the scope of edutainment (educational entertainment) about local things. *Bocah Petualang* is set in the daily lives of children in villages from provinces. The actors who play the role of Si Bolang and his friends are also real children from the village, not capital city artists. This show is packaged in a fun way with adventure activities in the wild and shows the joy of them playing in nature.

Although dominated by playing like the world of children, the program contains elements of knowledge that are easily understood by the target audience who are also school-age children. The content presented through YouTube will make it easier for anyone to learn about culture, not only for urban communities but children who live in rural areas can also enjoy *Bocah Petualang*. Children in villages and cities will be more sensitive to indigenous knowledge from an early age. The knowledge presented is closely related to local characteristics such as catching fish in swamps, swimming in rivers, cooking simple snacks, hunting insects, and trying various traditional games. The educational elements represent the local wisdom of each ethnic group in Indonesia. One of the regions in Indonesia that is part of the *Bocah Petualang* program is Banyuwangi.

There are three titles of *Bocah Petualang* for the Banyuwangi edition, namely *Serba Serbi Anak Banyuwangi* (all about Banyuwangi children), *Sehari Berkeliling di Kampung Osing* (a day around Kampung Osing), and *Cerita Anak Kemiren Banyuwangi Jatim* (a story of chidren from Kemiren Banyuwangi East Java). Through the activities of the native Banyuwangi children played in all three, we learn about the various local knowledge of this region. This is also the purpose of this study, to identify the indigenous knowledge of Banyuwangi in the television show *Bocah Petualang* on TRANS7.

2. Literature Review

Research of television broadcast content was conducted by Wiena & Amelia (2020) who studied the strategy of the FTV Starvision team in creating content with a background (location, dialogue, accent, costume, and property) that is closely related to Indonesian culture. The difference between this research and our research lies in the object of the research. Wiena & Amelia (2020) studied the parties involved in the production of content about Indonesian cultural backgrounds while we analyzed the content about Indigenous knowledge.

Another study on television shows is research of Pasrin et al. (2022) about news content on Metro TV. They conducted meaning construction and critical discourse analysis to review the content of the news about the forced use of the hijab for non-Muslim female students at SMKN 2 Padang. The difference between this study and ours lies in the type of program and the method of content analysis. Pasrin et al. (2022) reviewed the news with critical analysis while we identified Banyuwangi's knowledge in the *Si Bolang (Bocah Petualang)* program with textual analysis.

The benefits of content research on television shows are expressed in Luthfi's (2017) research that films and television shows are a medium for local culture-based multicultural education as well as a driver of the creative economy industry. Content on films and television shows can be a source of learning about culture and its local wisdom and a means of publication about that culture to the world. Television

programs that provide cultural education benefits are also found in Suprihono's (2019) research that *wayang* cinematography provides opportunities for the existence of traditional arts. Traditional arts contain the noble values of the local ethnic groups of Indonesia.

Indigenous knowledge is one of the important local elements for people who live not only in villages but also in urban areas, as written in the research of Kasei et al. (2019) that the study of local knowledge is useful for urban communities for quick decision-making. They need to train their sensitivity to the benefits of local knowledge for everyday life. For example, the role of indigenous knowledge in early warning of flood risks in urban areas of Africa. Local knowledge is useful for increasing their awareness of disasters. Another benefit of integrating Indigenous knowledge with urban life is conveyed by Billawer & Nel (2024) that Indigenous knowledge systems (IKS) in Namibia are useful as a basis for planning for handling the welfare of urban residential areas. The integration of IKS will facilitate various forms of living space, including the space of the marginalized, poor, and low-income in urban areas.

3. Methods

This study aims to identify Banyuwangi indigenous knowledge in the *Bocah Petualang* program. Therefore, we use qualitative research with textual analysis. The data for this study were obtained from EDUTAINMENT TRANS7 OFFICIAL in YouTube. About research on content on YouTube, Mikos (2018) argues that YouTube's function as a video archive is a storage or "archivist" of moving image heritage as an archive center that provides public services. Videos stored on YouTube are a source of data. Media researchers can search for data on YouTube using qualitative media analysis methods.

The selection of data sources from television programs uploaded on YouTube is based on the opinion of O'Leary & Hunt (2017) that data in the digital era does not only come from humans, organizations, museums, parks, or paper texts, but can also be obtained from the Internet, television programs, and cinemas. Data from the internet is in the form of text on websites and social media (Twitter feeds, blogs, Facebook posts, Instagram), including text in audiovisuals (Vine and YouTube videos). Mikos (2018) does not limit audiovisual documents to well-known films or television programs. Collecting media data for textual analysis in film and television studies can be done on films, movies, and television programs produced by all parties, whether professionally, by skilled directors, or even by amateurs. The sources are also diverse, both from television stations and from social media such as YouTube.

Mikos (2018) suggests a more specific way to collect data from audiovisual documents. First, we critically examine the types and content contained therein. Audiovisual sources must be cited correctly to acknowledge intellectual property rights. The way to do this is by attaching screenshots of films or television programs. Researchers are prohibited from uploading audiovisuals in the form of cuts or full (films or television shows) even with the reason as an accompaniment (documentary evidence of the film).

Based on these suggestions, we chose Bocah Petualang shows with the program titles: *Serba Serbi Anak Banyuwangi*, *Sehari Berkeliling di Kampung Osing*, and *Cerita Anak Kemiren Banyuwangi Jatim*. We collected data by watching repeatedly to pay attention to how they play and how they do some things. We listened to the scientific subject themes in the content. While watching, we noted local terms spoken by the characters and noted the process of how to do things along with the materials they used. From the results of this data collection, we then conducted textual analysis. O'Leary & Hunt (2017) argue that text data also exists in videos, TV shows, and radio broadcasts. We call the analysis of the text is textual analysis, not document analysis. Textual analysis is an exploration of traces of social activity including documents and blogs, videos, photos, posts, memes, poems, songs, and tweets.

According to Mikos (2018), one way to analyze data in films and television shows is textual analysis. Textual analysis is only possible by direct observation of video content to obtain narrative text. The text referred to here is the words and sentences in the dialogue or from subtitles (if in a foreign language).

This text is a representation of the topic, therefore it needs to be analyzed to obtain the theme. Textual analysis of films and television shows is worthy of being used as research data because both represent social reality. Researchers can explore it from various perspectives, depending on the respective fields of science that are mastered.

Based on this opinion, we conducted data analysis by grouping themes based on subjects or fields of science. We found that in the television program *Bocah Petualang* special edition of Banyuwangi there was local knowledge about traditional games, animal protein sources, cooking spices, healthy drinks, healthy foods, livestock, plantations, handicrafts, and dance. The data validity method (credibility of qualitative data) we conducted by strengthening these findings with the results of other people's scientific research that had been published. Thus, although the research data came from a television program, its scientific side is still visible because it is supported by findings from scientific journals.

4. Results

Nerosti (2020) argues that currently, more people are raising local themes in various fields, including creative industries based on customs and culture. There are many cultural potentials in society that can be explored to create content. For example, the skills of Randai Padi Sarumpun and the story of the Mandeh legend depicts the socio-cultural life of the Minangkabau people. Mustikawati et al. (2022) acknowledge that video-based digital platforms such as films are a medium for generating new ideas and stimulating creativity. This digital technology is increasingly penetrating the video production process into socio-cultural space themes.

In this research, we analyzed the culture that is the content of the television program Bocah Petualang special edition of Banyuwangi. We obtained that local knowledge is about traditional games, animal protein sources, cooking spices, healthy drinks, healthy foods, livestock, plantations, handicrafts, and dance.

4.1. Traditional Games

Boys' activities are generally automotive. It is the same with Banyuwangi children who like to play glindingan (toy cars). This toy is made of wood shaped into wheels, a board to sit on, and a pole (wood or bamboo) for the steering wheel. How to drive it is fairly easy, just play it on a downhill road, and then the wheels will roll faster. If they slide too fast, we use the soles of our feet to stop the vehicle. Although it looks simple just sitting in the car and sliding following the contour of the downhill road, concentration is still needed in moving the steering column so that the car does not wobble left and right. The ability to maintain balance is also needed because the frame of the car is only a board base, wheels, and steering pole; without a wide seat, without a hull, and without a car body. If the balance is lost, the passenger will fall very easily.

Another game that also requires body balance is *sepak bola egrang* (*egrang* football). *Egrang* is a game tool made of a pair of long bamboo (1.5 - 2 meters) and given a foothold (minimum 15 cm from the ground). Both soles of the feet go up to the foothold, hands hold the bamboo tightly, then we walk on the foothold. *Bolang* and his friends use stilts to play ball.

The next game is surfing on the river using a banana stem raft. Three banana stems are tied sideways to form a rectangle like a raft. Children lie face down or sit on the raft and then follow the flow of the river current. The ability to maintain balance is needed so that the raft does not capsize. Their hands move like paddles so that the raft does not deviate from the river bank. Children are also skilled at weaving coconut leaves to be turned into windmills. The windmill is attached to the end of bamboo or long wooden blade. So that the windmill can spin, the children hold the windmill stems while running. The faster they run, the faster the windmill spins.

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Figure 1: Egrang football (Source: Screenshoot of Bocah Petualang Cerita Anak Kemiren, June 2024)

4.2. Animal Protein Source

Another fun activity of Bolang and his friends is catching rice field cockroaches or water scavenger beetles. Local name for this mud animal is *bibis*. They hunt *bibis* among rice plants. Although named cockroaches, it does not mean that cockroaches are smelly and unfit for consumption. Bibis are a good source of animal protein for children. *Bibis* are also believed to be beneficial for increasing the body's immunity so that sore throats and coughs will heal quickly. Belief in the nutritional benefits of *bibis* represents Banyuwangi's local knowledge about health.

Figure 2: *Bibis* (Source: Screenshoot of Bocah Petualang Serba Serbi Anak Banyuwangi, June 2024)

The nutritional value of *bibis* is explained in the study of Devi et al. (2023) which exemplifies edible insects such as giant water bugs and Lethocerus indicus (Lep. & Ser.) both of which contain essential oils, lipids, and MUFA (monounsaturated fatty acids (MUFA), and (PUFA) polyunsaturated fatty acids. Das (2019) also acknowledged that the water insect Hydrophilus olivaceus is a source of macronutrients (protein, lipids, and carbohydrates) and micronutrients (calcium, iron, magnesium, and zinc).

Banyuwangi community's knowledge of animal protein sources can also be seen from children's activities of netting *Hydrolysates Common Barb Fish* (*Rasbora jacobsoni*) in swamps or natural ponds. the society name it *wader* fish. They believe that wader fish are good for brain development because they contain good fish fat. The results of research by Witono et al. (2020) prove that wader fish contain high levels of protein, antioxidants, and amino acids.

Other animal nutrition for Banyuwangi children is obtained from eels. They also believe that eels are a very good source of nutrition for health. Eels are a source of natural animal protein, phosphorus, and calcium. The variety of nutrients in eels is more fully explained in Astiana et al. (2015) namely protein, carbohydrates, fat, glutamic acid, amino acids (lysine, histidine), palmitic acid, cholesterol, oleic acid, EPA (Eicosapentaenoic acid), calcium, magnesium, sodium, potassium, iron, zinc, and copper. Suprayatmi et al. (2016) gave an example of processed food from eels, namely crackers. Although it is a dry snack, this food still contains protein, fat, DHA (Docosahexanoic acid), and EPA (Eicosapentanoic acid). Raya et al. (2023) provide other variants of processed eels so that we are more fond of consuming them; meatballs, chili sauce, and nuggets.

4.3. Cooking Spices

The Banyuwangi community uses *kecombrang* (Etlingera elatior) as one of the essential spices in processing animal side dishes, including bibis. This flower will provide a fresh sour taste, eliminate the fishy aroma, and provide a unique fragrant sensation, typical of *kecombrang*. Apart from its benefits as a delicious cooking spice, the flowers contain good nutrition for health. According to Sari et al. (2022), *kecombrang* flowers (Etlingera elatior) are plants that have high antioxidant content. The results of research by Kesuma & Yusrin (2024) showed that *kecombrang* have a protein content of 15.73%.

4.4. Health Drinks

Bolang uses *cabe Jawa* (Piper retrofractum Vahl.) as an ingredient in making *jamu* (Indonesian herbal beverage). They believe that it is useful as a herbal medicine for stomach aches, colds, rheumatism, beriberi, cholera, asthma, and to increase appetite. According to Faramayuda et al. (2021), *cabe Jawa* is a tropical plant from Indonesia that is also found in Southeast Asian countries such as Thailand and Malaysia. People in these three countries have traditionally used it as a traditional medicine to treat fever, flatulence, nausea, heartburn, vomiting, digestive disorders, and stimulate appetite. The roots are used for toothache, wounds, and cramps. The leaves are useful as a mouthwash. Pharmacology proves that the plant has aphrodisiac effects, antitubercular activity, anticancer, antihyperuricemia, antipyretic, antimicrobial, immunostimulant, anti-photoaging, antiproliferation, larvicidal activity, and cytotoxic.

Another health drink taught by Bolang is goat's milk ginger drink. It is easy to make it just by boiled milk, crushed ginger, and cinnamon. Enjoy this drink immediately while it is warm. It is suitable to drink when cold or after swimming in the river. This drink is not only useful for warming the body, but also for relieving nausea, making the heart healthy, increasing the body's immunity, relieving sore throats, and reducing dizziness.

4.5. Health Food

Banyuwangi people, especially in Osing village, are accustomed to consuming watercress as a vegetable. The simplest way to cook it is to boil it to be used as *lalapan* (boiled salad). It is delicious to eat with chili

sauce. Although Bolang did not specifically mention the nutritional value of watercress, their habit of consuming it indicates that Banyuwangi people have knowledge of food sources from aquatic plants. The nutritional composition of watercress was conveyed by Rahman et al. (2017), the results of phytochemical testing on watercress extract found flavonoids, tannins, saponins, and steroids. The antioxidant activity test found that the ethanol extract of watercress was 102.26 ppm. This study concludes that watercress can be used as an alternative functional food considering its antioxidant.

The Osing people are also accustomed to consuming durian flower vegetables. This food, also known as *tumis blowok*, is also easy to make. The spices are the same as other stir-fries, such as chili, shallots, sugar, and salt. The Bolang family often makes this vegetable when the durian tree is in bloom. The flowers consumed only come from fallen flowers. We are prohibited picking flowers that are blooming on the tree because the flowers are the primordia of the durian fruits.

4.6. Livestock

The Banyuwangi community lives in harmony with nature. Likewise with the Osing tribe who live in Kemiren village. In their area, there are still large natural ponds which are formed from depressions in the ground filled with rainwater. In these ponds, there are usually fish and aquatic plants by themselves. Watercress is food for *wader* fish. Aquatic plants such as lettuce are a medium for providing oxygen for the water where wader live so that the fish will be healthier. Therefore, they do not clean all the aquatic plants in the swamp or natural pond. This indicates that they have knowledge about raising freshwater fish. They understand the benefits of watercress for the development of fish and other animals that take shelter under these plants. Protected animals will reproduce better.

Another knowledge about animal breeding is the cultivation of honey bees in dragon fruit gardens. Bolang was invited by his uncle and grandfather to take the queen of the forest bees. They made a torch from dry banana leaves which was then used to smoke the nest so that the bees would leave. If the bees had moved away from the nest, it was easy to take the queen. The queen was moved to a special box for beekeeping installed in the dragon fruit garden. If the queen moved, the worker bees would automatically come to the new queen's place. The bees would suck the nectar of the dragon fruit tree flowers.

4.7. Plantation

One of the plantations that is typical of Banyuwangi is the *ranti* tomato. This fruit, also known as the rose tomato, has a crispier texture and a taste that is not too sour so it can not only be used for chili sauce but is also delicious for healthy snacks. Bolang's older sister makes *ranti* tomato fruit pudding for her younger sibling and friends to snack on. According to Bolang, the most important nutrient in tomatoes, namely lycopene, is believed to be one of the good nutritional compositions for the body. In the study of Shafe et al. (2024), it is explained that lycopene is a natural carotenoid in tomatoes. Lycopene has been shown to reduce metabolic dysfunction (stress, inflammation, obesity, and diabetes). Lycopene has also been shown to be healthy for the eyes, kidneys, bones, liver, heart, lungs, and nervous system.

Sembiring et al. (2017) acknowledged that *ranti* tomatoes are a local variety from Banyuwangi and Sumenep. This variety, known as serrated tomatoes, has a wavy shape (not smooth and round), a texture that is not mushy, and a fairly long shelf life, making it suitable for long-distance shipping. People often call it *ranti*, means serrated tomatoes. One way to cultivate *ranti* tomatoes is explained in Wahyuni et al. (2022) who experimented using bat droppings. The results of this natural fertilizer have an effect on the weight of the fruit becoming larger.

The existence of dragon fruit gardens is also proof that the Banyuwangi community is an expert in plantations. Firdaus et al. (2019) also stated the same thing that dragon fruit farmers in Banyuwangi continue to innovate in cultivating this fruit. If in the past they only relied on natural lighting from the sun, now they have utilized electricity to warm the plants. They turn on light bulbs near the plants

for lighting from the afternoon to the morning. Warm temperatures will stimulate the trees to flower better. Flowers that grow healthily will also produce healthy fruit so that the harvest will be abundant. If relying on heating from sunlight, farmers only harvest once or once a year. After installing the light bulbs, they can harvest at least 3 times a year. Some gardens can even harvest every month.

The Banyuwangi version of Bolang also gives us new knowledge in horticulture that insects can also be used to repel pests. So far, we have relied on chemical liquids to eradicate pests in agriculture and plantations. Bolang and his friends brought several spiders and released them on each banana tree. The community believes that one of the natural ways to grow bananas is to release spiders on each banana tree. These predators will eat banana pests. They do not need chemical liquids to kill pests that interfere with the growth and health of banana trees. However, care must be taken in moving these animals to the tree because even though the spiders are not poisonous, they still have negative effects on humans. Their fingertips can trigger skin allergies.

4.8. Handicraft

Bamboo tools (for catching bibis, wader, and eels) are the evidents of Indigenous knowledge of handicrafts. Tools to get *bibis* (rice field cockroaches) is *kepis*, which is bamboo woven into a long bowl to make it easy to scoop *bibis* under the mud. They use *irig* (a semicircular bamboo net) to catch wader fish. When setting eel traps, they use *tilek* (a long-oval bamboo net). They prepare bait (pounded tempeh and pounded garlic) then put it in the *tilek*. This bamboo trap is submerged in the water where the eels breed. Wait a while, for example a day, then lift it. We will get several eels in it. Bolang explained that the tools for catching eels and the eel bait are all made from natural materials so as not to damage the swamp or rice field ecosystem where the eels live.

Woven products are objects that can be found in almost every home in Indonesia. At first glance, we only see these products from their functional side, such as containers, baskets, boxes, steamers, containers, fish traps, and so on. Some of us are almost unaware of the local knowledge behind the creation of the product. Fajar et al. (2018) explained that there is knowledge about ethnomathematics from the woven craftsmen themselves. The meaning of ethnomathematics in simple terms is the application of mathematical concepts to the cultural life of an ethnic group. A simple example is the making of woven products in Gintangan Village, Blimbingsari, Banyuwangi. Skilled craftsmen weave bamboo to make *kukusan* (to steam rice or tubers), *ereg* (to drain rice, vegetables, or fruit after washing with water), *tenong* (food containers), and *nyiru* (winnowing baskets to separate stones, gravel, and rice husks from rice).

4.9. Dance Arts

Children from the Osing village also have skills in music and dance. They are trained to play traditional musical instrument, the *kendang* (made of wood and animal skin, played by hitting it). They also practice the *osing barong* dance. This exercise not only relies on hand and foot movements, but also requires concentration. We need to focus on determining the beat of the *kendang*. Dancers must also concentrate so that their footsteps when playing the barong are in accordance with the music. Apriliya & Katoningsih (2021) explain the relationship between dance and children's motor skills. Learning dance is basically expressive, creative, and imaginative. All three require high imagination. It also requires the ability to concentrate on mastering the movements. The benefits of learning dance are not only limited to developing creativity but also help the development of children's physical and spiritual health.

5. Discussions

Banyuwangi indigenous knowledge represents the way people live their daily lives. The knowledge was obtained from their ancestors, from ancient times until now. Their local knowledge is still relevant along

with the development of the times. Although they currently live in the technological era and have been affected by urbanization, indigenous knowledge is still maintained because it is still very useful for them. Even urban people have enjoyed the results of Banyuwangi indigenous knowledge. *Wader* fish, *ranti* tomatoes, dragon fruit, and bamboo weaving can be consumed by people in cities outside Banyuwangi. The *Barong Osing* Dance can also be enjoyed by urban people, one of which is through the television program Bocah Petualang.

Walker et al. (2024) acknowledge that indigenous knowledge is useful for the wider community, not only for local communities in villages but also for urban life. Māori people living in urban areas still use local knowledge in their lives. They still practice the cultural heritage of *kaitiakitanga* from past generations to continue to be preserved for future generations. Kaitiakitanga is a Māori concept of protecting and conserving the natural environment that useful for inclusive and effective urban restoration while supporting cultural knowledge in the future. This cultural knowledge and practice are useful for ecological restoration, intergenerational management in urban areas, the foundation of nature restoration, and good human relationships with nature. They integrate local knowledge, value systems, and indigenous practices into the composition, structure, and function of areas in urban areas.

5.1. Traditional Games

The existence of *glindingan, egrang*, banana trunk rafts, and windmills made from woven coconut leaves is proof that Banyuwangi children have local knowledge about ethnobotany. They utilize plants that are natural products in cultural products in the form of traditional play tools. *Glindingan* and *egrang* represent children's skills in turning wood and bamboo into toys. The banana trunk raft is the result of a spontaneous idea to utilize natural materials for surfboards and river crossing tools. The windmill is proof of handicrafts (woven coconut leaves) mastered by Indonesian children.

Research by Al Anshory & Sulistijorini (2019) also proves that Indonesian children in other areas, the slopes of Mount Lawu, are also creative in turning plants into toys. The more types of plants they encounter, the more diverse the toys they can make. Knowledge about plants is increasingly honed over time playing because they continue to explore nature in traditional games. Guava flowers that are still buds (small round) are used as bullets with a bamboo gun. They gave teak leaves water and then squeezed them to make red dye. They used pete flowers as microphones and yellow plants climbing on hedges they made imitation instant noodles for cooking.

5.2. Animal Protein Source

The use of *bibis* as a side dish for Banyuwangi children is proof of local knowledge that insects can also be a source of protein. Yen (2015) acknowledged that people in the Asia Pacific region have utilized traditional knowledge and modern technology to include insects in the human diet because of their nutritional and medicinal benefits. The species are witjuti grubs (Endoxyla leucomochla) and bogong moth (Agrotis infusa) in Australia; the weaver ant (O. smaragdina) in Australia, China, and India; the palm weevil (R. ferrugineus) in Papua New Guinea, Indonesia, Malaysia, Thailand, Sri Lanka; the giant water bug (L. indicus) in Southeast Asia and South Asia; the patanga (P. succincta or Bombay locust) in Southeast Asia; and the tarantula (Haplopelma sp. or spp) in Cambodia.

5.3. Cooking Spices

Banyuwangi people have knowledge about flowers that can be used as food ingredients, namely *kecombrang* (Etlingera elatior). This plant is not only beautiful when planted in the yard but can be a ready-to-pick spice. Its sour taste can reduce the unpleasant taste of fish. The fragrance of it can reduce the fishy smell of animal dishes. Its red, white and pink colors beautify side dishes. In addition to its fresh sour taste, fragrant aroma, and beautiful color, this flower also has nutrition.

For people who are trying to regulate their diet, *kecombrang* are also a safe choice because according to Prasetyo & Maharani (2024), the fat content of *kecombrang* flowers is only 0.0851%. This finding shows that it has a very low-fat content, making them a good choice for a low-fat diet and containing bioactive compounds. For people who are not on a diet, Silitonga et al. (2023) exemplified the innovation of processing, namely *kecombrang* crackers. Substituting 65% tapioca with 35% *kecombrang* powder contains 3.04% protein and 5.93% fiber.

5.4. Health Drinks

Jamu *cabe Jawa* (Javanese chili herbal drink) made by the Bolang family is proof that the Banyuwangi community also has knowledge in making health drinks. The tip given by Bolang's mother is the technique of stirring the herbal medicine decoction slowly so that it does not crack. Because if it cracks, the herbal medicine will be considered a failure. According to Syafitri et al. (2022), Piper retrofractum Vahl. has a distinctive aroma and spicy taste so it is suitable for use as herbal medicine.

In the study by Faramayuda et al. (2016), it is explained that Piper retrofractum Vahl. contains triterpenoid steroid compounds, and flavonoids. Faramayuda et al. (2021) explained that the phytochemical study of the main secondary metabolite compounds contained in Javanese chili includes several types of alkaloids such as piperine, pipernonaline, guineensine, and piperoctadecalidine. The essential oil of Javanese chili fruit contains β-caryophyllene, pentadecane, and β-bisabollene. In addition to these main compounds, there are new compounds in the form of amides, amide glycosides, phenylpropanoid glycosides, and alkaloids. All of these contents prove that Javanese chili has herbal benefits.

Bolang also makes another health drink, ginger milk. Ginger is one of the mainstay spices of Indonesian. It is also one of the cooking spices that is almost always in the kitchen. We can use it anytime if needed, including to improve health. This is also done by the Banyuwangi community. According to Hakim et al. (2015), ginger rhizome contains essential oils zingiberene, zingiberol, bisabolene, curcumin, gingerol, philandrene, and resin. All of these are beneficial for digestive health such as reducing gas in the stomach, relieving bloating, and relieving nausea.

5.5. Health Food

The Osing-Banyuwangi community is accustomed to utilizing wild plants and flowers as food sources. Watercress that grows naturally in the swamp becomes boiled vegetables and durian flowers as stir-fried vegetables. Rahman et al. (2017) acknowledged that watercress is very beneficial for the body. This plant is not only rich in fiber but also contains antioxidants. However, we have not found any research results on the nutrition of durian flowers. Therefore, we use the consumption of stir-fried durian flowers by the Banyuwangi community as a research finding that can be a trigger for researchers in other fields to test the phytochemicals, nutrition, and health benefits of the flowers.

5.6. Livestock

The water plants in the swamp t that are not thrown away by the Banyuwangi community are proof of their knowledge that water plants are also beneficial for the swamp fish ecosystem. These plants act as an umbrella from the heat of the sun as well as a source of oxygen for fish. In the study of Zahro et al. (2023), it was recognized that watercress has proven crucial in processing degraded water through Rhizofiltration by accumulating heavy metals thereby increasing aquatic ecorestoration.

Honey bee cultivation is proof that the Banyuwangi community also has the ability to raise honey bees. They understand that the main food for bees is flower nectar, therefore a breeding box is made in the dragon fruit garden so that bees can suck flowers. They understand that flowers are the best food source for bees. The results of the study by Erwan et al. (2022) show that the sources of honey bee food are nectar and pollen-producing plants such as coconut, coffee, palm, cashew, cocoa, calliandra, fruit

trees (durian, starfruit, longan, rambutan, and papaya), flower trees (sunflowers, amethyst, turnera subulata, lantana flowers, and zenia flowers), types of grass (mimosa pudica L), and vegetables (basil, mustard greens, and spinach).

According to Yusuf (2022), the process of honey bee farming to harvest by farmers in Banyuwangi is generally carried out in the following stages:

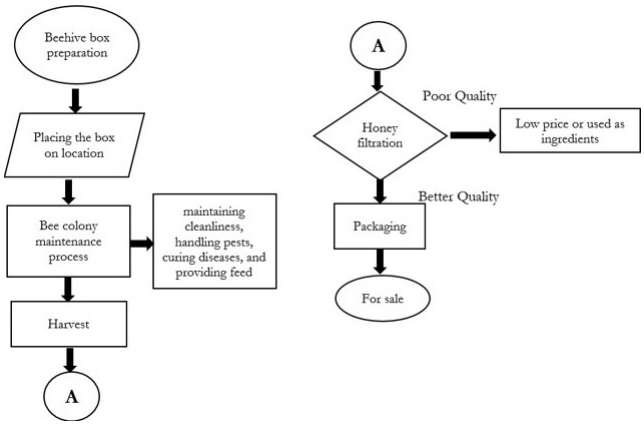

Figure 3: Honey bee cultivation process (Source: Yusuf, 2022)

5.7. Plantation

One of Banyuwangi's typical plants is the *ranti* tomato. The community has cultivated it for generations. This proves that they have knowledge in cultivating tomatoes. As a local resident, Bolang admits that this tomato is suitable for making various dishes. Not only chili sauce, this tomato can be used as a base ingredient for pudding. Tomatoes are also good for health because they contain lycopene. Another horticultural science mastered by the Banyuwangi community is dragon fruit cultivation. Farmers continue to innovate so that they can continue to harvest throughout the year. One of their creativity is installing hundreds of electric bulbs in the garden so that the dragon fruit trees continue to feel warm. This method has been proven to make the trees continue to bear fruit.

The tip used by fruit farmers in Banyuwangi is to use spiders to repel insects or pests on trees. According to Dewi et al. (2019) spiders are predators of other insects that are pests for plants. Organic rice farmers also use these animals to eradicate black rice pests. Suana and Haryanto (2013) explained that spiders are predators of insects in cashew trees. Maramis's (2014) research shows that spiders are also effective in protecting red bean plants from insects.

5.8. Handicraft

The skills of the Banyuwangi people making bamboo woven crafts are evidence of indigenous knowledge in ethnomathematics. They master the calculation of material preparation time and manufacturing time without a timer. They can make bamboo woven products in the form of geometric shapes without measuring tools. They are also able to design craft objects without formal courses. They master ethnomathematics by learning through direct practice, without formal education and without modern technology.

The concept of ethnomathematics in making bamboo woven crafts is calculating, measuring, and designing. Calculation of the time for drying bamboo so that it is flexible to shape but does not break easily because if the bamboo is dried for too long it will become stiff. The next calculation is on the size of the product which also affects the size of the bamboo slices to be woven. Uniquely, this measuring activity does not entirely use measuring tools such as rulers or meters. They use approximate calculations. This proves that the weavers have knowledge of the art of measurement. The next mathematical value is seen in the shape of the woven product such as cones, semicircles, rectangles, cylinders, and so on. These shapes also represent the mathematical formulas of geometric shapes and their volumes (Fajar et al., 2018).

5.9. Dance Arts

Bolang and friends teach us that dance is not just art, beautiful body movements, or entertainment. Mastering dance also means mastering the science of controlling the mind. When dancing, we need to focus on body movements to match the dance style. Hand and foot movements also need to be adjusted to the rhythm of the music. We also need to concentrate so that the dancer's steps are directed, not colliding with each other. This means that dance is not only beneficial for concentration skills but also motor development. This is also recognized by Apriliya & Katoningsih (2021) that children who learn to dance experience have better motor development because they are trained to move their limbs which automatically makes the body healthier.

6. Conclusions

The Indigenous knowledge of the Banyuwangi represented in the Bocah Petualang television program is about traditional games, sources of animal protein, cooking spices, health drinks, health food, animal husbandry, plantations, handicrafts, and dance. In traditional games, creativity is reflected in turning wood and bamboo into toy cars and assembling banana stems into river slides. They also recognize types of aquatic animals that contain high protein (*bibis, wader*, and eels). The Banyuwangi community also understands the benefits of *kecombrang* flowers as a cooking spice that provides health benefits. Knowledge about health drinks can be seen from the ingredients and how to make Javanese chili *jamu* and ginger drink. Other natural ingredients that they use as a source of health are watercress and durian flowers as vegetables. They also have knowledge about animal husbandry (freshwater fish and honey bees) and plantations (*ranti* tomatoes and dragon fruit). They also understand ethnomathematics which can be seen from bamboo woven products. Knowledge about motor stimuli is represented by the dance art that they master.

This study found that insects (spiders) can be used to eradicate other insects. The results of this study can be a reference source for other research in the field of nutrition to study more deeply the nutritional value of durian flowers. The results of this study can also be a source of inspiration for creative industry players to continue to innovate in creating local knowledge-based content.

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