

Research Article

ETHNO-AGRICULTURAL PRACTICES OF COMMUNITY: EXPLORING THE POTENTIALS OF SCHOOL CURRICULUM

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ABSTRACT

This study explored the villagers' ethno-agricultural practices to find perspectives on designing school curricula. The study revealed that the villagers practised traditional agricultural knowledge in crop selection, irrigation, water knowledge, temperature, light, nutrients, varieties of crops, insect resistance, site selection, land preparation and seeding. The villagers had an intricate ethno-agricultural culture of repetitive tillage during monsoon, growing vegetative barriers on field boundaries and mixed cropping, and crop cultivation cycle using indigenous fertiliser and indigenous recycling system of animal dung. Significant themes that need to be integrated into the school curriculum were checking soil loss by wind erosion, soil moisture conservation for the showing of winter crops, high production, indigenous flood control and land erosion by tree plantation on canal banks. Hence, the preservation and transmission of traditional agricultural behaviour for building a culturally responsive and indigenous knowledge-based education system is suggested.

Keywords: Indigenous Knowledge; Ethno-agricultural Practices; School Curriculum.

INTRODUCTION

Education is now seen as fostering indigenous knowledge and values which will address the well-being of the individual and, in turn, the well-being of humanity. There is a need to see the utility of mankind. Hence, the implications towards teaching and pedagogy can be mitigated by linking the school experience with the child's experience outside of the community. One of the main educational concerns of communities is the transmission of various skills related to pursuing the community's needs and aspirations. These skills include creating various artefacts that are useful to the life of communities.

Theoretical Orientation

Community participation at the classroom and school level requires sustained content to evolve materials and ideas. Flexibility and autonomy are required for a normative framework to decide the curriculum. The educational system will enhance social participation, accommodate cultural diversity and initiate social accountability. Local community participation is suggested because of the call for micro-planning, accommodating the need for a child-wise strategy, and resolving social problems at the local level (National Council of Educational Research and Training [NCERT], 2006).

Sensitizing Community Knowledge

A country with rich and diverse culture progresses towards the general well-being of individuals. Education sensitises the diversity of culture. Individuals' viewpoint on intercultural interactions in a nation with respect to diversity is fundamental. The curriculum preserves a particular culture of groups and appreciates the individuals' ways of life. Education portrays these components creatively (Haydock, 2015).

The primary goal of education and instruction is to orient children and adolescents towards the culture of the community (Ministry of Education [MOE], 2020). Education empowers individuals to stimulate, educate on the importance of life, and develop the skills to change it. The school introduces the child to a teaching and learning environment apart from the rest of the child's environment (Noddings, 2013). As the life of the school cannot simply merge with the life of the community, the school may need broadening its settings. On the other hand, they must encourage the development of crucial connections between children's experiences at home and in the community (Kumar & Behera, 2022).

Education is a major driver in improving knowledge dissemination to benefit society (OECD, 2008). Education contributes to transmitting knowledge from community to community. It also includes the practical abilities that can be learned by practice and experience (Barber and Jackson, 2015). Knowledge is deeply rooted in social contexts such as practitioners' community, expert groups, or academic departments (Oborn *et al.*, 2010). Communities of practice necessitates the translation and contextualisation of knowledge to make knowledge relevant and accessible which is generated in a different context (Yanow, 2000).

Knowledge originates from people, communities, and the nation through their relationship with land and other living things in their local environment. This knowledge is known as indigenous knowledge (Stagg-Peterson *et al.*, 2022). The knowledge produced by indigenous people commonly varies with different academic disciplines. Indigenous knowledge is transmitted verbally through experiences and observation from generation to generation within the community (Da Silva *et al.*, 2023). The school curriculum helps students in accomplishing the goals of indigenous knowledge. This knowledge is essential for students to comprehend how these changes affect human societies in a more interdependent and globalised world (NCERT, 2023). The education system has

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leveraged these to carry out and implement its plans. It emphasises the importance of a multidisciplinary and holistic approach. It encourages the integration of different school subjects, including social sciences, to foster critical thinking, analytical skills, and a comprehensive understanding of society, history, and culture (MOE, 2020). This highlights the need to promote local and indigenous knowledge in the curriculum.

Indigenous Knowledge

Indigenous knowledge refers to the knowledge systems, practices, and beliefs developed and transmitted within indigenous communities over generations. It encompasses a broad range of traditional knowledge, including ecological, cultural, spiritual, and social aspects (Negi *et al.*, 2023). Indigenous knowledge is deeply rooted in the specific contexts, environments, and peoples of worldwide.

Indigenous knowledge greatly emphasises the interdependence between humans and the natural world. It encompasses a deep understanding of eco-systems, biodiversity, weather patterns, medicinal plants, sustainable resource management, and ecological balance (Ens *et al.*, 2015). Indigenous knowledge is transmitted orally from one generation to another through storytelling, myths, legends, and songs. These narratives carry important cultural, historical, and environmental knowledge, fostering a sense of identity and belonging (Sillitoe, 1998). Indigenous communities possess a wealth of traditional practices and technologies that have evolved over time to meet their specific needs and challenges. These practices include agriculture techniques, hunting and fishing methods, and crafts. Indigenous knowledge intertwines spirituality, cosmology, and cultural practices (Durie, 2005). It encompasses rituals, ceremonies, belief systems, and values that guide the relationship between individuals, communities, and the broader natural and spiritual realms.

Indigenous knowledge emphasises collective decision-making and community consensus-building. It values the wisdom and experience of elders and fosters a holistic approach that considers social, cultural and ecological considerations (Bruchac, 2014). Indigenous knowledge systems have proven highly valuable in sustainable resource management, biodiversity conservation, climate change adaptation, and traditional medicine and agricultural practices. However, it is also important to recognise that external forces (colonisation, cultural assimilation, and modernisation) undermine indigenous knowledge. Preserving and respecting indigenous knowledge is crucial for promoting cultural diversity, environmental sustainability, and social justice.



Figure 1: Indigenous Knowledge Resources

CONCEPTUAL ORIENTATION

Ethno-Practices

Ethno-practices refer to cultural or ethnic practices specific to a particular group or community (Medom, 2022). Ethno refers to

ethnicity or ethnic groups, while practices refer to customs, traditions, or behaviours commonly followed within a specific cultural or social context. In particular, Ethno-practice refers to the institutionalised knowledge of any community through activities, rituals, beliefs, and behaviours shared among the community members (Dutta, 2021). Various ethnic groups worldwide have specific ceremonies and rituals for different occasions, such as weddings, births, funerals, coming-of-age ceremonies, or harvest festivals. These practices have deep cultural and symbolic significance. Many ethnic groups have traditional healing practices, which may involve using herbal remedies, spiritual rituals, or maintaining overall well-being (Jakati, 2013). Ethnic groups have their own languages or dialects and unique forms of communication, storytelling, or oral traditions that contribute to their cultural identity and social cohesion (Wanzala, 2017). It is important to note that ethno-practices can vary widely across cultures and regions. They are shaped by historical, geographical, social, and religious factors and play a significant role in preserving and expressing a particular group's cultural heritage and identity. The knowledge practices (such as the appearance of red and black ants, star and moon movement, and mist-cover on mountains) contribute to decision-making and adapting suitable strategies toward climate change (Kom *et al.*, 2023).

Ethno-Agricultural Practices

Ethno-agriculture is also known as traditional or indigenous agriculture. It refers to the agricultural practices and techniques employed by specific cultural or ethnic groups over generations. The agricultural practices include ethical and religious values and follow its influence defined as Ethno-agricultural practices. Indigenous knowledge is local ecological knowledge or conventional ecological understanding. It encompasses several notions, procedures, and activities regarding the immediate environment and how people interact (Berkes, 2008). Ethno-agriculture supports local food production and contributes to cultural identity, social cohesion, and sustainable land management (Malaisse *et al.*, 2001). Recognising and promoting these traditional practices can provide valuable insights and solutions for addressing contemporary agricultural challenges, including climate change, biodiversity loss, and food security (Singh and Singh, 2017).

Ethno-agricultural practices are rooted in the long-standing traditions, knowledge, and practices developed by indigenous and traditional communities over centuries. These practices have evolved in response to local environments, cultural values, and the need for sustainable food production. Ethno-agricultural practices have deep historical roots. They emerged as communities engaged in cultivating plants and animals for food. These practices are shaped by each community's specific environmental conditions, available resources, and cultural beliefs (Hill, 2004).

Over time, they were refined and adapted to suit local eco-systems and climate patterns. Ethno-agricultural practices are built on localised knowledge systems developed through generations of observation, experimentation, and adaptation. Indigenous and traditional communities possess in-depth knowledge of local flora, fauna, soil fertility, weather patterns, and agricultural techniques that are specific to their geographical areas. This knowledge has been refined and innovated to enhance productivity, resilience, and sustainability. Ethno-agricultural practices reflect the ability of communities to adapt to changing conditions and challenges. Traditional agricultural systems have proven resilient due to environmental fluctuations, including climate variability, pest outbreaks, and natural disasters (Tauger, 2020).

Contribution of indigenous-agricultural practices

Ethno-agricultural practices have significantly contributed to agricultural innovation and biodiversity conservation (Zhang *et al.*, 2013). Traditional agricultural communities have cultivated and preserved many crop varieties, which possess unique traits, resilience, and nutritional value. These varieties have been used as genetic resources for modern plant breeding and have contributed to developing more robust and diverse agricultural systems (Wu, 2014). Ethno-agricultural practices have long prioritised the sustainable management of natural resources. Indigenous and traditional communities have developed practices such as agroforestry, soil fertility management, water conservation, and wildlife conservation. It maintains the ecological balance and ensures the long-term sustainability of their agricultural systems. These practices demonstrate a deep understanding of the interconnectedness between agriculture, eco-systems, and community well-being (Genpan, 2008). The historical perspective of ethno-agricultural practices recognises the rich heritage, wisdom, and innovation that indigenous and traditional communities have contributed to agriculture. Understanding and valuing these historical practices can draw implications for addressing contemporary agricultural challenges, such as sustainable food production, biodiversity conservation, and climate change resilience.

Rationale of the Study

The youth should be conscious of the privileged and diverse range concerning agriculture in our nation, as well as the treasures that their ethnic agriculture contains, for cultural enrichment and peaceful coexistence. The policy acknowledges that students need to have first-hand knowledge of the country's variety. The survival of a significant portion of the population lies mostly in agricultural activities. A country like India has strength in agriculture and has attempted to incorporate agriculture into the new educational strategy. The most important function in India's socio-economic structure is agriculture, which serves as the engine of the nation's economy. Farmers, farm women, rural youth, agricultural researchers and extension agents are just a few of the many actors involved in India's traditional agriculture, which is both diverse and widespread. The Green Revolution increased rural welfare and led to food self-sufficiency, which helped Indian economy.

In recent years, enthusiasm for indigenous heritage has grown significantly (Ullah *et al.*, 2023). Researchers and practitioners from various disciplines now acknowledge the value of considering the community's knowledge, perspectives, and worldviews. Supporters of indigenous knowledge have taken a positive view of the word 'local knowledge' to prevent the 'indigenous' label (Lauer & Aswani, 2009). There is a considerable gap in curriculum about the study of ethno-agricultural practices. The National Education Policy-2020 has realised the relevance of the indigenous knowledge system and its practices and urged for integration in the Indian education system. The policy strongly recommends to make the education and curriculum responsive which demands practice of indigenous knowledge.

The tradition of this indigenous agriculture carries a variety of belief and knowledge pedagogy. One of the major goals of sustainable agriculture is that it should be adaptable (Francis *et al.*, 2011). A Condition of farmers and farming communities must evolve as knowledge progresses (Thomas *et al.*, 2020). The traditional knowledge utilized on agricultural practices are ethnological. It is passed down through generations (Maroyi, 2017). The traditional practices of agriculture are local which are lost due to the rapid pace

of modernization. So, the preservation and dissemination of traditional ethno-agricultural knowledge and skills are needed (Eoin, 2016). There are problems in the classroom and curriculum for school-based agricultural education. Students do not have access the history of agriculture. Hence, the investigator intends to explore the components of various practices and challenges to include in the school curriculum.

Study Area

The study was undertaken in Ghudda village, a remote area of Bathinda city which is located in northern part of India. The annual average temperature is 20 degree Celsius, with the average temperature of the coldest and the hottest month is 10 degree Celsius and 53 degree Celsius respectively. The community of Ghudda village is constituted of 2574 villagers. Out of which 835 are cultivators, 791 are male and 44 are female. 31.8% of workers are engaged in marginal activity, 68.2% are workers in full time. As per census data 2011, agricultural labourers numbered 452, with 366 males and 86 females. The villagers have rich traditional cultural knowledge in agriculture. Ghudda village is a rural area based on agricultural and livestock activities.

Research Questions

The study was directed with the following research questions:

1. How do the villagers carry out the cycle of ethno-agricultural practices?
2. What are the perspectives of ethno-agricultural practices in view of designing school curriculum?

METHODOLOGY

The major thrust of the study was to explore the ethno-agricultural practices of villagers. The investigator used in-depth interviews, which are considered one of the most feasible methods for qualitatively describing any population's trends, attitudes, perspectives, and views (Yates & Leggett, 2016).

The data were collected from the Ghudda villagers, whose primary source of income is agriculture. They were relying on agriculture for their means of livelihood. The snowball sampling method was used to select the key informants, who were practitioners of ethno-agriculture. In total, traditional knowledge was collected from 25 farmers. Ethno-agricultural knowledge and skills were collected by semi-structured face-to-face interviews. The field work was performed with the assistance of local leader who was employed with the help of the president of the village committee. All interviews were conducted to know the details of what traditions were being followed in their community and their cultural beliefs and traditions of agriculture. The semi-structured interview was used to locate the ethics as a frame of reference to judge the villagers' agricultural practices, behaviours, and beliefs. The respondents who were concerned about ethical and racial practices during agricultural work underwent an in-depth group interview. The responses were collected in punjabi language and translated into Hindi language by local leader. All field studies were conducted with the consent of informants.

RESULTS

The researchers explored villagers' viewpoints, practices and beliefs about ethno-agricultural practices. Ethno-agricultural practices refer to the traditional knowledge, practices, beliefs, and rituals associated

with agriculture within specific cultural and indigenous communities. Following are the results of the research questions.

RQ1. How do the villagers carry out the cycle of ethno-agricultural practices?

The study was undertaken to understand the villagers deeply rooted traditional agricultural beliefs and practices. The villagers have practised several traditional beliefs for many years. These had a robust agricultural past and were utterly spiritual. These demonstrated their belief in and faith in God. They consider that the Paramatma (Universal God) has blessed them for all of their endeavours; hence, they appease esteemed God by abiding by tradition. The primitive culture helps them to grow as humans. These community people have their traditional methods of praying Paramatma. They regard natural and supernatural powers as the main natural elements on Earth. Some scientific nature of the procedures in health and soil effectiveness are correlated with their belief. Because on the occasion of Yajna, they commonly do the "Gau Pooja" (Worship to cow) in their home. Yajna, a Vedic tradition, refers to any ritual before a sacred fire with mantras in Hinduism. The Yajna celebrates for the rain. The cow plays a vital role in day-to-day life, so villagers look at the cow as a holistic wisdom. Wood ash is used as organic fertiliser and pesticide on the vegetable farm. Cow urine is used on the farm to control pests (Koirala, 2023). They believe that if they give the food to all cows on their own, cow dung will prosper their organic farming. Following the harvest, they lit "Diya" (oil lamp) to welcome their new crop and offered Prasad to God before beginning to dine. They also believe Wednesday is a great day for planting, and Tuesday is for crop harvesting.

The villagers' Ethno-agricultural culture encompasses indigenous knowledge systems developed and passed down through generations. The villagers cultivate various crop varieties adapted to their local environments. They have developed diverse seed stocks through careful selection, preservation, and exchange. Ghudda villagers encompass traditional farming techniques specific to each community. These techniques are often optimised for local conditions and resources. Examples include terrace farming, contour ploughing, rotational cropping, companion planting, and traditional irrigation methods. Community members often work collectively on agricultural tasks, such as land preparation, planting, and harvesting. Labourer-sharing, resource-sharing, and cooperative systems help distribute the workload, build social cohesion, and foster mutual support within the community. They have developed traditional methods for food processing and preservation. The community follows seasonal calendars that guide their agricultural activities. These calendars are based on local climatic patterns, natural indicators, and traditional knowledge. Agricultural festivals and celebrations are held to mark important stages in the agricultural cycle, express gratitude, seek blessings, and reinforce cultural identity.

The villagers suffer from a physical water shortage for agriculture. They organise a prayer through Yajna for rainwater. Villagers have developed methods to harvest and conserve water for irrigation during dry seasons. Techniques include building small dams, creating ponds and reservoirs, and utilising traditional irrigation systems of canals. The villagers cultivate indigenous crop varieties that are adapted to the local environment. These crops have evolved naturally over time and have developed habits of drought resistance, disease tolerance, or suitability to specific soil conditions. These events can include demonstrations of traditional farming techniques, discussions on agricultural traditions and values, and hands-on activities that engage participants in traditional practices. Agricultural beliefs are traditionally passed on within families as a daily occupation. Encouraging family involvement in agricultural activities and fostering

a sense of responsibility for preserving traditional practices can ensure the transmission of knowledge from one generation to another. Parents and grandparents share their knowledge with younger family members while working together in the crop fields. The agricultural beliefs were preserved and transmitted through the involvement of community institutions and organisations.

It involves various activities such as selecting suitable crops, preparing the soil, sowing or planting seeds, providing water and nutrients, and harvesting the mature crops. The cultivation cycle refers to the stages and activities of growing a crop, from planting to harvest. Villagers choose the crops they want to cultivate based on climate suitability, soil conditions, and personal preferences on market demand. The land is prepared by removing weeds, rocks, and other debris. The soil is ploughed, tilled, or levelled to create a favourable seedbed for planting.

The villagers select high-quality seeds based on yield potential, disease resistance, and suitability to the local environment. Depending on the crop and local conditions, farmers provide irrigation for watering to the plants. They also manage soil fertility by applying fertilisers or organic amendments to ensure the plants receive essential nutrients. Involve cutting, picking, or uprooting the plants at the right stage of ripeness. When the crops reach maturity and are ready for harvest, the villagers know about it. Harvesting methods vary depending on the crop, but they generally involve cutting, picking, or uprooting the plants at the right stage of ripeness. Ethno-agricultural communities have developed diverse crop varieties, sustainable irrigation methods, soil conservation techniques, and resource management strategies that allow them to adapt and thrive in their local environments. Ethno-agricultural practices have been preserved and transmitted from generation to generation as part of a community's cultural heritage. Through oral tradition, hands-on learning, knowledge of traditional agricultural techniques, seed-saving practices and ecological wisdom has been safeguarded and carried forward. The preservation of ethno-agricultural heritage ensures the continuity of sustainable practices and maintains a link to the community's historical roots.

RQ2. What are the perspectives of ethno-agricultural practices in view of designing school curriculum?

Integrating ethno-agriculture knowledge into the school curriculum offers several strengths and benefits from the perspective of villagers' views. Accordingly, the key findings were mapped under the following elements:

- Cultural Appreciation

Integrating ethno-agriculture knowledge in the social science curriculum provides an opportunity to preserve and promote the villagers' traditional agricultural practices, beliefs, and knowledge systems. They believe in worshipping cows and celebrating the new year according to crop rotation time. These beliefs foster an appreciation for diverse cultural heritage and reinforce the value of traditional knowledge in agricultural contexts. Ethno-agricultural practices are deeply intertwined with cultural and spiritual beliefs. They are embedded in community rituals, ceremonies, and folklore, reflecting the spiritual connection between humans, nature, and food production. These practices serve as a means to express gratitude, seek blessings, maintain social cohesion, and reinforce cultural identity (Genpan, 2008).

• Environmental Awareness

Traditional agricultural practices incorporate environment-friendly approaches. They organised Ygna (ritual done in front of a sacred fire) to pray to Paramatma (universal God) for rain. Rainwater harvesting is necessary for the sake of a sustainable environment. Ethno-agriculture knowledge integrated with the curriculum exposes students to traditional agricultural practices such as organic farming, crop rotation, or water management systems. It fosters environmental awareness and encourages students to consider the potential of traditional knowledge for addressing contemporary sustainability challenges (Sandoval-Rivera, 2019).

It encompasses various agricultural systems developed by different communities worldwide, each tailored to suit the local environment, climate, and cultural context (Tarolli & Strafeleni, 2020). Ethno-agricultural practices involve the cultivation of crops, management of livestock, and the sustainable use of natural resources based on the accumulated wisdom and experience of the community. These practices prioritise ecological balance, biodiversity preservation, and the maintenance of harmony between human beings and nature (Karnaraja & Natarajan, 2019). A seasonal calendar that aligns with natural events, such as the movement of celestial bodies, changes in weather patterns, or the behaviour of plants and animals, is observed. This calendar guides agricultural activities, such as planting, harvesting and following, to ensure harmony with the natural cycles.

• Interdisciplinary knowledge

Integration of ethno knowledge allows for interdisciplinary learning, connecting social sciences with other disciplines such as anthropology, geography, ecology, and history (Heinrich et al., 2006). This interdisciplinary approach enhances students' critical thinking skills, encourages them to connect across subjects, and promotes a deeper understanding of complex societal and environmental issues. Ethno-agriculture knowledge integration offers a localised perspective on agricultural practices, emphasising the importance of local knowledge and community engagement. It gives students insights into local farmers' unique challenges and opportunities and highlights the diversity of agricultural practices across different regions. At the same time, it encourages students to examine global agricultural issues from a comparative and cross-cultural perspective.

• Community Engagement

Integrating ethno-agriculture knowledge in the school curriculum can engage local communities and indigenous knowledge holders. The villagers believe in the decision that Wednesday is a great day for planting and Tuesday is for harvesting the crop. This belief engaged the community on that day to plant and cut cooperatively. It helps to engage with each other's work. This collaboration fosters community empowerment, recognises the expertise of traditional farmers, and bridges the gap between academic knowledge and lived experiences. Community engagement emerges from ethno-practices and allows children to be engaged with community members and learn from their experiences. (Mbah et al., 2021).

• Aesthetic sense

Villagers explore ethno-agriculture knowledge, develop cultural sensitivity and empathy towards diverse agricultural practices and maintain their ways of life. Non-material benefits are taken from our eco-system through cultural and aesthetic experiences (Turner et al., 2022). The villagers organised Jagg (Yagna) with unity. They had a belief in Paramatma (universal God). They learn to live with empathy.

They face the challenges of traditional farming, the importance of cultural preservation, and the need to respect and value different knowledge systems. Ethno-agriculture knowledge encourages the villagers to live vegetarian for harvesting day, offering the first harvested crop to God and celebrating harvesting festivals. The Diya (a small oil lamp, usually made from clay) is lightened for their safe harvesting from insects and with the hope of vegetation. It prompts them to consider alternative food production, distribution, and consumption perspectives.

Table 1. Content Analysis Summary

| Coding | Theme | Category |
|---|---|--|
| Magic, Mantra, Greetings with oil lamp, Prasad for God. Gau Pooja, Natural powers, supernatural powers, Temple, Take Dhaga (Thread) from priest, curious role, Paramatma (universal God), Religious beliefs, Yagna, Nabi Bhojana (new food), Local ritual, | Crop Production, Use of Animal Urine, Rodent Protection, Slings and Drumming, Seed Selection | Agricultural Belief and Culture |
| Subh (good moment), Mangala (good moment), Supernatural forces, Unique manner of pray, Goddess Prasad, Agricultural ceremony, Gu Pooja (cow worship) and the Parramatta prayers during this jagg (Yagna), | Crop Selection, Irrigation, Water Knowledge, Temperature, Light, Nutrients, Markets, Varieties of Crop, Insect Resistance, Site Selection, Land Preparation, Seeding Repetition tillage during monsoon, Growing Vegetative barriers on field boundaries, Mixed Cropping | Traditional Agricultural Knowledge (TAK) |
| Human health, Natural powers, supernatural powers, Soil functioning, Organic harvesting, Survival strategy, Bird' behaviour, Health operations, nourishment, Organic crops | Check soil loss by wind erosion, Soil moisture conservation for showing of winter crops, High production, Use of indigenous fertilizer (animal dung), indigenous recycling system of animal dung | Ethno-Agricultural culture Community Benefit |
| Cow manure, soil efficacy, Growth of people, Vegetarianism, Agricultural manure, Vitamins and minerals, food habits, Horticulture waste is converted into agricultural manure, Agriculture and horticulture can benefit from using animal waste such as dung and droppings. | Indigenous flood control and land erosion by tree plantation on the banks of canal Use of tractors for ploughing, use of chemical fertilizers along with organic fertilizers, | a) Crops cultivation and cycle b) Traditional Agricultural Believe and Technology c) Traditional Agricultural knowledge and modernization for change |

| | | |
|---|--|---|
| Family of farmers, Greetings with oil lamp (Diya) | Offering first harvested crop to God, Celebration of harvesting festival, | a) Preservation of Traditional Agricultural Behaviour |
| Subh and Mangala, Survival strategy, Bird' behaviour, Cultural believe and tradition, Subh | Use of Neem leaves salt, husk, Camphor for Preserving food for longer duration of time, Find expression in folklore, Myths, and Legends, | b) Transmission of Traditional Agricultural Behaviour |
| Mangala, Primitive Culture, Left over, Enthusiastic about in agriculture, Fresh harvest luck, Cultural values | | |

Observation

Ethno-agricultural practices of villagers have proven to be a valuable and sustainable approach to agricultural production and land management. These practices are deeply rooted in traditional knowledge, passed through generations, and have demonstrated their effectiveness in promoting food security, biodiversity conservation, and cultural preservation. By relying on local resources, indigenous techniques, and a deep understanding of ecological systems, villagers have cultivated crops and raised livestock in harmony with the environment. They want to continue these practices from generation to generation. Ethno-agriculture practices need to be integrated into the curriculum, which will allow for the preservation and promotion of indigenous knowledge and cultural traditions. These practices maintain the community's cultural identity and ensure the transmission of traditional agricultural practices to future generations.

Local Beliefs and Knowledge Development

Indigenous understanding of agriculture places a high value on traditional indigenous farming knowledge. Agriculture was dependent on traditional indigenous knowledge for centuries before modern science and technology were developed, and tribal people still traditionally practise agriculture to a great extent (Diawuo and Issifu, 2017). They can cultivate land in mountains, seas, plains, and forests. Most indigenous people have created comprehensive agricultural practices tailored to their environment and needs. Similarly, they have known for generations what kind of food grains need to be planted on particular areas according to the season (Son *et al.*, 2019). Whether or not the agricultural knowledge of the indigenous peoples adheres to current science can be the subject of further research. But because of this information, they have survived for many years and successfully created a particular culture (Zimmerer *et al.*, 2018).

Above all, integrating ethno-agriculture knowledge into the school curriculum enhances students' understanding of local agriculture. It promotes cultural appreciation, sustainability, interdisciplinary learning, community engagement, and generic skills. Students are equipped with current and future challenges by recognising and valuing diverse agricultural knowledge systems. They become culturally sensitive and environmentally sustainable towards local resources.

DISCUSSION

Indigenous Practices in agriculture and sustainable development depend on the knowledge, practices, innovations, methods, and technologies created over generations by local communities through the conservation and use of genetic resources (Kilpatrick and Falk, 2003). The concept of traditional knowledge encompasses all types of knowledge, including indigenous knowledge, local knowledge, folklore, knowledge about traditional agriculture, their uses,

preparation, handicrafts, expressions of culture, methods of treatment, or any process of product manufacturing, knowledge about the use of plants, seeds, etc. (Tripathi, 2015). The study revealed that the villagers practised different cultural practices for healthy crops and production. The villagers had intricate knowledge about the cultivation of crops in all the seasons of the year. Further, integrating traditional knowledge with new technologies benefited the village community in a balanced environment. The usage and ongoing improvement of local agricultural practices and the sharing and dissemination of these practices and related knowledge are crucial components of emerging nations' agricultural systems (Park *et al.*, 2016).

Ethno practices, grounded in indigenous knowledge and decision-making processes, can improve communication by revealing how people classify and interpret their circumstances (Zidny *et al.*, 2021). Any investigation is motivated by the ultimate goal to benefit society in some way. Social scientists are concerned with environmental pressures, goals, and practical realities due to their proximity to society. Therefore, social researchers might enhance research in this area by participating in ethno agricultural research projects as teammates on multidisciplinary communities. Furthermore, designers of school syllabi can significantly impact constructive criticism and assessments, which are essential components of any study findings. In order to make science consistently relevant and benefit human well-being, the formation, assessment, and interpretation of people's requirements and goals are included in school curricula. Agriculture is the vertebral column of our nation; thus, including ethno-agriculture in the social science curriculum supports everyone else (Krishna and Kumbhare, 2019).

A nation's traditional knowledge stands as evidence of its civilisation's origins. It is considered a source of pride and identity for the nation's inhabitants. Traditional knowledge is widely recognised as an essential means of expressing identity. They are a crucial link between past and future generations (Aikenhead and Ogawa, 2007).

Traditional or local knowledge are other names for indigenous knowledge. Essentially, it is spoken locally and is largely unwritten. This information is always passed down from one generation to the next. It repeats itself like agricultural and seasonal cycles due to its intrinsic nature and the inherent character of its culture (Khupe, 2014). Through this process, a curriculum framework that addresses their everyday issues and governs the school as a whole is developed. Indigenous knowledge is made up of a variety of information about production and reproduction methods that is, for the most part, kept public and is recorded through observations, interviews, and surveys (Swift, 1992).

This information is extensively related to the village dwellers' traditional way of life and not just to the tribal or indigenous community. Indigenous knowledge is seen as customary wisdom (Datta, 2018). Traditional knowledge is information specific to a group and its ecology. However, because indigenous knowledge is exclusive to a particular community or group of indigenous people, it should be viewed from a wider angle (Shizha, 2014). A curriculum incorporating indigenous practices will give students the skills, attitudes and values they need to shape a sustainable future (Naithani & Behera, 2023). The study explored the significant themes that need to be integrated into the school curriculum. These are checking soil loss by wind erosion, soil moisture conservation for the showing of winter crops, high production, indigenous flood control and land erosion by tree plantation on canal banks. Wherever necessary, these components should be included in the school curriculum precisely and scientifically. Traditional crop cultivation and natural farming should be covered in secondary school curricula. These

explored themes provide a framework for designing the curriculum integration with indigenous knowledge and skills (Figure 1).

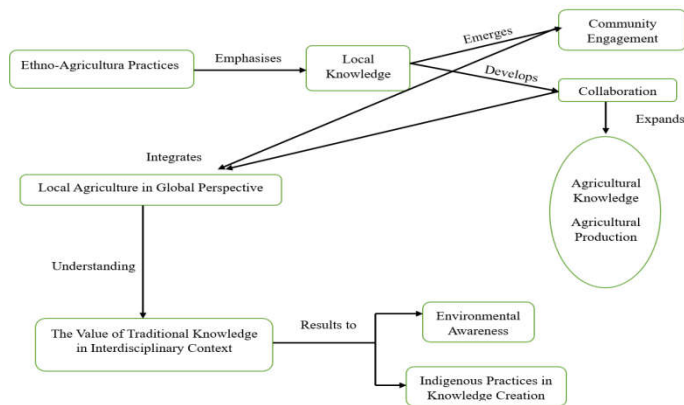


Figure 2: Framework of School Curriculum

CONCLUSION

The villagers have rituals and ceremonies associated with agricultural practices, such as Jagg (Yagna), Gau Pooja (Cow Worship), seed sowing, harvesting, and fertility rituals. These ceremonies are performed to seek blessings from Paramatma (God), ensuring a successful and plentiful harvest. Cultural appreciation, development of aesthetic sense, empathy, universal value and environmental awareness were the elements of indigenous practices. The villagers follow a seasonal calendar that aligns with natural events, such as the movement of celestial bodies, changes in weather patterns, or the behaviour of plants and animals. This calendar guides their agricultural activities, such as planting, harvesting and following, to ensure harmony with the natural cycles. These activities identify their sense of 'following nature'. Ethno-agricultural beliefs find expression in folklore, myths, and legends. Stories were developed that explain the origins of agricultural practices, the relationship between humans and nature, and the importance of respecting and nurturing the land. The village children can find opportunities to comprehend agriculture in a broader societal context. Ethno-agricultural information can be included in the school curriculum. It encourages respect for diversity, sustainability, interdisciplinary learning, involvement in the community, and the development of indigenous practices in knowledge creation. Students can be prepared to address present and future agricultural challenges in a culturally sensitive and environmentally sustainable way.

Declaration of Conflicting Interests

- The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.
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