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Indian Knowledge Systems and Indigenous Practices among Irular Tribal Students in Thiruvallur District, Tamil Nadu: An Empirical Study

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Abstract

Indian Knowledge Systems (IKS) signify the rich cultural, ecological and traditional insight developed by indigenous communities over generations. The Irular tribe of Tamil Nadu possesses valuable indigenous knowledge associated to environmental protection, herbal medicine, sustainable living, traditional livelihoods and cultural heritage. But, rapid transformation and changing socio-cultural conditions have challenged the preservation and transmission of this knowledge among younger generations. The present study examined the level of Indian Knowledge Systems and Indigenous Practices among Irular tribal students in Thiruvallur District, Tamil Nadu. A mixed-method research design was adopted and data were collected from 150 Irular tribal students selected through purposive sampling from government and government-aided schools and colleges. The questionnaire developed and validated by Mrs.G.Sangeetha, questionnaire comprising dimensions of Indian Knowledge Systems and Indigenous Practices. Descriptive statistics, independent sample *t*-tests, analysis were employed for data analysis. The findings revealed that there were no statistically significant differences in Indian Knowledge Systems and Indigenous Practices with respect to gender, age, educational status and occupation of the respondents. The study indicates that awareness and practice of indigenous knowledge are comparatively even among Irular tribal students.

Keywords: Indian Knowledge Systems, Indigenous Practices, Tribal Students, Cultural Sustainability, Indigenous Knowledge and NEP 2020.

INTRODUCTION

Indian Knowledge Systems (IKS) are a comprehensive body of traditional knowledge, practices, beliefs and values that have evolved over centuries through the experiences of diverse communities across India. These systems include indigenous approaches to agriculture, healthcare, ecology, education, social organization, arts and sustainable living. Unlike formal knowledge systems, indigenous knowledge is often transmitted through oral traditions, community interaction and practical experiences from one generation to another. The recognition of Indian Knowledge Systems has gained importance in contemporary education and research due to their contribution to cultural preservation, environmental sustainability and inclusive learning. Indigenous practices provide valuable insights into the relationship

between human communities and nature, emphasizing harmony, conservation and responsible use of resources. The integration of indigenous knowledge into education can support the development of culturally relevant learning approaches and strengthen the identity of indigenous communities. Tribal communities in India are custodians of diverse indigenous knowledge traditions. Their knowledge reflects their adaption to specific geographical environments and social conditions. The Irular tribal community, one of the indigenous communities of Tamil Nadu, possesses unique traditional knowledge related to forest resources, medicinal practices, occupations, ecological understanding and cultural traditions. These practices represent the community's historical experiences and their relationship with the natural and social environment.

However, modernization, changing lifestyles, migration and reduced intergenerational knowledge transmission have created challenges for the preservation of indigenous knowledge among younger generations. Tribal students, as future representatives of their communities, play an important role in maintaining and transmitting indigenous knowledge. Understanding their awareness and engagement with traditional knowledge systems is essential for protecting cultural heritage and promoting sustainable development. The educational system has potential to recognize and incorporate indigenous knowledge into learning processes, thereby promoting respect for cultural diversity and supporting tribal student's identity development. Studying Indian Knowledge Systems and indigenous practices among Irular tribal students can provide valuable insights into the status of traditional knowledge among Irular tribal students can provide valuable insights into the status of traditional knowledge among young tribal populations. Therefore, the present study titled "Indian Knowledge Systems and Indigenous Practices among Irular Tribal Students in Thiruvallur District, Tamil Nadu: An Empirical Study" aims to examine the level of knowledge and practices related to Indian Knowledge Systems among Irular tribal students and contribute to the understanding of indigenous knowledge preservation, tribal education and cultural sustainability.

Indian Knowledge Systems (IKS)

Indian Knowledge Systems (IKS) refer to the rich body of traditional knowledge, wisdom, values and practices developed in India over centuries. They encompass indigenous knowledge related to health, agriculture, environmental conservation, education, ethics, arts, language and sustainable living. IKS emphasizes harmony between humans, nature and society through experiential learning and cultural traditions. In the context of this study, Indian Knowledge Systems refer to the extent to which Irular tribal students are aware of, value and practice traditional Indian knowledge in their daily lives.

Indigenous Practices

Indigenous Practices are the traditional customs, skills, beliefs and ways of life that are passed down through generations within a particular community. Among the Irular tribe, these practices include traditional ecological knowledge, herbal medicine, sustainable use of natural resources, Folk traditions, cultural rituals, indigenous food habits and environmental conservation practices. In this study, indigenous practices refer to the traditional knowledge and cultural activities that Irular tribal students continue to learn, preserve and practice within their families and communities.

REVIEW OF LITERATURE

Indian Knowledge Systems and Education

Concept of Indian Knowledge Systems (IKS)

Patil and Patil (2023) examined the relevance of traditional Indian education values in the context of contemporary educational reforms. The study highlighted that Indian Knowledge Systems are rooted in holistic learning traditions such as the Gurukul system, where education focused not only on intellectual development but also on ethical values, social responsibility and practical skills. The authors explained that ancient Indian contributions in mathematics, medicine, astronomy, linguistics and philosophy represent a rich knowledge heritage. The study concluded that integrating IKS into modern education can support value-based and holistic learning approaches.

NEP 2020 and Indian Knowledge Systems

Shukla (2022) analysed the integration of Indian Knowledge Systems within the framework of the National Education Policy (NEP) 2020. The study reported that NEP 2020 provides opportunities for incorporating indigenous knowledge related to philosophy, science, culture, environment, and ethics into educational practices. The author suggested that IKS-based education can promote cultural awareness, ethical development, and sustainable thinking among learners. The study also identified challenges such as inadequate teacher preparation and the need for systematic curriculum development.

Indigenous Practices

Traditional Knowledge, Cultural Practices and Community Sustainability

Berkes (2018) examined Indigenous practices as interconnected systems of traditional knowledge, cultural values, and ecological relationships developed through generations of community experience. The study explained that Indigenous practices contribute to sustainable living by promoting respect for nature, resource conservation, social cooperation, and responsible interaction with the environment. The author emphasized that the transmission of Indigenous practices among younger generations helps preserve cultural identity and strengthen community-based knowledge systems.

Sillitoe (1998) explored Indigenous knowledge and practices within local communities and highlighted their importance in maintaining cultural traditions, social relationships and community development. The study revealed that Indigenous practices represent dynamic knowledge systems shaped by cultural experiences, environmental conditions, and local needs. The author suggested that recognizing Indigenous practices in education and research can support cultural preservation and promote respect for diverse knowledge traditions.

OBJECTIVES OF THE STUDY

1. To find out the significant difference in Indian Knowledge Systems among Irular Tribal students with respect to gender, age, educational status and occupation.
2. To find out the significant difference in Indigenous Practice among Irular Tribal students with respect to gender, age, educational status and occupation.

HYPOTHESES OF THE STUDY

1. There is no significant difference in Indian Knowledge Systems among Irular Tribal students with respect to gender, age, educational status and occupation.
2. There is no significant difference in Indigenous Practice among Irular Tribal students with respect to gender, age, educational status and occupation.

METHODOLOGY

Research Design

The present study adopted a mixed-method research design to investigate the influence of Indian Knowledge Systems (IKS) and indigenous practices among the Irular tribal community in Tamil Nadu, India. A mixed-method approach was selected because the research involves both psychological measurement and exploration of culturally embedded experiences. The qualitative component explored Indian Knowledge System and indigenous practices. This approach enabled a comprehensive understanding of how traditional knowledge systems contribute to the holistic development of tribal learners.

Study Area and Participants

Study Area: The study was conducted in Thiruvallur District, Tamil Nadu, where a significant population of the Irular Tribal Community resides. The district was selected due to the continued practice of indigenous knowledge and cultural traditions among the Irulars.

Participants: The study included 150 Irular Tribal Students from selected government and government-aided schools and colleges in Thiruvallur District. Participants were selected using purposive sampling based on their tribal affiliation.

TOOL USED

The questionnaire developed and validated by Mrs.G.Sangeetha.

Definition of the Tool

A questionnaire is research instrument consisting of a set of structured questions or statements used to collect information from respondents about their knowledge, attitudes, perceptions and practices. In this study, the questionnaire was used to measure Indian Knowledge Systems and Indigenous Practices among Irular tribal students.

Independent Variable: Indian Knowledge Systems (IKS)

Dependent Variable: Indigenous Practices

Dimensions of the Tool

Indian Knowledge Systems (IKS)	Indigenous Practices
1. Traditional Knowledge	1. Traditional Livelihood Practices
2. Cultural Heritage and Values	2. Indigenous Food Habits
3. Environmental Knowledge	3. Folk Arts and Cultural Traditions
4. Health and Herbal Practices	4. Environmental Conservation Practices
5. Sustainable Living Practices	5. Community Customs and Rituals

Reliability and Validity

The reliability of the questionnaire was assessed using Cronbach's Alpha, and the obtained coefficient ($\alpha = 0.81$) indicated good internal consistency, confirming that the instrument was valid, reliable and suitable for measuring Indian Knowledge Systems and Indigenous Practices among Irular Tribal students.

STATISTICAL ANALYSIS TECHNIQUES

The following statistical techniques were used for data analysis:

1. Descriptive Statistics
2. t-test
3. Correlation Analysis

Data analysis and Interpretation

Indian knowledge systems

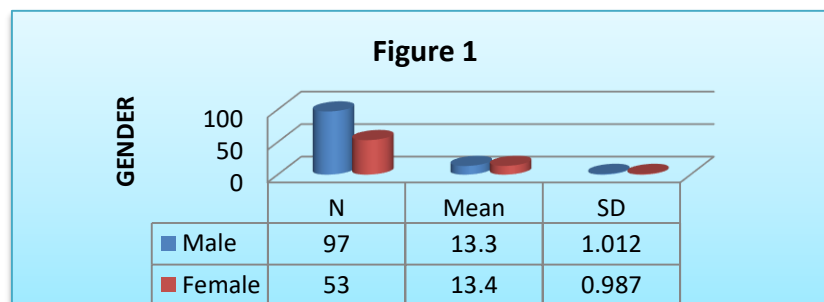
Hypothesis 1a

There is no significant Mean difference in Irular Tribal students in Indian Knowledge Systems based on their Gender

Table 2 Shows Mean difference in Irular Tribal students in Indian Knowledge Systems based on their Gender

Gender	N	Mean	SD	t- value	LS
Male	97	13.30	1.012	0.567	Not significant
Female	53	13.40	0.987		

It is inferred from the above table that the calculated 't' value is 0.567, which is less than the table value of 1.96 at the 5% level of significance. Hence, the hypothesis is accepted. Thus the result indicates that there is no significant difference in Indian Knowledge Systems among Irular Tribal students based on their gender.



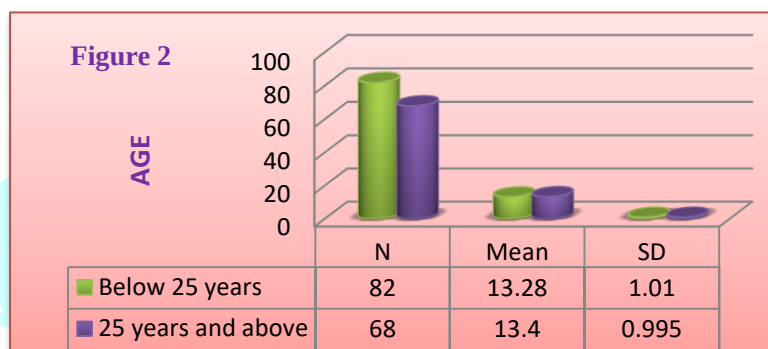
Hypothesis 1b

There is no significant Mean difference in Irular Tribal students in Indian Knowledge Systems based on their Age.

Table 2 shows Mean difference in Irular Tribal students in Indian Knowledge Systems based on their Age.

Age	N	Mean	SD	t - value	LS
Below 25 years	82	13.28	1.010	0.709	Not significant
25 years and above	68	13.40	0.995		

It is inferred from the above table that the calculated 't' value is 0.709, which is less than the table value of 1.96 at the 5% level of significance. Hence, the hypothesis is accepted. Thus the result indicates that there is no significant difference in Indian Knowledge Systems among Irular Tribal students based on their gender.



Hypothesis 1c

There is no significant Mean difference in Irular Tribal students in Indian Knowledge Systems based on their Educational Status

Table 3 Shows Mean difference in Irular Tribal students in Indian Knowledge Systems based on their Educational Status.

Educational Status	N	Mean	SD	t- value	LS
School education	78	13.29	0.995	0.488	Not significant
Higher education	72	13.38	1.013		

It is inferred from the above table that the calculated 't' value is 0.488, which is less than the table value of 1.96 at the 5% level of significance. Hence, the hypothesis is accepted. Thus the result indicates that there is no significant difference in Indian Knowledge Systems among Irular Tribal students based on their gender.

Hypothesis 1d

There is no significant Mean difference in Irular Tribal students in Indian Knowledge Systems based on their Occupation

Table 4 shows Mean difference in Irular Tribal students in Indian Knowledge Systems based on their Occupation.

Occupation	N	Mean	SD	t-value	LS
Student	77	13.34	1.046	0.054	Not significant
Working (traditional occupation, agriculture, labour, self-employment)	73	13.33	0.958		

It is inferred from the above table that the calculated 't' value is 0.054, which is less than the table value of 1.96 at the 5% level of significance. Hence, the hypothesis is accepted. Thus the result indicates

that there is no significant difference in Indian Knowledge Systems among Irular Tribal students based on their gender.

Indigenous practices

Hypothesis 2a

There is no significant Mean difference in Irular Tribal students in Indigenous Practices based on their Gender

Table 5 shows Mean difference in Irular Tribal students in Indigenous Practices based on their Gender

Gender	N	Mean	SD	t-value	LS
Male	97	17.55	1.369	0.236	Not significant
Female	53	17.49	1.409		

It is inferred from the above table that the calculated 't' value is 0.236, which is less than the table value of 1.96 at the 5% level of significance. Hence, the hypothesis is accepted. Thus the result indicates that there is no significant difference in Indigenous Practices among Irular Tribal students based on their gender.

Hypothesis 2b

There is no significant Mean difference in Irular Tribal students in Indigenous Practices based on their Age.

Table 6 shows Mean difference in Irular Tribal students in Indigenous Practices based on their Age.

Age	N	Mean	SD	t-value	LS
Below 25 years	82	17.49	1.363	0.378	Not significant
25 years and above	68	17.57	1.407		

It is inferred from the above table that the calculated 't' value is 0.378, which is less than the table value of 1.96 at the 5% level of significance. Hence, the hypothesis is accepted. Thus the result indicates that there is no significant difference in Indigenous Practices among Irular Tribal students based on their Age.

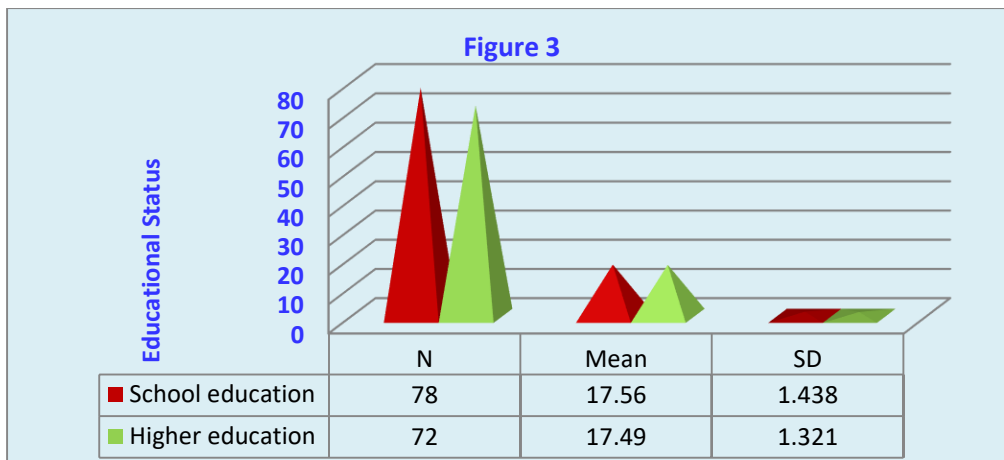
Hypothesis 2c

There is no significant Mean difference in Irular Tribal students in Indigenous Practices based on their Educational Status

Table 7 shows Mean difference in Irular Tribal students in Indigenous Practices based on their Educational Status.

Educational Status	N	Mean	SD	t- value	LS
School education	78	17.56	1.438	0.345	Not significant
Higher education	72	17.49	1.321		

It is inferred from the above table that the calculated 't' value is 0.345, which is less than the table value of 1.96 at the 5% level of significance. Hence, the hypothesis is accepted. Thus the result indicates that there is no significant difference in Indigenous Practices among Irular Tribal students based on their Educational Status.



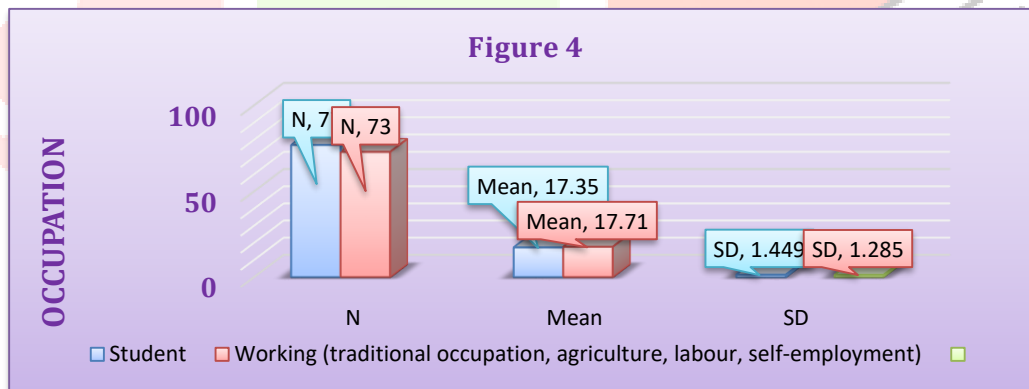
Hypothesis 2d

There is no significant Mean difference in Irular Tribal students in Indian Indigenous Practices based on their Occupation

Table 8 shows Mean difference in Irular Tribal students in Indigenous Practices based on their Occupation.

Occupation.	N	Mean	SD	t- value	LS
Student	77	17.35	1.449	1.614	Not significant
Working (traditional occupation, agriculture, labour, self-employment)	73	17.71	1.285		

It is inferred from the above table that the calculated 't' value is 1.614, which is less than the table value of 1.96 at the 5% level of significance. Hence, the hypothesis is accepted. Thus the result indicates that there is significant difference in Indigenous Practices among Irular Tribal students based on their Occupation.



CONCLUSION

The study concludes that Irular tribal students possess a satisfactory level of awareness of Indian Knowledge Systems and Indigenous Practices. The findings revealed no significant differences in Indian Knowledge Systems or Indigenous Practices with respect to gender, age, educational status and occupation, indicating that these traditional values are shared relatively uniformly across the selected demographic groups. The study highlights the importance of preserving and promoting indigenous knowledge among younger generations through education and community participation. Integrating Indian Knowledge Systems into educational practices can contribute to cultural sustainability and strengthen the identity and heritage of the Irular tribal community.

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