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## **EMBEDDED SCIENTIFIC CONCEPTS IN THE EVERYDAY PRACTICES OF GARHWALI COMMUNITY IN UTTARAKHAND**

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**Abstract:** The present study was conducted to explore the embedded scientific concepts in the everyday activities of the Garhwali villagers in the Uttarakhand region. The community people including the children engage in various kinds of discursive practices in their mundane routine and construct a variety of scientific and technological concepts.

The study used non-participant technique coupled with extensive interview sessions with the community members. The main aim of the study was to study how the community responds to the scientific concepts which they use in their daily lives while doing everyday activities like house construction, tool making, agricultural practices etc. but they are not aware of their scientific nature.

**Index-Terms:** Cultural artifacts,meaning-making.

### **INTRODUCTION**

The impact of culture on our lives is so vivid that it affects even our so-called biological skills of eating and walking. That is why different cultures have different eating habits, and so on. The available resources, ecological conditions, etc. shape the thought process of the individual. The person tries to adjust to his or her environment in the best possible manner to make the most out of it. Dwelling units, food habits, tools, religious folklore, etc. are important examples of such practices and constitute the culture of that community. Different cultural prototypes exist in different cultures that affect the cognition of the child situated in that specific culture. Cognition is therefore seen more as a complex social psychological phenomenon than the psychological one. Eminent researchers (Boesch 1991, Kagitcibasi 1996; Nsamenang 1992) have pointed out that the culture provides us a base for perceiving what is meaningful, relevant, and salient.



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This study aimed to explore the embedded scientific concepts in the everyday activities of the natives and the impact of local culture on the development of these concepts.

### **METHODOLOGY**

This study is an attempt to find out how the people in the Garhwali community in Uttarakhand develop a notional understanding of the embedded scientific and mathematical concepts while doing their everyday activities?

How do elders /experts transmit their traditional knowledge to the novices/future generations?

Without taking any position, this paper aims to study the thought process/belief system prevalent among the members of the Garhwali community in the state of Uttarakhand. The community members including children engage in various kinds of discursive practices in their everyday routine and this process they construct a wide variety of scientific and technological concepts. The community adults along with the available resources and the surrounding eco-cultural conditions play an important role in the construction of these concepts.

Sociologists, historians, and anthropologists who have studied scientific work (e.g. Latour, 1987; Knorr, 1981) report that scientific knowledge arises from the social practices enacted by specific scientific communities. Discourse processes transform prior knowledge into refined concepts that can be applied consistently by members of the scientific community. Therefore scientific knowledge is not a type of new knowledge, but a form of refined product for which the raw material/base was supplied by the prior knowledge and the continuous social interaction amongst the community members.

According to Carl Ratner, a researcher has a prime job to detect connections between details of a person's narrative and the macro-cultural factors. Human behaviour gets affected by the following three things in a combined manner-

- a) Social Institutions
- b) Cultural artifacts



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c) Cultural concepts

Knowledge is the response to the drives for survival and transcendence. Practices and perceptions of learners are the substrata upon which new knowledge is built.

There are two categories of scientific knowledge:

Scholarly/academic science, supported by a convenient epistemology and whose practice is restricted to professionals with specialties;

Cultural science or ethno sciences.

Now the question arises, how do children develop a certain form of understanding about any object, person, place, etc.

Long shared meanings within the culture etc. are social representations that give the child a framework for constructing knowledge. Vygotsky argued that any learning that takes place in the child must be in advance of regular development. If a child is taught the same what he/she already knows then it does not add to the development in the real sense. We must encourage the practice of abstract thinking to accelerate the child's thought process.

In the '70s, Psychologists gave acceptance to the ideas of Vygotsky. Skinner and Piaget's approaches to be much simple. The concept of culture finally emerged out of Vygotsky's work and later got reinforced by researchers such as Bruner, Cole, and Gardner.

Gardner's view of distributed intellect within the environmentsupportcontextualized view of intelligence and rejects the isolated artifacts, social institutions, and cultural concepts all affect human behaviour combined manner.

The various discursive practices reflect that human behaviour narrows as we intervene in everyday practices and do not interview any person in a structured manner.



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## RESULT FINDINGS

The traditional Garhwali community performs their basic activities in mutual consultation and harmony. The village elders/experienced community members contribute with their age-old experiences and understanding of the surroundings. Everybody feels free to ask for their suggestions in all their works like constructing a house, making a tool for agriculture and so on. Members of the Garhwali community have to undergo a very hard life due to the tough geo-physical conditions of the region. The availability of resources is scarce and it is also not very easy to avail facilities from the cities due to lack of continuous and good transportation facilities. Due to this reason, the community practices self-sufficiency and makes skilled use of the resources around them.

In the Garhwali community, the people count, measure and deal while doing their mundane jobs. For this purpose they have their own methods and terms, which they apply for working. For example, while doing their everyday activities they use two local measurement units of 'maana' and 'paantha' to measure any commodity. These two units form the basis of all their larger measurements as well. Similarly for land measurement, they use 'naali' and 'baath' instead of universal units like hectare, square feet etc. Their house construction practices include measurement by hands, palms, fingers etc. These people have their own notional understanding of these concepts, which may not be scientific in nature, but it helps them to deal with their environment.

Strong massive structured houses are found in the Garhwal region of Uttarakhand which requires a lot of time to build and hence a community process. The villagers use locally available stone slabs/pathals and wood in constructing their houses which is reflective of their judicious application of available resources. The narrations provided by the villagers about the house construction practices of the region reveal their in-depth understanding of the surrounding ecological conditions.

The villagers' use of pathals or stone slabs in the house construction process is a fine example of their folk wisdom. As per the narratives of the villagers, the pathals help in keeping their



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houses warm in winter and cool in summer. They could not explain the process scientifically yet their choice of it as a material signifies a lot about the rich base of their knowledge system. The manner in which the villagers engage with the available resources in the prevalent eco-cultural surroundings and find solutions to their problems is highly commendable.

The results showed that the villagers in the Garhwal region deal with numerous scientific concepts while doing their everyday activities like house construction, agriculture, etc. Different discursive practices are used by the villagers to achieve social and interpersonal objectives within particular contexts, thus making them culture-specific. The villagers have their own notional understanding of the concept of slope, force, etc. that is frequently used by them while doing their everyday activities. They may not be able to explain it in scientific terms but they are confident enough to deal with the surrounding situations. All their daily needs are met in this manner. The villager's account of their cultural practices supports the idea that all forms of knowledge are constructed in a social context and every culture generates something equivalent to science which helps the people to function optimally in the environment.

The findings of the study have implications for the framing of the school curriculum for the region. Therefore there is need to preserve and enrich such indigenous forms of knowledge and apply them in our teaching practices so that the future generations can feel proud of our cultural traditions and apply them in their day to day routine.