UNIT 3  RELATIONSHIP OF
ANTHROPOLOGY WITH
ALLIED FIELDS*

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Learning Objectives
After going through this unit, the learners are expected to:

- compare and contrast anthropology with other related behavioral or social sciences;
- comprehend the relationship of anthropology with other sciences;
- understand how different disciplines contribute to the study of anthropology; and
- know how anthropologists can collaborate with other sciences.

3.0  INTRODUCTION

As mentioned in the previous units of this block, one of the main differences between anthropology and the other allied fields is that anthropology is a holistic study of humankind because of its unique blend of biological, social, cultural, linguistic, historical, and contemporary perspectives. Paradoxically, while distinguishing anthropology from others, this breadth is what also

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links it to many other allied disciplines. It is said that anthropology is the most humanistic among the sciences and the most scientific among the humanities. As a discipline that is both scientific and humanistic, anthropology has relationship with many other academic fields.

Anthropology is not the only subject that studies humankind. Each allied discipline focuses on a particular area and trains oneself to think and study the human society and its way of life in one way or another. Malinowski states that culture is a means to satisfy bio-psychological needs of human. Anthropology is grounded in both the sciences and the humanities. According to Malinowski, anthropology stands in between natural and social science. The bio-social nature of humankind is an area of interest of anthropology where anthropology greatly overlaps with other disciplines that study human society. Anthropology thus cuts across many disciplines and always takes the help of other disciplines to support and validate the nature of study. In this way, anthropology shares certain interests and subject of the study with the other disciplines.

3.1 RELATIONSHIP OF PHYSICAL/ BIOLOGICAL ANTHROPOLOGY WITH OTHER DISCIPLINES

According to Herskovits, in the term ‘man and his works’, the term ‘man’ implies human as a ‘biological organism’ and ‘work’ stands for ‘culture’. Anthropology studies human biology and cultural diversity, both the factors are equally important and relevant since anthropology explores biological aspects like human origin, evolution and variation as well as socio-cultural aspects like society and culture.

3.1.1 Relationship with Health Sciences

Biological anthropology, also known as physical anthropology, is concerned with the study and understanding of human biological variability, including morphological variation. Anthropometry is a major tool in these studies. Anthropometry, literally ‘measure of humankind’, was defined by Ales Hrdlicka in 1939 as ‘the systematized art of measuring and taking observation on man, his skeleton, his brain or other organs, by the most reliable means and methods, for scientific purposes’. Anthropometry is the single most universally applicable, inexpensive, and non-invasive method available to assess the size, proportions, and composition of the human body.

Moreover, since growth in children and body dimensions at all ages reflect the overall health and welfare of individuals and populations, anthropometry may also be used to predict performance, health and survival. These applications are important for public health and clinical decisions that affect the health and social welfare of individuals and population. Anthropometric measures have been the subject of much epidemiologic and patho-physiologic research involving obesity, overweight, body fat distribution, and health outcomes. In short, the assessment of health risks by using anthropometry is a well-established and time-honored concept in the scientific literature.

In recent years, anthropometric indicators such as body mass index (BMI) and waist circumference (WC) are repeatedly shown to be simple yet powerful predictors of common adult chronic conditions such as Type 2 diabetes mellitus (T2DM) and cardiovascular disease (CVD).
The importance of anthropometric indices for promotion of health and primary care can be summarized at three levels:

- **Individual level:** At the individual level, the measurements can be promoted both for health care providers’ use in clinical applications and for patients’ use in self-monitoring over time.

- **Community level:** At the community level, simple anthropometric measurements can help in identifying sub-populations in which the risk of chronic disease is concentrated, allowing these individuals to benefit from targeted interventions to reduce health risks.

- **Population level:** At the population level, secular trends in body measurements can be tracked to help evaluate societal and environmental changes that affect individual energy balances and to monitor the effects of large-scale prevention strategies.

### 3.1.2 Relationship with Genetics

Anthropological genetics is a synthetic discipline that applies the methods and theories of genetics to evolutionary questions posed by anthropologists. These anthropological questions concern the following:

- the processes of human evolution,
- the human diaspora out of Africa,
- the resulting patterns of human variation, and
- bio-cultural involvement in complex diseases.

How does anthropological genetics differ from its kin discipline, human genetics? Both fields examine various aspects of human genetics but from different perspectives. With the synthetic volume of 1973 (Methods and Theories of Anthropological Genetics), it became evident that the questions posed by the practitioners of anthropological genetics and human geneticstended to be somewhat different. What distinguishes anthropological genetics from human genetics is its emphasis on smaller, reproductively isolated, non-Western populations, plus a broader, bio-cultural perspective on evolution and on complex disease etiology and transmission.

Judging from the contents of the American Journal of Human Genetics (premiere journal in the field of human genetics), we see that there is a greater emphasis on the causes and processes associated with disease, and the examination of these processes in affected phenotypes (proband) and their families. Anthropological geneticists tend to focus more on normal variation in non-Western reproductively isolated human populations. Anthropological geneticists also attempt to measure environmental influences through co-variates of quantitative phenotypes, while human geneticists less often attempt to quantify the environment in order to assess the impact of environmental-genetic interactions.

### 3.1.3 Relationship with Chemical Sciences

Pollution is a worldwide problem and its potential to influence the physiology of human populations is great. Studies of human growth and development in relation to pollution have increased in number and quality since the mid-
Understanding Anthropology
twentieth century. Many studies have found that some pollutants have
detrimental effects on human growth, particularly prenatal growth. A heavy
metal, lead, is commonly found in human populations and is related to
smaller size of human baby at birth; studies have reported decrements that
range up to about 200 grams. Studies of humans exposed to polychlorinated
biphenyls, one of the persistent organic pollutants, have shown that they
cause the following:

- reduced size at birth,
- advanced sexual maturation, and
- altered hormone levels related to thyroid regulation.

Thus different pollutants exert effects through different physiological
pathways.

However, some studies have not observed these effects, which indicate that
the situation is complex and requires further study with better study designs.
Determining the effects of pollutants on human physiology and growth is
difficult as it requires fairly large numbers of subjects who are not purposely
exposed but for whom exposure can be measured. These effects of pollutants
and the mechanisms of effect require further study and, it is hoped, to blunt
or block any detrimental effects on human health and well-being.

Check Your Progress 1
1) What is meant by anthropometry? How does it help in the domain of
public health?

2) How anthropological genetics is distinguished from human genetics?

3.1.4 Relationship with Nutrition

Nutritional anthropology has emerged as a new branch of applied anthropology
over the past 20 years, and its methods are having an important influence on
the methods of nutrition survey and nutritional epidemiology. Nutritional
anthropology has continued to develop rapidly, providing solid information
for studying key aspects of the nutrition of individuals, families, and
communities. The methodological options in nutritional anthropology and
strategies for field research provide a background for more specialized
information on

- social behaviour and household functioning,
- the determinants of food intake,
- the analysis of energy expenditure.
3.2 RELATIONSHIP OF SOCIAL/CULTURAL ANTHROPOLOGY WITH OTHER DISCIPLINES

3.2.1 Relationship with Sociology

The social science that is closest to social anthropology is sociology. Yet there are strong and divided views on the relation between them. Both claim to study society, not just a single aspect of it, such as economics and politics, but all of it. Sociology is much older than social anthropology as it began with Auguste Comte in France and Herbert Spencer in England. The two men who are regarded as the founders of the British tradition in anthropology, Malinowski and A.R. Radcliffe-Brown, drew on the ideas of the French sociologists of the late nineteenth century. A.R. Radcliffe-Brown in a presidential address to the Royal Anthropological Institute said he was quite willing to call the subject comparative sociology if anyone so wishes.

Many of the newer British universities have combined departments in sociology and anthropology. However, universities give separate degrees in the two subjects so there must be a reason for this. The reason is a simple one: it is a matter of practice rather than theory, they deal with different subject matter and to a large extent by different methods. It might be noted that they are the branches of the study of society as botany and zoology are branches of biology.

Anthropology and sociology provide a comparative framework for interpreting and explaining human social behaviour. Although each discipline arose in response to different historical circumstances which have resulted in somewhat different traditions of emphasis and approach, the two fields draw from a common body of theory and, increasingly, a common toolkit of research methods. With the study of anthropology and sociology, one will become familiar with a wide range of human societies in all regions of the world. Those who study it will gain an appreciation for the cultural complexity, historical context, and global connections that link societies and social institutions to one another. They will also learn about key social structures and dynamics embedded in contemporary societies, including the forms of social power and privilege that exist in any society, and how these often unequal power relations are organised, sustained, reproduced, and transformed.

Anthropology is a comparative study of human kind, its aims are to describe, analyse and explain both the similarities and differences among human groups. Anthropologists are interested in characteristics that are typical or shared in a particular human population, rather than what is abnormal and individually unique. In their study of human variation, anthropologists try to focus on the differences among the different groups rather than the differences among the individuals within those groups.

In their attempts to explain human variation, anthropologists combine the study of both human biology and the learned and shared patterns of human behaviour which we call culture. Because anthropologists have a holistic approach to the study of human experience they are interested in the total range of human activity.
Check Your Progress 2

3) Who suggested the term comparative sociology for the subject social anthropology?

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4) What is the subject matter of sociology?

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3.2.2 Relationship with Psychology

The concept of personality is the basis of psychological studies. Anthropologists approach this domain from defining personality in terms of culture. Several important approaches to the study of personality have arisen over the years. Within the socio-cultural milieu, the process of personality formation is studied. The key concepts of socialisation and enculturation are utilised in this study. Various types of child-rearing practices in different societies are investigated in order to assess their implications for the development of personality.

In short, culture is reflected in personalities and personalities reflect culture. Psychological anthropologists divide the cultural institutions of a society into the following:

- Primary or basic institutions: They compromise the geographical environment, the economy, family, socialisation practices, and the polity etc?
- Secondary or projective institutions: They comprise the myths, folklore, religion, magic, art etc.

While the basic institutions condition personalities, personalities construct the secondary institutions. The relationship between culture and personality in each society is studied by psychological anthropologists.

Efficient studies by psychological anthropologists were not taken up till 1920s. The earlier work of some of these scholars lacked scientific vitality. The fundamental human conflict, which is in between human and personal needs, is multiple and must be thoroughly investigated at individual as well as social level concurrently. This aspect was realised but neither psychologist nor anthropologists alone could adequately manage all the spheres of the problem in the support of one single discipline. This understanding gave rise to the need for a two-way endeavour between psychologists and anthropologists.

Check Your Progress 3

5) What is the basis of psychological studies?

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6) What is the focus of psychological anthropologists?

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3.2.3 Relationship with History

Anthropology and history both attempt to trace the origin, expansion and advancement of culture in the past. Here we mean the age when human beings had not attained the competence of using the language as speech and also to write. Archaeologists are labelled as the historians of anthropology because they attempt to reconstruct the events of human’s past. However, unlike the discipline of history which is concerned only with the past 5000 years during which human beings have left behind written materials of their accomplishments, the archaeologist is concerned with the millions of years in which human beings developed culture without the benefit of the written word and has left behind only unwritten materials or artefacts.

In this sense an anthropologist studies past cultures and tells us about the technology of past peoples by analysing the tools those people used in the past. This can throw light on the economic endeavours of the people who have utilised that technology. This artistic potential of people become visible by seeing the remains of wall engravings on different materials like on pottery, and jewellery. The settlement evidences of the houses can also focus on various spheres of social structure. Some facets of religious beliefs can also be determined by the burial sites and also by the materials kept inside or with the burials.

The main methods of archaeological anthropologists are:

- excavation to find out artefacts,
- dating to dispense a rough time period, and
- witty speculations to form the cultural history of one’s past.

In all these efforts the anthropologists focuses on the studies related to reconstruction of the past cultures by different methods of exploration which is a method known to infer the unknown from those materials that are well known.

Check Your Progress 4

7) What is the common study area of the anthropologists and the historians?


8) Which period of human past is studied by historians?


9) What is the main method used by the archaeological anthropologists?


3.2.4 Relationship with Linguistic

One of the most distinctive features of human being is the ability to communicate through speech. The branch of socio-cultural anthropology
that studies languages is called linguistic anthropology. Linguistic anthropologists account for the diversity of languages in two ways:

- It can be shown that culture influences the structure and content of language, and by implication, linguistic diversity arises at least partially from cultural diversity.
- It can be shown that linguistic features affect other aspects of culture.

In order to reveal the relationships between language and culture, anthropologists have taken either of the two ways, which has resulted in debate and discourse on the matter. The linguistic anthropologist borrows from the socio-cultural anthropologist. The meaning and content of words and phrases in each language have unique nuances that are intelligible only to the people who speak that particular language which is a product of their culture. The language of some people may not have referential terms for certain features of the world around them. These give the clues to those features which do not hold any cultural significance to that people.

The major difference between the linguists and linguistics anthropologists is that the former are mainly concerned with the study of how languages, particularly written ones, are constructed and structured but the linguistic anthropologists study unwritten languages as also written languages. Another crucial difference between linguists and linguistics anthropologists is that those features which the former take for granted are taken into consideration by the latter. These features relate to the systems of knowledge, belief, assumptions and conventions that produce particular ideas at particular times in the minds of people.

**Check Your Progress  5**

10) How does the linguistic anthropologists account for the diversity of languages?

11) State the major difference between a linguist and linguistic anthropologists.

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### 3.3 RELATIONSHIP OF ARCHAEOLOGICAL ANTHROPOLOGY WITH OTHER DISCIPLINES

In archaeological anthropology, man and culture are reconstructed from bits and pieces of early man and his material remains found scattered over different spaces over the surface of the earth and below the surface as well. The method of reconstruction of early man in anthropology is considered a conjunctive one. It is done with the help of many sciences.
Many sciences, such as geography, geology, archaeology, history, botany, zoology, chemistry, physics and mathematics are involved in the methodology. Anthropology of course is a very important part of the study of archaeological anthropology because it is the mother discipline and has evolved its own methodology.

### 3.3.1 Relationship with History

Any subject for its study of its origin and development owes to its history of origin. The reason for the slow growth and development of the sub-discipline can only be understood in the study of its history of coming into being (Penniman, 1965). History says that prehistoric/archaeological anthropology is more than a hundred and fifty years old. History also points out the nature, time and sequence of finding of different artifacts and fossil remains unclear and incomplete. On the basis of history of discoveries, the theory of evolution and understanding of development, change and diffusion mechanism can be studied. Reconstruction of cultural history is related to this discipline. Often archaeological data, combined with historical records, produce a complete picture of man and culture than either would have given separately.

### 3.3.2 Relationship with Archaeology

Archaeologists are anthropologists who excavate the material remains of past culture (Deetz, 1967). To begin with, archaeology is largely concerned with material remains of man, both of past and recent past. Archaeological anthropology is restricted to very early times, before the discovery of writing. Archaeology too is dependent on other disciplines for its study.

Archaeology relates to search for material objects left by man. There are two kinds of search:

- **Exploration**: This provides data from the surface.
- **Excavation**: This brings out data from beneath the surface.

Archaeologists have developed methods and techniques for the recovery of materials from both exploration and excavation. After the materials are recovered, they are put into order in relation to space, time and form (Deetz, 1967). Childe (1956) in his book “Piecing Together the Past” has pointed out how inferences can be drawn beginning with drawing and describing a single artifact and then going on to making a catalogue of all the related objects in space and time. This he called assemblage. From assemblage, archaeologists go on to make inference on culture and finally interpret the total cultural regime.

### 3.3.3 Relationship with Earth Sciences

Earth sciences include both geography and geology. The common element between the two subjects is the prefix ‘geo’ meaning earth. In many respects, geology and geography are common as both of them deal with the study of the Earth. But they are not synonymous.

Geology is concerned with time and geography is concerned with space. The former studies the earth below the surface and the latter studies the surface of the earth.
Earth, which was at one time exposed, has been covered up by deposits or broken down over time, due to erosion and depositional activities of water, wind and temperature. These are studied by geologists.

When both geology and geography are taken together, they give impression of diachronic study.

- The geological aspect presents vertical dimension mainly of time.
- The geographical science provides horizontal concept of space.

Both time and space information are very important for archaeological anthropology. Relations of the two sciences with archaeological anthropology are discussed separately.

### 3.3.4 Relationship with Physical/Natural and Biological Sciences

Many sciences are closely related to reconstruction, mainly in connection with dating. These range from chemistry, physics, astronomy, mathematics, statistics, botany, and zoology.

There are two kinds of dating:

- Relative. This establishes the date of human remains in relation to an already dated event.
- Absolute. This establishes the date of an object in absolute numerical order of the calendar (chronometry).

An account of the relationship of these sciences with the archaeological anthropology is given below.

Radiometric dating is based on physical and chemical sciences. The most known is radio carbon method which is done on radioactive carbon (c14). Other radiometric methods are Potassium Argon method, Thorium Uranium method, Thermoluminescence, Obsidian Hydration, Fission Track, and Archaeomagnetism.

Flourine test, amino acid racemization, and nitrogen analysis are a few examples of importance of chemistry in archaeological anthropology. Moreover these subjects also provide mechanism for preservation of perishable objects.

Electronics provides means for detecting objects below the surface of the earth. With the help of electromagnetic resonance, buried objects like metal objects, burials, walls, foundations, kilns, furnaces, hearths and even pits and ditches filled up with topsoil or rubbish can be located. The satellite images help not only to identify unusual features of archaeological interest on the surface but it also points to buried objects. Remote sensing has become an important tool for the archaeological anthropologists.

Man is a part of the animal kingdom. His relation with animals may be either positive or negative. Human beings may be preyed upon by carnivores or may prey upon other animals. Human beings domesticates animals for their own advantage. With the help of zoologists, man-animal relationship and its cultural implications are properly understood. Past faunal remains are identified by the zoologists.

Dendrochronology is one method of dating that the botanists provide. Botany also helps to analyse man-plant relationship. Human beings use plant resources
as food, fibre, medicine, container and so on. They not only use plants in
their natural habitat but also domesticate them. These are turning points of
human history and origin of cultivation and domestication mechanism can
be researched with the help of plant science.

Finally there are a number of shell fish, mollusks, micro plants, animals and
virus, which are sensitive to any kind of change in the environment. They
also are important marker for dating and reconstruction of environment and
culture.

Check Your Progress 6

12) What is dendrochronology?


3.4 SUMMARY

Anthropology is closely related to behavioral or social sciences. Physical /
biological anthropology deals with human biological diversity in time and
space. Biology deal with all living organisms including human being. The
relationship between biological anthropology and biology is that both the
disciplines analyse origin, evolution, heredity, variation, and anatomical and
physiological features of human being.

Biological anthropology studies the physical characteristics of man. It uses
the general principles of biology and utilizes the findings of anatomy,
physiology, embryology, zoology, palaeontology and so on. Paul Broca (1871)
defined physical anthropology as the “Science whose objective is the study
of humanity considered as a whole, in its parts and in relationship to the rest
of nature”.

Apart from the similarities, both disciplines differ in many respects.

<table>
<thead>
<tr>
<th>Biology</th>
<th>Anthropology</th>
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<tbody>
<tr>
<td><strong>a biological science</strong></td>
<td>a bio-social science</td>
</tr>
<tr>
<td>Views <strong>human beings</strong> as biological entities</td>
<td>Views human beings as both biological and social entities</td>
</tr>
<tr>
<td>Studies all living organisms</td>
<td>Studies primates and human species.</td>
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</tbody>
</table>

While biology is considered a biological science, anthropology is considered
a bio-social science. In the discipline of biology, a human being is viewed as
a biological entity whereas in biological anthropology a human being is
considered both a biological and social entity. For instance, when a zoologist
tries to understand the biology of an animal, he never goes into the details
of the length and breadth of the skull. Physical anthropology examines the
skull in all its details. Thus, anthropology has a sort of specialization or
sharpening of certain aspects of general biology.
Biologists study all the living organisms but anthropologists are restricted to study primates and human species. Subjects such as archeology, paleontology, osteology, geology, and geography help the biological anthropologists and archeological anthropologists in reconstructing biological and cultural aspects of human evolution. In using techniques to date fossils and artifacts, anthropologists take help from physics, chemistry, and geology. Anthropologists collaborate with the disciplines such as botany, zoology, and paleontology at the time of studying human fossils and artifacts.

3.5 REFERENCES


3.6 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1
1) Refer to section 3.1.1
2) Refer to section 3.1.2

Check Your Progress 2
3) A.R. Radcliffe-Brown suggested that social anthropology maybe termed as comparative sociology.
4) Refer to section 3.2.1

Check Your Progress 3
5) Refer to section 3.2.2
6) Refer to section 3.2.2

Check Your Progress 4
7) Refer to section 3.2.3
8) Refer to section 3.2.3
9) Refer to section 3.2.3

Check Your Progress 5
10) Refer to section 3.2.4
11) Refer to section 3.2.4

Check Your Progress 6
12) Refer to section 3.3.4