
UNIT 12 EDUCATION: ITS DIMENSIONS

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12.1 INTRODUCTION

Till recently education had been looked upon as a tool to pass on the knowledge, skills and wisdom of the past generations on to the next generation. However with the tremendous change in the technology and the rapid inflow of information we may be the first generation in human history to face mammoth task of preparing today's child to cope in the 'learning society' of the 21st century – a generation for whom the accumulated knowledge of past generations may be of less practical value than the learning acquired in their life time.

Preparing a generation for an ambiguous course of life is a challenge. We cannot offer them any quick fix solutions. What we can do at the best is to inculcate/nurture in them the qualities, which may be helpful to them in observing events in their totality, synthesize and analyze this information to arrive at a decision.

For this it is necessary to identify the minimum requisite skills of the members of a 'learning society'. In order to do well in a 'learning society' its member should possess the skills of learning how to learn, how to make use of the knowledge / information they possess; be able to see interconnections between various bits of information, be able to synthesize the old information with the new to arrive at their own solution. This leaves us with another question: what should be done to develop these skills? Developing skills is different from imparting knowledge;

these skills develop during the course of learning. Therefore the process of education is the crucial factor for making a difference in this direction.

Since education is a tool utilized by the society to socialize its young members, therefore its dimension would be closely linked to the task expected from the education.

In this unit we would first look at what we mean by education in the present context. What are the expectations from education and also which are the different dimensions of education permeating various areas of an individual's life?

12.2 OBJECTIVES

After going through this unit, you would be able to:

- elaborate the need of education;
- discuss aims of education in futuristic context;
- enlist dimensions of education;
- explain how education permeates all walks of life; and
- justify investment in education.

12.3 EDUCATION: AIMS

As per NPE (1986) 'education has an acculturating role. It refines the sensibilities and perceptions that contribute to national cohesion, a scientific temper, and independence of mind and spirit – thus furthering the goal of socialism, secularism, and democracy enshrined in our constitution'.

Education has economic and non-economic benefits. It has economic benefits in the sense that it prepares people to undertake their work in diverse aspects effectively. Higher education stands for higher level of knowledge and skills thereby contributing to higher quality output and consequently higher income. Scientists and researcher advance knowledge thereby contributing to development and greater understanding of natural phenomenon. Thus it can be said that education has contributed to development of society and has been developing along with it in the process. Life is continuously becoming more complex.

Breakthroughs in technology have blurred the nations' boundaries and information inflow has increased multifold in the past quarter of a century. All this places greater demand on the human beings to meet the challenges of life. Human resources play a critical role in the effective use of resources. We need a change from imitation to innovation, from uniformity to diversity. Creative thinking is essential to meet the challenges of living in the twenty first century.

Education cannot be limited to the cognitive domain. Social living and learning to live as an effective social being is equally important. Social living basically is a partnership based on respect and trust between all involved. The old saying 'Treat others as you like to be treated' is still quite relevant. This quality cannot be imparted as information it has to be absorbed during the process; the process itself needs to be embedded in the atmosphere.

Similarly, education needs to be a creative process – a process that requires a reflective mindset, which can be developed through repeated practice. This may slow the pace of learning at times. But patience at this point can be very fruitful. The process begins with generation of an idea and ends with the idea being realized. This process is often ambiguous – however through perseverance, practice and effort much can be achieved. In the process one learns how to cope with setbacks, thus developing resilience in the process.

“The acquiring of various kinds of information is only one and not the chief of the means and necessities of education: *its central aim is the building of the powers of the human mind and spirit*, it is the formation or, as I would prefer to view it, the evoking of knowledge and will and of the power to use knowledge, character, culture- that at least if no more “ (Sri Aurobindo).

“The principal task of education is to create men and women who are *capable of doing new things, not simply repeating what other generations have done*” (Jean Piaget).

These are profound statements and we all agree with them in view of the present information inflow, scientific advancement, rapid transformations in social scenario and a looming fear of destruction. What is the good of learning and development if in the process of living we destroy the existence of the universe? We are witnessing a number of devastating wars, at one place or another. In spite of all the scientific advances we are grappling with the problems of poverty, floods, drought, HIV Aids and terrorism. There is obviously something radically wrong with our priorities. We are concentrating on development in a lopsided manner avoiding certain vital human issues.

If we view intelligence as the capacity to perceive the essential then education is the process to awaken this capacity. The task of education is not merely to impart knowledge and develop the skills of gathering and correlating facts; it is to see the significance of life as a whole; to awaken/develop in human beings the capacity to perceive the essential, discover lasting values, and break down our national and social barriers, instead of emphasizing them.

The aims of education are implicit in the classroom processes. However, an important point in this context is whether our teachers are aware of this aspect. Can they relate what they do in the classroom with the aims of education? Broadly there can be two types of classroom – one in which the teacher passes on knowledge as a finished product to be accepted without any questioning and learning means being able to reproduce it and apply the procedures taught; another in which teacher guides the learner to construct knowledge and the knowledge is always transforming.

International Commission on Education for the 21st Century presented a holistic vision of education, which includes four pillars of learning:

- i) Learning to Know,
- ii) Learning to Do,
- iii) Learning to live with each other and
- iv) Learning to Be

The Convention on the Rights of children states:

“Education shall prepare the child for an active adult life, in a free society and foster respect for the child’s parents, his or her own cultural identity, language and values, and for the cultural background and values of others.”

Thus, education should aim not only at developing a sense of dignity and worth in the individual or a sense of caring for the self and others but also promote creative thinking, build the capacity for reasoning, analyses problem-solving and informed decision-making - all of which are crucial qualities needed to face the challenges of the third millennium.

Check Your Progress 1

Notes : a) Write your answers in the space given below.

b) Compare your answer with those given at the end of the Unit.

1) Discuss the need for education.

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2) Enlist two aims of education.

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12.4 EDUCATION: DISTINCTIVE FEATURES

12.4.1 Education – A Dynamic and Continuous Process

Education starts at birth and continues till the end of one’s life. It is not limited to the arena of schools and formal educational institutions only. It includes people in general and at work too. In short, it is a life long process. The onus of taking advantage of this depends upon the learner.

The secret of an effective learner lies in the strategies s/he uses to learn. Awareness of the process of ‘how to learn’ has now become the crux of education. Once one has the knowledge of how to do something, implementing it in practice would not be difficult. This is the knowledge with which we need to arm our future learners, as the future would bring many ‘ill defined’ situations requiring intelligent behaviour. These skills are of paramount importance in enabling them to achieve their full potential. Learning is reflected in the mindsets, behaviour, dispositions, attitudes and enthusiasm of the learner.

Every educational system must have the flexibility to assimilate and adapt new information in order to survive and thrive. The word *in-formation* describes it aptly. Flexibility can be of varied type it may be an integration of formal and non-formal systems of education, allowing students to flow in and out of one system to another.

Another can be flexibility in enter and exit at various stages as per students' convenience. People can re-enter the educational circuit as per their need and desire. This would be the hallmark of education in the coming era. Diversity and flexibility of choice in education are complementary; a flexible system would provide diversity too and vice versa. This stands for availability of a variety of courses of short/long term duration to choose from.

12.4.2 Need for Interim Alteration and Context Review

Interim alteration and context review are essential for any dynamic and effective set up. This acquires greater significance for an educational set up since "education" helps people in making the right choices, setting worthwhile and realistic goals and achieving them successfully in any endeavor. It is always a good exercise to pause at periodic intervals and reflect on whether we are going where we wanted to and also whether it is the right course in the present context? What can be done to achieve the most under the given situation? Is there a need to make alternations in the plan? If yes, will the change need to be a minor or a major one? Do we need to change the course completely? The most crucial question is – are we making the 'right choices'? How are our actions affecting others? Is the development lopsided? If yes, what actions are needed to balance the situation? All these questions need to be attended to constantly by the concerned personnel at various levels involved in the enterprise of imparting education – as it has far reaching consequences.

12.4.3 Change in Existing Institutional Structures

Institutional structures are facing the need to change and diversify. Links between various types of education are multiplying. Diversification is being accepted at higher secondary and higher levels of education. Many new courses and different combinations are available today to suit the needs of learners and work areas.

The need of the hour is to provide an educational system which can simultaneously cater to varied learner needs since the learner choices are becoming more distinct. What is needed is the increase in the number of programmes including the short term ones to meet specific vocational / local needs. Providing educational inputs through a variety of channels would facilitate training programmes / enrichment and refresher courses. This would make the boundaries between the formal and non-formal system of education less distinct. Distance education that is currently offering some good purpose specific programmes may become more popular.

Our educational system is well on its path toward such movement as indicated by some of the steps taken by Apex Educational bodies. In response to the needs of industries who in the knowledge linked economy are looking for persons with utility skills in allied and complementary fields, University Grants Commission (UGC) is promoting the Dual Education Mode. Under this universities would allow students to pursue Certificate, Diploma and Advanced Diploma in utility oriented topics while simultaneously pursuing a degree qualification. UGC infonet is another example of its move toward betterment. This brings into the classrooms Quality Education programmes by utilizing Information and Communication technology.

In the context of *life long learning*, the former concept of a limited span of learning stage would soon be extinct. Continuity – terminality of age/s would

become less distinct as individuals would be flowing in and out of the learning institutes as per their need and convenience. This would slowly result in sharing of the responsibility of providing education by persons, institutions and other serial sub-systems rather than being a responsibility of the state alone.

Relevance

Greater complexity in various arenas of the world of work calls for specialized skills. Increased interaction between the world of work and the educational institutions would result in programmes with specific purposes, development of specific skills and knowledge among the target group within a stipulated time span.

On the other hand, greater and more diverse range of educational opportunities would be available to learners; the time span for these would also be flexible depending upon the learners' convenience.

Now a day we are observing that a host of specialized disciplines have sprung up to cater to different individual needs. Some of these programmes well entrenched in the realm of professional education are: Communications' Management, Health and Hospital Management, and Tourism Management etc.

Diversity

Diversity in education will be in respect of kinds of educational programmes being undertaken. The programmes need to be adaptable and flexible to provide education on demand. Innovative educational technologies available on hand facilitate adaptable and flexible learning experiences and communication.

Programmes offered / developed as a joint venture of more than one institute would be able to cater to such needs of course requiring integration of diverse expertise. In our country we are observing some trend towards coordinated efforts in this direction by Indira Gandhi National Open University.

Check Your Progress 2

Notes : a) Write your answers in the space given below.

b) Compare your answer with those given at the end of the Unit.

3) Write three basic features of education for the students of tomorrow.

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4) Enlist two advantages of change in existing institutional structures.

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12.5 DIMENSIONS OF EDUCATION

Education is meant for the development of human beings and is a human right. It is expected to impart skills suitable for living and making one's livelihood, promoting general powers of the mind and advancing learning. It is also expected to make an individual more civilized and cultured, promote rational thinking and civic sense.

Education expands one's horizons. Areas of concerns of an educated person increase from local to national and international level. Educated individuals are expected to be better equipped to meet the challenges of life. Increased efficiency, constructive participation in social events and processes, harmony in social and personal relationships, sustaining development and equitable social order are some of the other expected benefits.

12.5.1 Education as an Investment for Economic Benefits

Within the development field, the education sector is analyzed by economists for rates of return, which drives the current argument for higher investments in girls' schooling. Education is described as an input-output-outcome system which good policy can make more efficient (Windham, 1990).

Investment in education gives people much more opportunities by developing their latent abilities. It is supposed to provide them opportunities to strive to the limit and beyond.

Society too gains much more from its educated members. Economic development depends upon positive utilization of advancement in technology and science and educated members are better equipped to do so. Education also leads to better health care, small family, increased community awareness and participation. Education plays a critical role in demographic transition and female education in particular is responsible for lowering mortality and fertility. (Sen et al, 1995). Female education also improves the educational attainment of children. Education increases social mobility thereby breaking the barriers of class, caste and gender. This also opens up new avenues for learning and progress when we possess an important skill, viz the ability to take lessons and values from one particular field of experience to apply them in novel ways to other situations.

12.5.2 Education for Social Development

Social development stands for developing people and community to act effectively in their circumstances. Accordingly, efforts are aimed at empowering people for accepting their responsibilities and working for the welfare of themselves and others. This requires meeting certain basic needs like clean drinking water, nutrition, housing, health, basic schooling along with productive work and safe working conditions. In addition, *Social integration* is also one of the important indicators of the degree of social development of the society.

Social integration implies inclusion of or participation by the entire population particularly the vulnerable and disadvantaged (women, children, disabled, minorities, socially backward etc.) in social and political life. The Copenhagen Social Development Summit included it as one of the prerequisites for social development since poverty and differences.

Empowering people for social integration can mean giving disadvantaged groups the power to participate and take decisions or the groups themselves can fight to obtain such powers. This can also mean capacity building i.e. equipping them with skills and abilities. Strengthening organizational abilities enables people to develop their own potential, knowledge and exercise their rights. It also aims to reduce poverty and social inequalities.

Demographic researches have shown that spread of education particularly among females was one of the key factors behind the process of mortality and fertility decline. For example if we compare the female literacy rate and infant mortality rate of a state like Kerala with female literacy rate and infant mortality rate of a state like Uttar Pradesh / Bihar the data would speak volumes on this aspect.

When we consider the goal of development as improvement in the quality of life then this far reaching impact of education comes to light.

Being a developing country we after believe that everything proposed by the West may be good enough for us. However there are ideals / principles which although good in spirit may not be applicable to our situations. Ours (equally applicable to other Asian countries in different measures) was a social system which emphasized social responsibility / duty of every individual. The logic behind it was simple, since once every body is doing his/her duty its benefits automatically spread to all members of a group without any supervision. The Western onslaught of individualism brought with it a burning question of rights. As a result, every body is now clamoring for their well-deserved rights. The fallacy of the system is that nobody is getting any thing because it is the duty of someone else that is essential to make the right of others.

Education must enable us to differentiate between what is desirable in the long run and what is not. Without an integrated understanding of life, our individual and collective problems will only deepen and extend. Institutes of higher education are expected to act as catalysts for social reforms.

12.5.3 Education for Political Democracy

Developing countries find themselves caught in a situation of maintaining a balance between the needs of a rapidly changing global economy on which they have no/ little control on the one hand and values and traditions they consider important for maintaining their identity and political freedom on the other hand.

Discrimination on the basis of caste, creed and sex hamper development of every society. Promotion of education among minorities and disadvantaged groups such as women, Scheduled tribes, Scheduled castes and other backward classes, in India are bringing to the forefront people who have been alienated from active politico-social scene so far. Their inclusion at the higher level of decision-making would certainly influence the power structure in our democratic set up.

The rapid pace of modernization will bring forward skilled and knowledgeable people who can utilize information for informed decision-making and implementation. Their active role in politics may bring respect for national interest above the regional, group or class interest in politics.

Lack of education can be a major cause of helplessness in a democratic system. Education enables one to vote in an informed manner, to make leaders accountable and understand their own rights and duties.

Human Rights education is directed towards strengthening respect for human rights and fundamental freedom; full development of human personality and sense of dignity; promotion of social gender equality, understanding, and tolerance and enabling everyone to participate effectively in a free society.

The concept of human rights emerged from the need to ensure social, political and economic justice and providing equal growth opportunities to all individuals. Education can serve as a means to move towards this goal. Achieving it in totality may be a Herculean task due to ignorance, poverty and illiteracy widespread in our country. This requires not only the awareness about these but also respect for others right and capacity to protect our own rights. Education can and does influence the attitudes of individuals by creating awareness through disseminating knowledge. It can be used effectively in evolving a culture sensitive to the needs and rights of individuals.

On 10th December 1948, the international statement of these rights was adopted by the General Assembly. Since then this day has been celebrated as 'The Human Rights Day' every year. The declaration proclaims economic, social, political, civil and cultural rights. Through its Universal declaration of Human Rights United Nations is endeavouring to teach the people the "Common language of Humanity". In December 1994 UN General assembly proclaimed 1995-2004 as United Nation decade of Human Rights Education. They appealed to all governments to contribute to the implementation of a global plan of action for assessing needs and formulating strategies for promotion of Human Rights Education building capacities for Human Rights Education at various level, co-ordinating, the development of Human Rights Education material; strengthening the role and capacity of mass media for propagating *Human Rights Education* and global dissemination of Universal declaration of Human Rights.

The preamble to the Indian constitution reflects the basic principle of Universal declaration of Human Rights. Justice, liberty, equality and fraternity are the four basic ideals mentioned in it and this forms the core of our Indian constitution. In the year 1993, Protection of Human Rights Act was adopted and soon after National Human Rights Commission was constituted with a former Chief Justice of India as its chairman.

12.5.5 Education for Ethical Development

Humankind has made great strides in science and technology. We have discovered nuclear power while information technology and genetic engineering are some areas of knowledge which have opened new vistas. But do we have the ethical maturity to make judicious use of such powers? The answer to it is not very positive at the moment. Extra efforts are needed in this direction to make rationality prevail for the future of mankind.

Education should help human beings enter into the relation of the life, mind and soul of humanity. What our education system is actually doing or can do to advance ethical standards is a question, which needs to be deliberated for urgent action. As per the Review committee on the curriculum of the ten year school (1977). "Objectives of education when viewed comprehensively should enable

an individual to acquire knowledge, skills, habits, attitudes and values necessary for

- Successful performance of his responsibilities as a citizen; and
- A rewarding personal life by development of innate talents powers of creative enterprise and the capacity to appreciate the splendors of life.

12.5.6 Education and Culture

Education is mainly seen as a means of imparting the accumulated fruits of civilization and culture to the young ones. These include our traditions, history, music, dance, handicraft, literature, art, festivals and other aspects of our cultural legacy. Ours being a multi-cultural and multi-linguistic society it is important to build bridges between the different cultures that inhabit the country and reinforcing a common national identity. For this it is necessary to promote the value of integration for developing a truly integrated culture on the basis of the recognition and respect for our cultural diversity.

To preserve our cultural legacy, it is important to recover, maintain and sustain our cultural diversity, in such a way that it facilitates the overall and harmonious development of our nation.

Presently a culture of consumerism appears to be gaining an upper hand, majority of us seem to be in a rush to acquire as much as possible with minimum effort and as early as possible. Another phenomenon much in evidence is the use of violence to get what one wants with little respect for what is in the best interest of all in the present circumstances or the future. In the process we see many instances of events where individual/s hold the interest of nature and survival of civilization to ransom.

12.5.7 Education and Aesthetics

Education enables an individual to appreciate the finer things in life and the beauty of the world around him/her. His/her outlook and goals in life are influenced by their experiences, and their ability to perceive events/objects. There is a strong positive relation between deep perception and excellence in any endeavor. This level of perception, which is deep, involves inquiry and application of sustained effort which is important for success; it may reveal, renew or invent.

Seeing, experiencing and valuing worldly aspects in a new way transforms individual's relationship with the world expanding their perception and values. In the words of Dewey (1958) "ordinary living, routine, unobserved interaction with the world causes us to lose touch with the uniqueness and originality found in the world....apathy and torpor (habitual idleness) conceal this expressiveness (of ordinary objects) by building a shell about them." Art, however, "throws off the covers that hide the expressiveness of experienced things..... it quickens us from the slackness of routine and enables us to forget ourselves by finding ourselves in the delight of experiencing the world about us in varied qualities and forms".

An educated process which has the capacity to instill the vision to observe things in totality, ability to identify the uniqueness in every thing, understanding the value of their existence, identification of the web of relationship between all forms of existence and living in harmony with nature would certainly enrich our lives.

Check Your Progress 3

- Notes :** a) Write your answers in the space given below.
 b) Compare your answer with those given at the end of the Unit.

5) What are the various dimension of Education?

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6) Why education is considered as essential for success of democratic system?

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7) When the "International Human Right Day" is celebrated?

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12.6 LET US SUM UP

In this unit we began with the expectations from education, as it is a tool for socialization as well as equipping the learners with skills for dealing with challenges of the future in life. In this context, focus was on discussing the aims of education and the necessary characteristic features of educational process so as to be able to prepare the citizens of tomorrow – not just as an informed generation but a generation who can hold its own to face the multiple, ambiguous events and circumstances of life as skillfully as possible.

Subsequently we moved on to discuss various dimensions in human life that are permeated by education. These included the social, political, economic, cultural, ethical and aesthetic aspects of life. Each of these dimensions occupies an important place in the life of a human being and due consideration of these is essential for the development of an individual 'to be'.

12.7 UNIT END EXERCISES

Write short notes on:

- 1) Education for social development
- 2) Education for political democracy
- 3) Education and Human rights
- 4) Education for ethical development

- 5) Education and culture
- 6) Education and aesthetics

Write your views on "Features of education in the 21st Century" in about 1000 words.

12.8 ANSWERS TO CHECK YOUR PROGRESS

- 1) Education is useful for imparting knowledge from one generation to another. An effective education process facilitates development of skills, which become instrumental in developing or discovering new knowledge and skills.
- 2)
 - i) Building the powers of human mind and spirit
 - ii) Making people aware of the advantages of living in harmony with each other and nature as well.
- 3) To meet the needs of the student of tomorrow education has to be dynamic, continuous and flexible in nature.
- 4) Changes in the existing educational structures would facilitate students through providing flexibility in term of time and space. This would facilitate lifelong learning as against the present set up of a segment of life only being devoted to formal learning.
- 5) Education is considered as a basic investment to bring:
 - a) Economic Development
 - b) Social development
 - c) Political democracy
 - d) Ethical development
 - e) To preserve and conserve culture and values
- 6) Education enables one to vote in an informed manner to make leaders accountable and understand their own rights and duties.
- 7) On 10th December every year.

12.9 REFERENCES AND SUGGESTED READINGS

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UNIT 13 EDUCATION: KNOWLEDGE GENERATION

Structure

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 - 13.3.2 Empiricist View of Knowledge
 - 13.3.3 Knowledge as Necessary and Synthetic
 - 13.3.4 Concept of Knowing
 - 13.3.5 Conditions of Knowledge
 - 13.3.6 Knowing that, 'Knowing How', 'Believing' and Understanding
- 13.4 Meaning and Theories of Truth
 - 13.4.1 Meaning of Truth
 - 13.4.2 Test of Truth
 - 13.4.3 Theories of Truth
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- 13.6 Generation of Knowledge
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 - 13.6.4 How do Theories and Methodology Affect Investigation?
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- 13.7 Let Us Sum Up
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13.1 INTRODUCTION

In Block 1, we attempted to explicate the concept of education and suggested that the educated man would be one who had acquired some worthwhile knowledge, understanding and skills. What knowledge, what sort of understanding, and what skills come under education, will depend on the nature of the society which educates. But any society, sophisticated enough to have a concept of education must regard some knowledge and some skills as worth passing on to

the next generation. This body of knowledge and skills will constitute a curriculum, and a general theory of education must involve some assumptions about what must be taught. These assumptions will be those about the nature of knowledge.

Curriculum, as we know, is a body of knowledge and skills to be 'transmitted' to students. It is one of the means by which the overall aim of education is translated into achievement. Educated men and women are formed by being introduced to and initiated into various kinds of knowledge and skills. The philosopher of education is interested in three aspects of this; firstly, in the analysis of the concept of knowledge and its relation with other concepts like belief and truth, and secondly, what knowledge should be taught, what knowledge is worth having, thirdly, how knowledge is generated. His questions may be: (i) what is knowledge? (ii) what knowledge is of most worth? (iii) how can knowledge be acquired or generated.

13.2 OBJECTIVES

After going through this Unit, you will be able to:

- explain the nature of apriori and aposteriori types of knowledge;
- analyse the concept of knowing and derive the conditions under which a given proposition can be said to be known;
- explain the difference between "knowing that" and "knowing how" types of knowledge;
- analyse the concept "meaning of truth" and the different types of truth of knowledge;
- explain the nature of a scientific law, and the theory of truth that verifies it;
- discuss with examples the three theories of truth – the correspondence theory, the consistency theory, and the pragmatic theory;
- explain the reason why correspondence with reality cannot be ascertained in keeping with the subjective nature of human perception;
- draw a parallel between the *Syadvad* of Jainism and the pragmatic theory of truth;
- discuss with examples the different theories related with knowledge getting process;
- explain the meaning and nature of the genetic epistemology of Jean Piaget and;
- identify and discuss the problems involved in obtaining an objective knowledge of the world using empiricist-inductive model.

13.3 KNOWLEDGE IN GENERAL

When we attempt to answer the question "what is knowledge?" we mean two things: First, what exactly is that which can be known? That is, what is knowledge about? And second: what does it mean to say that one knows something? The former question is in fact referring to knowledge in general.

13.3.1 Plato's View of Knowledge and Rationalism

Different philosophers have given different answers to the question: what is knowledge about? One answer was given by Plato who made a clear distinction between knowledge and belief, and restricted knowledge to apprehension of certain non-sensible objects, that is, objects which cannot be perceived or experienced through the senses. He named such objects "forms" or "ideas". This kind of knowledge is conceptual knowledge or knowledge of the "form". The objects of sense experience or of the every day world, trees, rocks, clouds, men and animals and the like, according to Plato, cannot strictly be known about. It is because Plato thought that knowledge by its very definition should be known beyond any doubt. About the world of sense experience – the world of phenomenon, we could not be certain. Such knowledge is always probable knowledge, not certain knowledge; hence it cannot be termed as knowledge as such, it is either an opinion or a belief. Plato was in fact skeptical about knowledge obtained through sense experience, because such knowledge has two major flaws; first, perceptions are often distorted and observations are always subjective; and moreover, the observer never knows when his perceptions are true and when they are not. Secondly, even if no distortion occurs, it is a fact that things always change. Therefore, it seemed obvious to Plato that study of science and sense data could never lead to certain knowledge. Knowledge according to Plato was a matter of grasping necessary truths, necessary in the sense that in no circumstances it should be untrue, impossible to be mistaken about. Such knowledge is *apriori*, for it is ahead of our experience.

A development of this view led, in the seventeenth century, to what is called the rationalist tradition, associated with philosophers like Descartes, Spinoza and Leibnitz. In rationalism, knowledge is regarded as analogous to grasping of mathematical truths. Here mathematics is the paradigm example of knowledge, for mathematical truths are universal and most certain. They are truths always, everywhere. They are necessary truths. For examples, $7 + 5$ will always be 12, or the sum of the three angles of a triangle will always be 180° . To deny these propositions would not merely be an error but rather self-contradiction. The rationalist philosophers were attracted by this model of knowledge and they tried to use it to establish certain necessary truths about the actual world, truths which, they thought, could be derived from self-evident principles and understood as we understand the truths of mathematics and logic.

13.3.2 Empiricist View of Knowledge

But, there is another view of knowledge, the *aposteriori* knowledge, which takes science as paradigm. Here knowledge is not taken as a matter of deduction from self-evident principles but comes as a result of observation and experimentation in the empirical world. On the basis of the order and regularity that occur in our experience with the external world – the world of sense experience, we make large-scale generalisations about the contents and events of the world. These generalisations, we can use to explain and predict the course of future experience. This is the empiricist model of knowledge associated with philosophers like Locke, Berkeley, Hume, and James Mill. Knowledge obtained is knowledge of the substances. This *substantial* knowledge, however, is not a body of necessary truths but conclusions or generalisations based on observations and

experimentations or experience, which are *contingent* in nature. It happens that fire burns, sugar tastes sweet, quinine is bitter, ice melts on heating, gases contract on cooling; but it may not happen always under all conditions. It may happen otherwise also. In this regard we may conclude that the contrary of any empirical truth is always possible, whereas the contrary of mathematical truths are logically impossible and absurd. The logical positivists, a more recent school of thought in philosophy held that all substantial, informative knowledge is of the contingent kind. Mathematical knowledge, according to them, is not substantial or informative of the actual world. Such knowledge was purely 'formal', a matter of definition and derivations from them.

13.3.3 Knowledge as Necessary and Synthetic

Both the rationalist and empiricist account of knowledge seems to be one sided, and not wholly adequate. The inadequacy of the rationalist mathematical paradigm was that the necessary truths though certain, did not give any substantial information which can be useful. Truths of this kind are formal, necessary, but empty. On the other hand, empirical generalisations are useful and substantial but not necessarily true. They are contingent propositions. They are true only in so far as there is evidence to support them, and there is always the possibility that fresh evidence may show them to be false. The empirical propositions give substantial information about the world, but they are never logically certain or necessarily true. Propositions in mathematics and logic are necessarily true but give no substantial information about the world. This dilemma tends to produce considerable intellectual discomfort. If taken strictly we cannot claim to have knowledge of the world, which is certain or necessarily true. But the fact remains that we have an inescapable conviction that there is a kind of necessity inherent in the world, that what happens in it has something more than a mere contingency. Our regular and uniform experiences lead us to expect events to occur as they do. We expect that causes will have the effects they do have, and objects will behave as they normally do. From this we conclude that there is a necessity in what happens.

Kant argued that in experiencing the world, we necessarily do so under certain conditions. We can experience the world as we do on the assumption that the world is a causal system operating in space and time. Kant holds that we can only experience the world under certain forms and categories of mind which structure our experience and give it a framework of necessity. Kant holds structuring of our experience to be a logical pre-requisite of our knowing or even experiencing at all.

13.3.4 Concept of Knowing

So far we have tried to understand knowledge in general terms. In this section, we would like to attempt an analysis of the concept of knowledge as such, that is, what are the conditions of knowledge, and what justification is required to substantiate a claim that something is known. These two questions, of analysis and justification of knowledge, are closely bound up together. Let us begin by attempting the analysis.

The word "to know" is a verb, but this verb is not of the same kind as "to run", to write, to read etc. I can appropriately say, "I am busy writing or reading" but it would not be appropriate to say "I am busy knowing". Knowing, in fact, is not

the name of an activity or a process as running, reading or writing is. It is better to think of it as what Ryle (1963) in his "The concept of Mind" calls an "achievement" word – To know that P is the case, is to claim to have had a success, it is to be in a certain position in respect of P. Roughly, to have known something is to guarantee the truth of the proposition concerned.

13.3.5 Conditions of Knowledge

Now an important question arises. What conditions have to be fulfilled or satisfied before anyone can properly be said to have known something? The first requirement is that the proposition P must be true as a matter of fact. Unless P is really true, no one can justifiably claim to know that if it is so. The next requirement is that the person making the claim must be sure that P is true. It would be odd to say that P is true though I am not sure about it. And the third condition is that person making the claim must be able to cite evidence of the right kind in of support his claim. In the lack of evidence, it would only be called a belief, rather than knowledge. So these three conditions that P must be true, that the claimant must be sure and have evidence to support the claim constitute the analysis of the concept of knowing.

Two points of philosophical interest need to be considered at this juncture which arise out of this analysis. The first is that though 'knowing' is not the name of an activity neither is it 'performance', but to test knowing, to test whether one 'knows' or not, we need to apply behavioural criteria. For example, to test whether the child knows "multiplication" with 'carry over' in arithmetic or whether he knows the laws of gravitation in physics, we have to get him to do something. If he correctly solves sums which involve 'carry over' or explains the laws of gravitation in writing or verbally, we would say that he knows. The second point is that the concept of knowledge is closely bound up with the concept of truth. A justified claim to truth entails the truth of the proposition known. A philosopher of education will, therefore, be concerned with the meaning of the truth or falsity of the proposition. He will ask: what does it mean when we assert that a given proposition/statement 'P' is true?

13.3.6 Knowing that, 'Knowing How', 'Believing' and Understanding

In the section above, the concept of knowing has been discussed in terms of what may be called a propositional or theoretical knowledge – that something is the case. But there is, however, another kind of knowledge in terms of "how to do something". For example, 'I know how to swim or drive a car; how to solve a problem, how to speak German, to play violin'. To know how to do something, to be adept or skilled in something, is to give an appropriate performance. It is just possible that someone may have a particular skill, and yet he is unable to say much about how he performs, and vice-versa. That is, one may be able to speak a lot about how to play hockey but in fact, he may not be a good player at all. It is not very easy to make true statements about how one balance a bicycle or how one is able to swim even if one knows very well how to do either. So the 'knowing how', type of knowledge is distinct from "knowing that" type.

But there is another concept "believing" which is associated concept of knowledge but still different from the other two discussed above. We may believe that

something is the case but we never believe 'how'? Like knowing, believing also is not an activity. To believe is to take up a certain position in respect of a proposition. It is to accept the proposition as true. To believe that P is the case is to accept that P is true; but it, however, does not mean that one guarantees the truth of P. We may believe P when P, in fact, is not true. Believing does not require any evidence for our position. Still, there is another concept closely linked with knowing but which cannot be simply equated with it, the concept of 'understanding'. A child might learn mechanically the Pythagoras theorem and state the formula $a^2 + b^2 = c^2$ and yet have no grasp of the implication of this truth. To understand what is involved in it would require an ability to put this information in some use; be able, for example, to calculate the height of a building by measuring the length of the steps and the distance between the building and the steps.

Understanding entails knowledge, but it also involves our being able to use this knowledge. It is a special sort of knowing, knowing how to go on.

Check Your Progress 1

Notes : a) Write your answers in the space given below.

b) Compare your answer with those given at the end of the Unit.

- 1) Explain the nature of apriori and aposteriori propositions giving examples in each case.

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- 2) Explain with examples, the concept of synthetic-apriori propositions.

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13.4 MEANING AND THEORIES OF TRUTH

13.4.1 Meaning of Truth

In order to explicate the meaning of truth of given propositions or statements let us start making certain propositions.

- 1) The first battle of Panipat was fought in the year 1526.
- 2) Milk contains Bacteria.
- 3) By 2020, India will attain the status of a developed country.
- 4) The sum of the three angles of a triangle is always equal to 180° , irrespective of the size or shape of the triangle.

- 5) A coronation is the act or a ceremony of investing a sovereign with the royal crown.
- 6) The electrical current flowing through a conductor is proportional to difference of electric pressure between its ends.
- 7) You should do unto others as you would have them do unto you.

We can mark each of these statements true because we believe each conveys an accurate impression of some particular state of affairs. But why do we consider them to be true?

We believe statement No.1 to be true because we have read about the battle of Panipat in our textbooks and the year given there is 1526, without any controversy. We have no grounds to doubt the statement given in the textbooks. We consider the textbook as an authoritative document. We feel sure about it inspite of the fact that we lack personal acquaintance with the evidence.

If we examine statement No.2, we observe that although the truth of this statement also rests on empirical evidence, yet its criterion of truth is different from that of statement No.1. Though it is a factual statement like statement No.1, it can be observed directly in the laboratory. It is empirically verifiable or testable in the sense in which statement No.1 cannot be.

The statement No.3 expresses only a reasonable belief based on careful observations of the rate of developmental trends in India at present. Though it refers to the future state of affairs, it is empirical in character. This like other statements of the present tense, is a factual assertion on the ground that its truth or falsity can be determined, in principle, by empirical observation of the trend of development.

Let us now examine the nature of statement No.4. In some respects it may appear to be similar to statement No.2 in that both may be found in textbooks and the truth of both may be demonstrated in the laboratory or classroom. But while the truth of statement No.2 can be shown or demonstrated empirically, that of statement No.4 need not be so found out. It can be proved logically only from definitions, axioms, and postulates of geometry, because such things as points, lines, triangles etc. are only conceptual entities. They can be represented but are never actually presented. Such statements may, therefore, be said to be *formally* true, and they are not like the first three statements which are *factually* true.

In statement No.5, one can find an interesting combination of formal and factual truth. Such definitions are empirical generalisations about *usage*. Therefore, in this sense such definitions are factual assertions. But on the other hand, since such definitions describe a relation of meanings, so to that extent, or in that sense, they convey only a formal truth. Such a generalisation is not empirically verifiable in the sense in which factual assertions like the first three statements here can be verified or on empirical grounds one cannot show them to be untrue. However, such statements may fall into disuse in future.

So with regard to meanings of truth, we have thus far, found out two distinct senses in which truth can be ascertained: the **formal meaning** and the **factual meaning**. Formal truth refers to an assertion which conveys a correct impression

about a relation of meanings some given arrangement or scheme of ideas, such as mathematical, logical or syntactical system. The factual truth, on the other hand, refers to an assertion which conveys a correct impression about some existential state of affairs - affairs that exist, existed or may exist in a space-time matrix. In other words we can say that factual assertions are about actual entities or conditions rather than a relation of meaning.

Statement No. 6 raises questions about the status of such scientific entities as "*electrical currents*" and "*pressures*" and applied mathematical relations such as propositions. What does it mean to say that a scientific law is a true assertion? Is it factually true, or formally true? Or is there some third meaning of truth that should be distinguished from formal and factual meanings of truth. In order to answer this question we must first consider the nature of scientific theory and their relations to laws.

A scientific law, as we all know, is an assertion of an invariable association of independently defined variables. But a historical view of the development of science, shows that what is thought to be invariant, and, hence a law at one stage of development of science may turn out to be too gross a generalisation. Grouping and naming or ordering things on the basis of similarities is a fundamental characteristic of human thought. Such similarities are not necessarily *perceptual*, that can be seen or observed; they are rather conceptual. Grouping in science, therefore, is a conceptual activity not a perceptual one. Newton's law conceived a likeness in the fall of the apple and the movement of the moon around the earth. This likeness was something that no one had seen or perceived.

Then the concepts that we use in science are only *theoretical constructs*, such as electrical pressure, molecules, atomic weight, valence etc. Science is basically empirical with its theoretical superstructure standing or falling in terms of degree of confirmation that may be discovered through empirical, experimental procedures. But such a conclusion as a scientific law is, we all know, an assertion of invariable association of independently defined variables. For example, the law of gravitation states that "every body in this universe attracts every other body which a force with is directly proportional to the product of their masses and inversely proportional to square of the distance between them". Under the system of definitions of the variables involved in this or any other law, which, by its notion, has a universal applicability, the truth is demonstrable by anybody who is capable of doing so. The law has a form, (for it can be expressed in the form of a formula using symbols) and in some way the "form" of scientific law is similar to that of the logical or mathematical assertion which as we have stated, is formally true. Reflection tells that scientific law has always been a fact even before somebody knew it. But if we reflect upon the nature of any other factual assertion, obviously either it was a fact at some point in time, or it is a fact now, or it may turn out to be a fact in future (statements one through three). So a scientific law is different from the factual assertions we have stated above. So it is not proper to put them under the heading 'factual truth'. But on the other hand such laws are not exactly similar to the assertions of mathematics or of logic: if A is greater than B, and B is greater than C, then A is greater than C. Such logical propositions are true simply on the basis of the language they are expressed in. Similar is the case with mathematical assertions like $y(x + z) = yx + yz$. To verify their truth or falsity we need not go beyond what is given, and use no empirical apparatus to verify them,

except reasoning. It turns out that, although a law that is established empirically does enjoy a certain independence from any particular theory that explains it, it is not independent of all *ideational* structuring. At least the terms employed in stating the laws are a part of some common sense pattern of meaning. Epistemologically speaking, the notion that such laws are “experimentally meaningful and verifiable more or less in isolation” is misleading. In fact, any law or any factual assertion appears to be meaningful only when it is seen as a part of, or is explained by, some theory that is accepted as true. If some such law appears to be independent of some theory, they are only common sense statements of assertions.

Statement No.7, which concerns itself with what is called a moral truth, is, according to Smith (1965), still more involved and complicated. He holds that such statements perhaps do not convey formal truth. Perhaps they are non-cognitive and thus neither true nor false. They are exhortations.

13.4.2 Test of Truth

So eventually we can distinguish at least three types of truth, which have a cognitive content – *the factual truth*, *the formal truth* and *the empirical truth*. A fact is existential in character. It may be defined as an incident that has occurred or may occur. “New Delhi is the capital of India”, is a fact. But even tomorrow, it may not remain a fact. Similarly, it may be a fact that India will be considered in the category of developed countries by 2020. This is a prediction based on a clear-cut observation of the development trend as it is observed in India today. Today, it is a fact; tomorrow it may not be so. It is based on an inference resulting from the present trend of development. All generalisations based on such trends relating to science or social sciences are contingent. There is no necessity in them; for they relate only to the probable state of affairs. So such generalisations are related to the pragmatic theory of truth. The factual truth should be tested against the correspondence theory of truth and the formal truth and truths relating to scientific laws should be tested against *coherence* or the consistency theory of truth. The empirical truth should, however, be tested against the pragmatic theory or what is called the workability principal: that is, truth is what works.

13.4.3 Theories of Truth

Just now we have talked about the meaning of truth in the context of knowledge, and seen that there can be a number of propositions, which need different criteria or conditions before they can be said to be true. At least there are three distinct meanings of truth – *the formal truth*, *the factual truth* and *the empirical truth*. Having thus determined the meaning of truth, we need some yardstick by which to judge whether the knowledge in the curriculum that the child acquired is really true. We must know whether truth is a matter of external or internal relations.

Correspondence Theory of Truth

Just as there are different types of truth so there are different criteria to judge whether a statement describing some state of affairs is really true or not. Seemingly, selecting a criterion on truth should be an easy task. On the face of it, we can compare any information, fact or opinion with reality. If it squares with reality, it is true, if it doesn't, it is not true. The philosophers of education have called this the

'correspondence' theory of truth. That is, for any knowledge to be true it must correspond with reality. Obviously, such a theory derives its essence or sustenance from 'realism' the school of thought according to which there is an objective, pre-existent world which is eternal or permanent rather than temporal; it is unchangeable. If there appears any change, or confusion to the learning of it occurs due to human error in knowing or understanding reality.

The correspondence theory says that for knowledge to be true it must square with reality. But the question is: what we call reality, and with which we require the correspondence of any information, fact or opinion, a non-changeable entity. What is true today may not be true tomorrow. Or is there anything like permanent truth for which we can see its correspondence at any time? The young child comes to school with this conception of reality. Truth for him/her is that which really is 'out there'. On this basis, many of us also try to understand the difference between the imaginative story and a true or real story. Indeed, what we discussed as factual truth is so testable. We can for example verify from authentic sources whether the first battle of Panipat was fought in 1526 or not.

Consistency or Coherence Theory of Truth

Let us now consider the nature of the truths of mathematics and logic. For finding the truth of such propositions it does not make any sense to think that there is an external reality with which the given proposition can be seen to tally or not. For testing the truth of the propositions of mathematics and logic, we need a logical or formal proof. That is, a proof which is free from any kind of contradiction or logical fallacy. Of such a solution of problem we say that it should be from any kind of inconsistency or incoherence. Or, in other words we say that the proposition or its proof (solution) should be internally consistent or coherent. Consistency or coherence is the second theory of truth.

Not only is this theory applicable for determining the truth of logical or mathematical problems, we also apply consistency theory in the case of empirical propositions. The very nature of human perception, of knowing, reveals that it is always refracted through the prism of the human mind. What one knows is not the photographic impression of what exists 'out there'. The process of knowing entails the possibility of human error. Second, by our perceptions are based on our past experience. We judge something in the light of what we already have in the form of past experience. Then how can we be sure that our ideas or impressions really correspond to actuality? Successive impressions, writes Brubachar (1969), "with the same object often lead to widely different reactions. Moreover, our ideas or impression of reality frequently do not correspond to those of others". How can we know? For example, we do experiments in natural sciences or in social sciences and repeat those experiments at different times or with different samples of population with a view to obtain a consistent view of the state of affairs. And still we are not sure that it is a true impression of the real state of affairs. To be more sure, we compare it with the findings of other investigators who have worked on this issue. Obviously, the criterion of truth is more than mere correspondence to reality. In fact, the difficulty in such situations is of objectivity and reliability of our perceptions. Because not all reality is directly perceptible, correspondence to naked reality is a difficult task because of the error of human perception. Hence, the best possible way to reach truth is to see the consistency between our ideas and impressions about reality and ideas or impressions of others.

Those who are engaged in educational research or educational measurement use consistency or coherence rather than correspondence as the test of truth. They are in fact, in search of reliability and objectivity. We consider test results to be *reliable* if successive measurements of a single investigator tend to be consistent with each other. And the results are *objective* if they are consistent with the measurements of other investigators operating under the same experimental conditions.

There is, however, an important point to be made. Perhaps the consistency theory is not to take the place of correspondence theory. The two views are not opposed to each other but rather they are supplementary to each other. The correspondence theory is, as a matter of fact, a statement of the *meaning of truth*. That is, to be true, it must correspond with reality or it should be a correct impression of the state of affairs. But how do we know whether something is correct impression? And for that we apply consistency as the test of truth. Coherence or consistency theory is a statement of the *test of truth*. Both point to an external objective reality. The advocates of consistency theory, however, do not believe to come face to face with naked reality; rather they tend to define the objectivity of our knowledge in human terms.

Pragmatic Theory of Truth

As against the realists who believe in the correspondence theory of truth, and the idealists who support the consistency or coherence theory of truth, there is another group of educational philosophers, the pragmatists – also known as instrumentalists or experimentalists, who express their dissatisfaction with either of those theories of truth. Instead of trying to gain truth by attacking reality frontally, as in the case of correspondence theory, or from the flank, as in the case of consistency theory, they propose to test the truth of ideas (opinions, facts, theories or what you have) by inquiring what would be the practical consequences of acting on them. (Brubacher, 1969; p. 165). According to them, ideas by themselves are neither true nor false. In fact, we work on ideas or apply them in practice to further the process of education, to achieve educational goals and objectives, to clear some ambiguity or confusion which has occurred and obstructed the educational process. If the idea works to do what is intended to do, it is true, otherwise it is false, notwithstanding the fact that the idea is quite consistent and coherent. For example, to solve a problem that we really face in education, we reflect upon it and as a result of reflection we come out with certain probable solutions (hypotheses). We then verify these hypotheses one by one and see which of these really work. So the pragmatist says “*truth is what works*”. Truth according to them is never perfecting, unchangeable but always in the making. It is never eternal in the sense that it is found true in all sets of circumstances. Even if it works in one set of circumstances it may not work in a different circumstance. It is perhaps relative and hence dependent on spatio-temporal contexts. One can see a parallel between the pragmatist’s theory of Truth and the *Syadvada* of Jainism in Indian philosophy which claims that all reality is relative.

13.4.4 Criticism of Pragmatic Theory

But there is a criticism of the pragmatist’s position which implies that they have put the cart before the horse. They question, ‘why does some educational theory work? Is it an arbitrary educational happening? Or is there some inherent quality

or interconnection of the factors at work, which makes them work. If there is some interconnection of the factors then it is logical to hold that the theories are true not because they 'work', but conversely, they work because they are true. If we believe in a reality which is "complete", then the conditions of truth are already pre-existent so that naturally any hypothesis would work because it is already true. But on the other hand, we hold the metaphysical position that the world we live in is a constantly changing one, and there are genuine novelties still emerging, then some conditions of truth are yet to be determined by the way man's decisions work out. Then the pragmatist is right and he has the cart and the horse in the right order. So accordingly, truth is not a fixed star in the educational firmament. Advocates of this view believe in the experimental method to ascertain the truth in a given situation.

In the earlier section of this unit we have clearly talked about different types of truths and different propositions or statements that correspond to those truth types. By way of determining the truth of those propositions mentioned earlier, we can hopefully apply all the three theories. Each of these theories is applicable to specific statements: correspondence theory is most suited to factual statements. Consistency theory, however, is applicable to statements of the formal type and to the empirical statements involving human judgement which entail reliability and objectivity for being true, and for which we can suppose that there is more or less a stable entity which is not directly perceptible but requires some theoretical constructs to explain it. The empirical researches in science are of this type; and hence, they require the consistency theory of truth. Then there are a number of practical problems related to human living and daily life. Problems, especially related to social science and education problems appear before us as projects which demand immediate solution. Their solution is further seen as related to the well being of the pupil as well as of the society. The *workability* principle, in fact, is not suited to finding out the truth of such problems. Since such problems are context dependent, we should find our solutions which work in that context. The generalisation of psychology, sociology, education etc. (of sciences related to human behaviour) cannot be said to universally true. We should, therefore, act on those generalisations so far as they work (but they may not work too far) and should be ready for experimenting another hypothesis if we feel that some particular hypothesis which we have thus far been working, fails to work in the changed situation.

Check Your Progress 2

Notes : a) Write your answers in the space given below.

b) Compare your answer with those given at the end of the Unit.

3) What are three types of truths of knowledge? Exemplify each type.

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- 4) How can you prove that the correspondence theory and the consistency theory are supplementary to each other?

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- 5) On what philosophical position is correspondence theory of truth based?

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13.5 THE KNOWLEDGE-GETTING PROCESS

Having thus understood the nature of knowledge and the theories of truth about knowledge, the question arises: How do we get knowledge? That is, how do children come to know of the external reality or, how do they construct knowledge? There are several approaches to such a process, which are based on assumptions regarding the nature of mind.

13.5.1 Mind as *Tabula Rasa*

The first approach is the empiricist, especially as propounded by John Locke, who is one of the founder philosophers of empiricism. He assumes that the human mind is like a *tabula rasa*, a clean slate or a blank tablet on which anything can be imprinted. According to this approach we learn by contact with the physical world or with spoken or written ideas of other people. These ideas/impressions come from without. There seems to be an organised external environment "out there" which impresses itself on us and leads to the organisation of ideas "in-here". When this assumption is made that ideas come only from our experience, the child's mind is treated as a clean slate to be written upon or an empty vessel into which knowledge must be poured. In this approach, it is assumed that there are mental mechanisms, which function as present day *video tape recorders* and provide reasonably faithful copies of events occurring out there. The clean slate approach leads to a reliance on teacher-structured experiences as the major road to knowledge. It also assumes that students are passive receivers who need to be externally motivated in order to become involved in learning.

13.5.2 Mind as a Flowering Seed

The second approach to the knowledge – getting process is based on the naïve assumption that, unlike the empiricists' paradigm, the mind is already endowed

with potentiality which through education can be converted into actuality. The adherents of this view, which was initially propounded by Froebel, emphasise the role of motivation in intellectual growth. They give the analogy of the mind with a flowering seed or a growing plant. According to this approach the teacher is like a gardener who must feed and water the plants and should stand back allowing the plants to grow. The gardener has no influence on the kind of flower that will emerge, and this is determined by the nature of the seed. While ideas may arise in experience (external), the educators contend that active, curious children can be entrusted to make sense of the world on their own (i.e. both motivation and the ability to organise are internal). In this view the students play the most active role in learning. The teacher's role is merely to provide an environment in which students follow their intellectual pursuits with as few restrictions as possible.

Of the two approaches to the knowledge getting process, the clean slate approach considers the external reality more important. What organises the knowledge in the external world and the status of knowledge is only a copy of what exists out there. In the flowering seed approach, on the other hand, the sources of organisation of knowledge are internal to the individual and the nature of knowledge is not a copy of what is out there but an invention.

13.5.3 Genetic Epistemology of Piaget

According to Piaget, a celebrated psychologist-cum-philosopher, the organisation of knowledge arises in the interaction between structured characteristics of the environment and the active imposition of order by the child. We can say that in this interaction, one factor can never be evaluated without knowing the other. It is not possible to account for a particular cognitive organisation without specifying particular environmental conditions. And it is not possible to assess the impact of any environmental event without knowing something about the child's intellectual organisation. Intelligence, metaphorically, acts a generator which transforms the raw material (input) into usable power. In this approach children are treated as interactive-generator-transformers. The source of organisation is *interaction* and the nature of knowledge is *construction*. So Piaget's approach is a synthesis of the 'clean slate' and 'flowering seed' approaches and is based on the principle used by organismic i.e. biologists, to explain how living beings interact with their physical environment.

Check Your Progress 3

Notes : a) Write your answers in the space given below.

b) Compare your answer with those given at the end of the Unit.

- 6) "Piagets' approach to the knowledge getting process is a synthesis of the clean slate approach and the flowering seed approach". Justify the statement.

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- 7) Explain the phrase “mind as tabula rasa”.

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13.6 GENERATION OF KNOWLEDGE

One of the central and necessary functions of education is concerned with acquisition, generation and transmission of knowledge. However, it does not imply that knowledge is transmitted or gained only through education. The concept “education” is used in many different senses and we may say that education has different nuances of meaning. Here in this context it is being referred to in a particular sense. For this purpose we are specifically referring to the way Kevin Harris (1979) defines education. According to him, “education in a particular sense refers to a particular process or group of processes, that are manifested in the deliberate provision, by socially approved institutions, or sets of learning experiences that are not narrowly confined either to restricted vocational ends or to the development of singular skills. It includes the provision of learning experiences or the transmission of knowledge as it occurs in places like schools, universities, technical colleges and the like.”

Since education’s central concern is transmission of knowledge, it must aim at helping people gain knowledge of the world. Taken in this sense, it encompasses three particular functions: (i) it selects, from the infinite body of knowledge, packages that are thought to be particularly worth knowing, (ii) it provides the means and resources, whereby those things can be approached and known, and (iii) it applies pedagogical expertise in an attempt to ensure that these things are learnt and known.

In transmitting knowledge and methodology for gaining knowledge, education should, however, introduce us to establish truths and facts about the world and does so in a neutral and objective way. But the question is: does education or knowledge really enable us to know the world in an objective and neutral way? Knowing the world is, in fact, not a matter of learning or coming into possession of a set of facts and truths about the world. The fact remains that we do not know the world as it exists ‘out there’ but we rather perceive it in particular ways, from particular *perspectives* and from particular *view points*, which are largely determined by our interactions with the world in a particular spatio-temporal and social context. So the knowledge we gain is not a true representation of the reality as it is out there. In the process of knowing the world, we distort or misrepresent or structure it, or mirror it through our own mental apparatuses.

In the section below, an attempt is made to understand as to how we know and interpret the world ‘out there’, especially using an empiricist inductivist approach. More specifically, at this junction we are concerned with two basic issues: One, how we can know or come to know the world, and two, the role that education plays in providing and structuring our knowledge of the external world.

13.6.1 Knowing and Interpreting the World

If we just happen to reflect on the knowledge-getting process, it is tacitly known that knowing the world or coming to know the world involve a '*subject*' – the knowing agent, and the '*object*' to be known. But a more difficult question is to find the relationship between the subject and the object. The history of thought reveals that some thinkers tended to attribute meaning and significance to the subject, and others to the object. The classical idealists, for example, tended to obliterate the real world of objects and suggested that real knowledge can be acquired by contemplation and/or reason. This tradition in Western philosophy can be found in varying forms in the works of Plato, Leibnitz, Kant and its most extreme expression in the works of Berkeley. Berkeley held that a thing is because it is being perceived: *Esse est percipi* (essence of a thing lies in its being perceived). On the other extreme of the classical idealists' position are thinkers like Bergson and some other extreme materialists who take knowledge to be a process or a product without a subject.

But to common sense neither of these positions is tenable. We can neither deny the existence of the world to be known, nor the mind that knows it. World and men do not exist apart from each other. They exist in constant interaction. "People" according to Freire, "exist in the real world and they are conscious in and of the real world. The world is a context for existing and for knowing. This recognition has been interpreted as the empiricist tradition. Let us understand this tradition in more detail for understanding the world.

13.6.2 The Empiricist – Inductivist Model

Knowledge generation from an empiricist-inductivist framework has been described as "the diligent gathering of facts and then drawing out of generalities". The empiricist observes phenomena, collects information about it and then infers from the information so collected certain general principles about the occurrence of the phenomena or about the relationship between the various parts. For example, he decides to see the effect of heat on metal bars. He heats a number of metal bars made of different metals under varying conditions. After tabulating the data he finds that in all cases the metal bars expanded when heated. He then concludes that all metal bars will expand when heated. This is an empirical generalisation reached inductively.

Let us now further analyse the nature of such inductive generalisations and note a few points with regard to the inductivist's logic and the conclusions that are generated by it.

One of the problems concerning inductively derived conclusions is that they are not *logically certain*, nor are they *empirically binding*. If, for example, I observe 1000 cases of heating metal bars, and find that they all expanded on heating, it does logically preclude there being a metal bar that will not expand when heated. The inductivists, therefore, look at the whole issue in terms of probability. If something is found to occur a few times, then we have little assurance that we will hit on a general rule or law. But if that thing is found to occur over and over again, then surely that is a different matter and each additional confirmed instance at least increases the probability that a universal generalisation exists. However, Popper (1974) says that this may not be the case. He argues

that if the population or 'set' from which to draw findings is infinite, the probability concerning any finite set of findings is always zero. This part of the argument may not satisfy people, who see real significance in things continually being found to be the case by inductive methods. The argument given by these people who support inductivism is that we can infer something from a vast number of preceding supporting instances. But the problem is to determine precisely how many supporting instances shall count as sufficient; and that decision must always be arbitrary. Yet, regardless of philosophic moves about its credibility, inductivism still works. The complete development and expansion of sciences, whether physical, biological or others, is based on inductivism; and today almost all of us have a naïve faith in what is scientifically reached, or produced, or tested. This faith in inductivism arises, because it appears that every time we use inductivism, it works.

The apparent merit of inductivism is that it calls out from generalisations from a number of particular instances. But the major problem with it is that it neither proves these generalisations to be true nor establishes high probability levels of their being true. Such inductive generalisations as 'frustration leads to aggression, and students who do well at school level, will do well at university level pose greater problems.

13.6.3 Theory and Concepts Precede Investigation

According to Kevin (1979) theory and practice of empiricism – inductivism requires that an observer, investigator or researcher goes out into the world, to observe, collect and record data or facts objectively, that is, non-selectively, and with no apriori ideas about their relative importance to him. He must then analyse what he has observed and recorded. From this analysis, he is then to draw out relationships and generalisations from among the facts he has collected.

But the fact remains that one cannot investigate an object without first having a concept of that object or a theory about that object. The concept one has of the object will quite basically influence the methodology one employs in approaching and investigating the object. Let us further consider this point.

13.6.4 How do Theories and Methodology Affect Investigation?

Often people think that empirical investigation is gaining knowledge of the reality as it exists out there in an objective way. But the question is: can we at all obtain data which is completely theory free and hence, objective. As indicated above there is no data which does not depend on a concept or a theory. Let us take as an example the simplest possible task of counting the number of people in the university playfield at a given particular time. It might be suggested that in such a simple task, all that is required is that an investigator should go down to the university playfield at a given particular time and count the number of people present there. Surely, if a number of investigators are assigned this task of counting, then each of them will come back with the same total, which is equal to the number of people present on the play field at that given particular time. And thus, there will be consensus among all the investigators. Thus one can hold that such simple investigations are theory-free.

But we must not forget that counting the number of people on the playfield requires that we have a concept of the object under consideration, that is a viable notion of what we shall count as a "person" we have no doubt a general notion of what a person is. We have a loose but adequate notion of a person and a general theoretical framework determining what shall count as "persons". In most instances these work well enough, but they do not work well in all instances, or for all people.

The answer to the question what counts as a "person", however, is not so simple. When we go deeper into the question, we encounter many problems. Common areas of debate centre round issues such as whether tiny babies or children count as persons – Mill excluded children from falling under the aegis of his principle of liberty, and virtually all societies deny children some rights and privileges which they afford to fully fledged persons – and whether human beings, who do not, or who no longer function as individual centres of consciousness (the severely mentally defective or those reduced to a state of vegetation by a stroke), for example, still count as persons. Some argue that personhood is not achieved until something like Piaget's stage of "*Formal Operations*" is reached; others talk in terms of physical self-regulation or social self-regulation. Then, is the foetus a person? This question underlies the debate over the matter of abortion. What a person is, is an important question with serious application to the real world. People claim that abortion is wrong because killing a foetus is killing a person.

If we return to the counting of people at the play field, will it be correct to count a pregnant woman present there as two persons? Probably it will not be correct in this situation, even though we admit that the foetus carried by the pregnant woman is a 'person'. In fact, the very concept or theory of what a person is changes for a particular individual according to contingent factors and purposes. The concept of an object might be affected by the task at hand. Here the task is counting people; and the central theoretical issue can now be seen to be not just what shall count as a person, but what shall count as a person with respect to a particular task or situation. Our concepts and theories are rarely universals; it is more the case that they have sufficient flexibility in order to operate or to be operated upon in task specific-ways rather than objectively (which is by no means to suggest that people can wilfully use them any way they want to or define anything in any way they wish).

Now we can see that undertaking a task, gathering data or collecting facts is dependent in the first place on concept and/or theory which may even be specific to the particular task and which in turn affects the methodology employed in undertaking the task. Conversely, the facts or data that are gained emerge out of the particular investigation and all its facets rather than being simply 'given' or being there, they are theory-laden, situationally specific, and methodologically determined or influenced" (Kevin, 1979, p.12).

Beside the fact that specific contingencies and particular theories influence methodology, the motives and purposes also influence methodology.

By now we have exposed some of the hidden difficulties in simple counting of the people on the university play field. It is a task that is theory laden and the methodology used in carrying it out is theory-based; and in each case these are multiple dimensions of influence at work. In the example used, it will be more

correct to say that "X people were found on the play field through the application of theories $T_1 \dots T_n$ and use of methodologies appropriate to them, than to simply say "X people were on the play field".

But in addition to the above dimensions which influence the data collection, there are motives which influence concepts and theory (and, in turn, influence methodology). Let us consider an example which can clarify the application of observer-motive specific concepts, theories and methodologies. Suppose for example, one of the investigators thinks that he is counting the people in order to provide data for a pro-rata grant based on the number of people using the play field. In such a situation he may come up with as high a total as possible. He can easily achieve this without overstepping any acceptable bounds. All he has to do is interpret those fine distinction that are open to debate in a way that serves the purpose. He could set his definitional parameters for which counts as 'people' and 'on the play field as wide as is reasonable'. He can count people sitting or standing on the fence to count as on the field. He would not reject tiny children. Examples can be multiplied.

To avoid these influences and thereby bring more objectivity, there is a growing use of the "blind" or "double blind" in the more rigorous experiments in the behavioural sciences including education, human science and medicine. In these instances the person doing the "ordinary, common place work (giving tests, counting people, measuring responses, administering drugs etc.) has his parameters strictly defined for him; he does not know the hypothesis under test, so does not know why he is doing what he is doing, he might not know who are the subjects and who are the controls, or which capsules are drugs and which are placebos. And in this way it is hoped, greater objectivity will be achieved, which is only another way of admitting that conscious motives and purposes can, through influencing our concepts and theories and with them our methodology, influence the results we obtain from an investigation of the world.

Two objections should now be countered. The first relates to motives, for it might be claimed that if investigators have any motives, other than "diligent collection of facts" and the pursuit of truth, then, of course their findings will be biased. But the problem is how to eliminate them. It is doubtful that such elimination is completely possible in a human context. In most areas of investigations there is sufficient conceptual ambiguity, which renders different interpretation of a situation equally possible. In investigating the world all our biases and specific personal motives are very difficult to remove. As a related point the phenomenon of "*Hawthorne effect*" should not be lost sight of: that is, that the test situation, simply by being a test situation, can alter what is under study. The very test situation itself might yield to the investigator, results that are affected by his investigation. For example, if you are counting the persons in the university playfield, some people might leave the field, if they come to know that they are being counted. Conclusively, we can hold that in any empirical investigation, however, simple it might look, some concepts or theories are involved and it is never completely free from person specific biases.

This recognition leads us towards a problem that is of greater importance in understanding the limitations and weaknesses of empirical methodology in complex areas of research into social and educational issues and social conditions. The social processes, issues and conditions are never just 'there'; their existence in the

present is the result of at least two factors – the historical process that brought them about, and the ongoing practical and theoretical conditions that maintain and reproduce them in the present. Moreover, these social relations and conditions are in a continual state of theoretical reproduction and reconstruction and are never simply given empirically. Empiricism, thus, while focusing on the existing conditions, fails to consider that the social relations and conditions are in a continued state of theoretical reproduction and reconstruction.

In main, the particular aim of the section was merely to demonstrate that investigations and methodologies for investigation are of necessity theory laden, and there is no such thing as non-theoretical knowledge. It means that a fact, a knowledge statement (say, about the number of people at the play field) – is not, a neutral description of what 'is', but rather something that has been established as such by theory and methodology together and which is also vulnerable to the effects of contingencies and motives. This essential theory-ladenness necessarily prevents empiricism from ever reaching the foundations of sure objective knowledge, or from even seeing the world unmediated as a prelude to revealing what it is really like.

But now the question arises, if all investigations are theory-laden, where does our theory come from? The answer to this question is attempted in the section given below:

Check Your Progress 3

Notes : a) Write your answers in the space given below.

b) Compare your answer with those given at the end of the Unit.

- 8) "Inductive generalisations are neither logically certain nor empirically binding?"

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13.6.5 Gaining Data about the World

Briefly stated empiricism claims that we can get true valid knowledge of the world through our senses and further add that this is the only way we can obtain true objective knowledge. The purpose of this section is to focus on the place of sensory experience in gaining knowledge. We do not deny the fact that all knowledge of the world that exists, begins with sensory experience, but we shall show that there are "filtration mechanisms" which operate in such a way that what is *sensed* and what is *known* could be two completely different things. In this discussion, sensation refers to activation of sense organs (sound waves striking the ear drum, retinal stimulation etc.) while perception refers to cerebral interpretation of sensation.

Let us begin at a very basic level. As we live in the world we do not sense things as separate entities, nor do we sense things without some context. From the infinite number of sensations we have at a particular time, we select those which we need or want. According to Kant, we have certain apriori concepts and categories such as time, space, causality, number, quantity, etc. which act as organisers of experience. No experience is possible without the application of these apriori categories of thought. We, as human beings, are born with them. So they are beyond our experience and make any human experience possible. Similarly modern day Kantians like Piaget, theorising from the psychological point of view hold that the growing person learns to impose order on the booming, buzzing confusion (of sensations) that he finds on his entry into the world. It is because of these moulds (the categories) that we find coherence and order in the world.

Let us try to illustrate the operation of selection and filtration. Selection of sensory input is always a deliberate affair and very often a sophisticated affair. When searching a drawer for a missing piece of paper we hardly attend to other odd things, we give more attention to bits of paper that look like the one we seek. Put simply, we rule out or filter what we consider as irrelevant, and attend only to that we believe to be relevant. The element of filtration may be necessarily found almost in all situations, but in specific goal directed situations we necessarily find specific aspects on modes of filtration occurring between what we sense and what we perceive. The most important or most common of these aspects are our knowledge, our preconceptions, our experience, forces like repression and other deluding mechanisms and our linguistic categories. Then there are slightly different but more important factors like prejudice, social pressures and mental sets which act as filters.

How do knowledge, preconceptions and experience act as filters for our perceptions? One example of this effect comes from a popular children's puzzle that involves finding a human face in the foliage in the drawing of a tree. What the subject sees at first is a tree. But once attention is drawn towards finding a face and once the face has been detected, the whole thing looks different. The same shapes that were visually seen as foliage, are now perceived not as foliage but as features of a face. And once the face has been perceived, the same subject, at a later time, can very easily identify it again: his knowledge and experience now allow him to perceive what others, without knowledge and experience are likely to have difficulty in perceiving at all. There can be and are many examples where knowledge and experience influence what one perceives as distinct from what one senses. Sleeping mothers are known to be awakened by the cries of their babies, while others in the same household, do not hear and are not awakened by the cries of the babies, though the cries do strike their eardrums too. It is also well known that people living near railway lines don't get disturbed by the noise of the trains passing during the night whereas occasional guests may have restless nights.

What we see from these examples is that there is a gap between sensing and perceiving, between seeing and noticing. These simple examples are sufficient to undermine any empiricist claim to derive objective knowledge on the basis of sense impressions.

Similarly delusion also affects our perception. Freud notes several forms such as repression, that are sensed but are too difficult for the conscious mind to accept;

and reaction formation, where what is seen can call our response to a totally inverted perception of the case, and regression, where things are perceived not as they 'are' but with a mind which has gone back in time and experience to perceive them in a more comfortable, acceptable way; and projection, where things are perceived at the wrong end of their context, such that what a man sees of himself, he perceives in others; and rationalisation, where things which are deliberately fabricated are presented as if they really relate to the situation at hand. In Freudian theory all these are defense mechanisms. More simply the idea is that each and every individual in his own personal way, depending on his own personal experience defends himself by making personal adaptations to the physical and interpersonal world he lives in and experiences largely through his senses. A significant part of the legacy, Freud left us, is the disturbing notion that each person's world or each person's perception of the world can be regarded as a distortion or a deluded picture marked out by necessary defenses that each normal individual erects between himself and world outside himself. This would further indicate that man, rather than simply reacting to an external given world, interacts with and in a world that he himself partly constructs. We all order the world through filtration of sensory inputs.

In such a situation, it is difficult to say whose perception of the world is nearer to what actually is the case. Some would argue those perceptions as true or real which most people display. That is, the perceptions of the majority can be taken as normal. But certainly the majority viewpoint need not necessarily be the correct one, and history has surely warned us many times of this folly. Galileo is probably the most famous example of a non-conformist who was branded insane in his time and yet was regarded as sane by later generations.

None of these of course, answers the question as to how we can say that one perception is right and another wrong. We shall consider this question after sometime. At this stage we shall consider other features that mediate between sensation and perception.

The next aspect that affects our perception, is the linguistic categories or concepts we have. We can express knowledge statements around and with our conceptual schemes; it appears that our thought and knowledge of the world is formulated and bounded more by our perceptions/conceptualisations than by our sensory experiences. Man might sense many things but he can express only what he perceives. And both perception and the expression of it are together limited by the particular concepts that are available in the situation. If certain people had one concept for those things that shine in the sky at night – "heavenly bodies" – they would presumably see stars, planets, comets and the moon, yet 'perceive' only heavenly bodies. If at some time they come to recognise that some of these bodies shine of their own accord, while others only reflect light, a situation would have arisen in which they would be able to 'perceive' stars as different from planets. It is in this way that *knowledge can be seen to be the product of sensory experience filtered through conceptual schemes*. This, however, does not mean that conceptual schemes necessarily describe the world as it is; nor does it imply that a conceptual scheme necessarily mirrors or reveals our knowledge of the world.

Let us now discuss some other factors which filter our knowledge of the external world. These are *prejudice, social pressures* and *mental sets*.

If we consider prejudice in its non-derogatory sense it simply means prejudging. And when we have a true judgement of something, it is nothing but knowledge, experience and pre-conceptions all taken together. When prejudice acts as a filter, it brings about selective observation from a multitude of sensation. That is, I see what I want to see.

In an experiment two groups of subjects were given the photograph of a girl and a checklist of personality traits. The only difference, however, in the two groups was that one group was told that the girl in the picture is a "Jewish" girl. This group then found the expected stereotyped Jewish traits whereas the other group could not find such traits. Other than this the two groups were exactly similar in their observation. This sort of prejudicial response is, of course, quite familiar to all of us. 'We find what we believe' is a prejudice in its selective noticing sense. If we believe that a particular class is a dumb class, we find many things they do. If we believe a particular caste to be expedient, we find many acts of expediency in people belonging to that caste or community. In essence, from the examples given above regarding the notion of prejudice two points can be taken: (i) prejudice enables us to perceive more than we see, and (ii) it is instrumental in producing selective noticing.

Social pressure like prejudice influences our knowledge of the world. It is commonly observed that certain people tend to go along with the majority and to accept things that are generally agreed on, or that are supported by famous authorities. Social pressure also affects our perception. In some experiments subjects were shown lines and were asked to make judgements about their relative length. But they were also shown what they believed to be the choices that several of their peers had already made. When there was only a small difference between the lines, the subjects tended to deny what they saw and side with the majority.

The last filtration device is the mental set which influence our perception. They account for the proof reading phenomenon whereby a person reading a page for its sense ignores spelling error. Another reading a page for spelling, ignores whether a sentence, is sensible or meaningless.

The purpose of this section has been to argue against a strict empiricist view of gaining knowledge of the world by indicating these filtration mechanisms that operate between our sensation of the world and our perception or knowledge of the world.

Empiricism thus is a closed system, and as such, it necessarily defines the real world according to its theoretical means and confines the real world within the parameters in which its methodological tools can operate. And since the empiricist's basic tool is observation, empiricism simply cannot pick out which is not observable and the real world becomes reduced to that which is observable. What happens then to those things that are not observable such as ethical principles, aesthetic judgements or theological premises? Such things cannot be said not to exist in the world. But the logical positivism which is the philosophical backbone of empiricism removes them from the realm of knowledge and places them in the categories of belief or opinion. According to empiricism or logical positivism they are not admitted into the real world that can be known.

There are other non-observable things like the unconscious of Freud, 'class' concept of Marx and nature of structures and the operation of forces in social relations. All such things are easily dismissed by empiricists. Such are the weaknesses and limitations of empiricism.

At this stage we need to build up a more satisfactory account of how we can come to know the world.

13.6.6 Ordering Data About the World

In the section discussed above we

Suggested that perception of any situation is essentially characterised by selective noticing or filtration. This process is influenced substantially by our prior knowledge, our concepts, our preconceptions, our prejudices, our experience and mental sets etc. These things determine what to look for, what to notice, how to look and how to categorise what we find.

Given this notion, it appears quite inappropriate to speak of a world of given "facts" out there waiting to be known by people. It seems more the case that we select particular "facts" out of an infinite multitude, and order and categorise what we select in terms of our particular theoretic matrix. Facts are never in pure form; they are, the way we perceive them. It is the individual's theoretic matrix which constitutes "facts" as facts. The individual gives meaning to them. This meaning depends on the individual's prior experience and the interaction with the world. Thus, we can see that gaining knowledge of the world is a process determined by the knowledge one has already gained of the world and the adaptations one has made to the world. Second, "gaining knowledge of the world is also determined or at least limited by what is available" or what one has access to out of the things that are 'there'. (Neolithic man could not get access to the round earth even though the round earth was true). It appears then that an individual's theoretic matrix or his way of coming to know the world is a product of the past and ongoing interaction with the world. But this interaction is within a very specific historical and social context. Facts, events, instances and data can be selected for attention simultaneously from a great number of theories, and can be seen to be significant in terms of many theoretic frameworks.

To further illustrate it let us consider the phenomenon of moon illusion, i.e. that the rising full moon appears to be larger than the full moon in the centre of the sky. This illusion can be understood by the theory that humans are subject to optical illusion; by the theory that light close to large objects refracts; by the theory that human nervous system, faced with constant size retinal image form, infers that the moon is farther away at the horizon, and so relays a judgement of greater size, and so on.

Now the question arises that if the instances or phenomena can be grasped by many different theories (even competing and conflicting ones) and so interpreted in many different ways, on what ground can we judge any particular interpretation to be the best or correct one? One simple answer to this question is that the best interpretation of any phenomenon is that which is given by the best available theory.

Check Your Progress 5

Notes : a) Write your answers in the space given below.

b) Compare your answer with those given at the end of the Unit.

- 9) What is the process of filtration and selection of experience?

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- 10) List the different filters that give shape to human perception and experience.

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13.7 LET US SUM UP

This unit has been developed in order to get clarity about three questions which underlie the concept of knowledge. These questions are: (i) What is that which can be known? That is, what is knowledge about? (ii) What does it mean to say that one knows something? (iii) How can one know what one knows is true. With regard to question 1, we have, starting with Plato to the modern thinkers, logical positivist, tried to discuss, though briefly the rationalist and the empiricist approach to knowledge. According to rationalists true knowledge is knowledge of form or ideas (Plato), such knowledge does not depend upon our experience, rather can be derived from self-evident principles or assumption/axioms. Propositions of this type are apriori proposition and are essentially true. Mathematics and logic are the paradigm of this type of knowledge. There is another type of knowledge which is obtained through sense experience. This knowledge is about the world of objects or of phenomenon which is never certain but contingent, useful and predictable. This model is given by empiricists such as Locke. They take science as paradigm of such knowledge which they call as *aposteriori*, based on human experience.

To answer question (ii) an analysis of the concept of "knowing" was made. Three conditions which guarantee the truth of any proposition "P" has been traced. Fulfilling these three conditions regarding "P" would mean that the claim to 'know' something is justified. These conditions are: (i) That 'P' must be true as a matter of fact, (ii) That the person making the claim that 'P' is true must be sure that 'P' is so, and (iii) that the person making the claim must produce evidence that 'P' is so. Regarding testing of whether one really knows, the only criterion that can ascertain its truth or falsity is the behavioral criterion, inspite of the fact that "knowing" as a verb is not an activity like reading or writing, neither is it a performance. Further, "knowing" is described as of two types "*knowing that*" and "*Knowing how*"; that is propositional and skilled related knowledge respectively.

Regarding the third question, we have tried to briefly mention the meaning and theories of truth. Corresponding to the three meanings of truth – the factual truth, the formal truth, and the empirical truth, the three classical theories of truth have been explained. These theories are (i) correspondence theory (ii) consistency or coherence theory and (iii) the pragmatic theory. Then an attempt has been made to briefly mention the knowledge getting process. To answer the question, how do we get the knowledge of the world “out there”, the two classical theories – (i) the clean state approach and (ii) flowering seed approach have been very briefly indicated.

Having discussed these philosophical issues regarding knowledge, the important question of knowledge generation was taken up. In this section, an attempt was made to understand as how we know and interpret the external world which exist, out there. More specifically two questions have been discussed: (i) How can we know or come to know the world (ii) The role that education plays in structuring and ordering our knowledge of the world. To delineate these points the empiricist-inductivist model has been discussed and explained with a purpose to show that observation and perception which are the main tools of empiricism, fail to provide us with an objective knowledge of the reality as it exists out there. The human perception, by its very nature, depends upon a number of factors which are essentially subjective and act as filtration mechanisms. Our perception depends upon our prior knowledge, preconceptions, prejudices, social pressures, experience, and our mental set. In this way, knowledge can be seen to be the product of sensory experience filtered, through perceptual schemes. In this way it is difficult to say which or whose perception of the world is nearer to what actually is the case.

13.8 UNIT END EXERCISES

- 1) What are apriori propositions? Explain with examples.
- 2) Why is the knowledge of sensible objects always contingent according to Plato? Can we have knowledge of the world which is certain, or necessarily true? Explain.
- 3) If the very action ‘to know’ is neither an activity, nor a performance, how can ‘knowing’ be tested?
- 4) What is the difference between knowledge and belief? Explain with examples.
- 5) If one is an “expert in the hockey or cricket game, it does not essentially entail that he/she can play good hockey or good cricket”. Explain the statement in the context of ‘knowing how’ and ‘knowing that’.
- 6) Why cannot the truth of moral proposition be ascertained by either of the theories of truth?
- 7) Explain with examples the meaning of empirical truth. How is it different from factual truth?
- 8) Explain the terms ‘Mathematics Paradigm’ and ‘Science Paradigm’ in the context of the nature of knowledge.

- 9) Why is not a scientific law a factual statement?
- 10) Explain with examples the different kinds of truth.
- 11) "Whereas the correspondence theory tells the meaning of truth, the coherent theory tells the test of it." Explain.
- 12) Discuss the controversy between rationalists and empiricists about the nature of knowledge.

13.9 ANSWERS TO CHECK YOUR PROGRESS

- 1) Apriori proposition is a statement which is essentially true and under no circumstances, can it be untrue. For example the logical proposition if $A > B$ and $B > C$ then $A > C$ or $7 + 5 = 12$

Aposteriori proposition is a statement which describes the nature of any matter fact. It is a statement about some aspect of the world. It is always contingent and essentially true. For example,

- 1) All kangaroos hop and move.
- 2) Lemon is sour in taste.
- 2) Synthetic apriori are propositions or laws about some aspects of reality / nature. They are synthetic in the sense that they depend upon our experience but are essentially true because they follow invarante relationship between two or more variables.

All laws of natural science belong to this type of proposition.

- 3) 1) Factual truth 2) Formal truth 3) Empirical truth

New Delhi is the capital of India, is a factual truth.

The sum of the three angles of a triangle is two right angles is the example of a formal truth.

Thorndike laws of learning is an example of empirical truth.

or

Newton's law of motion and other scientific theories and laws are examples of empirical truth.

- 4) In fact the correspondence theory explains the meaning of truth whereas the consistency theory explains the test of the statement involved.
- 5) The correspondence theory says that for knowledge to be true it must square with reality. It simply implies that there exists a permanent reality outside of our mind. So it is based on realism.
- 6) According to Piaget, knowledge is contractual as a result of the interaction between the structured characteristics of the environment and active imposition of the handover. It clearly implies that there is a real world out there but is cannot be known involves subjective imposition on the part of the knower.

- 7) Tabula rasa means a clean state or a blank tablet on which anything from without can be written. A child's mind is like a clean state which is influenced by impressions from the external world.
- 8) In arriving at inductive generalizations we study what happens in the world from time to time; but we have never seen what happened in the past or what may happen in the future. They are matter of fact propositions not related by some invariant relationship of the variables involved so they are not empirically binding. And since they depend upon our experience, they cannot be logically certain. Read section 13.6.4 critically.
- 9) Filtration means ruling out the aspects of situation which we consider as irrelevant. We do not perceive all things that we sense but only these which are relevant in the situation or the context. Perception of any situation is essentially characterized by selective noticing or filtration. For examples you can again go through 13.6.5 and 13.6.6.
- 10) The different filters of human perception are our preconceptions, our experience, delusions, prejudice, social pressures and mental sets.

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