B.Ed. 1st Year.	Paper-IV

Understanding Disciplines and Subjects

Units 1-8

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Content

PAPER IV

UNDERSTANDING DISCIPLINES AND SUBJECTS

Marks: 50(40 + 10)

Course objectives:

The student teachers will be able to:

1. Understand the nature of discipline and school subjects
2. Differentiate between school subjects and curriculum.
3. Integrate and apply concepts and theories in real classrooms.

UNIT-I: Concept of Discipline

Nature and role of Discipline knowledge in School Curriculum Paradigm shift in the nature of discipline

Emergence of School subjects and disciplines from Philosophical, Social and Political Contexts.

Needed changes in the Discipline Oriented Text Books

UNIT-2: Quality in Classroom Learning

Indicators of Quality Learning

Teaching and Learning as Interactive Process

Major issues in classroom learning: Catering individual differences, student-teacher interaction in the classroom.

Learning beyond text books- other sources of learning

Activity (Any one of the following)

1. Prepare a report mentioning the changes required in current school level text books prescribed by CBSE or HPBSE.
2. Prepare a report highlighting major issues and concerns in teaching of Mathematics or

English at secondary school stage.

SUGGESTED READINGS

Apple, M. (1978): Ideology and Curriculum, New York: Routledge.

Fuller, B. (2007) : Standardised Childhood, Stanford, CA: Stanford University Press.

Romero-Little, M.E. (2006). Honoring Our Own: Rethinking Indigenous Languages and

Literary. Anthropology and Education quarterly, 37(4), 399-402.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES

The question paper will consist of three sections: A, B and C. Section A will consist of 4 short answer type questions (2 marks each) which will cover the entire syllabus uniformly and carry 8 marks. Sections B and C will have two long answer type questions from the respective units 1 and 2 of the syllabus and will carry 16 marks each.

Candidates are required to attempt one question each from the sections B and C of the question paper and entire Section A. Answer to short question should be completed in around 100 words each.

Unit -1

Nature and role of Discipline Knowledge in School Curriculum

Unit Structure

1.1 Introduction

Society has assigned academia a major role for perpetuating and expanding human knowledge, therefore, it is appropriate that attention be focused upon the process by which this task is achieved. In formal school

education structure different subjects are taught to the students like Mathematics, languages, Science etc. These school subjects that we are teaching in the schools belong to different branches of knowledge known as academic disciplines. Various academic subjects are not taught in the similar way by adopting the same pedagogy. Distinct pedagogical approaches are required for effective curriculum transaction. The pedagogy of science is different from the pedagogy of mathematics. It means these disciplines are unique.

1.2 Learning Objectives

The chapter will enable learners to:

1. Deliberate on the meaning of School Subjects.
2. List and explain the characteristics of School Subjects.
3. Explain the meaning of Discipline.
4. Discuss the meaning of Academic Disciplines.
5. Examine the specific importance of discipline knowledge in curriculum.

1.3 School Subjects: Meaning and Characteristics

A school subject is a systematic body of knowledge that is being taught in a formal education structure. School subject is like an academic tool used in the formal education by which learning is induced through sharing of content. These are segment of knowledge developed for facilitation of learning. School subjects are meant for providing motivating experiences to learners. Different academic subjects are the part of the school curriculum and are used as a vehicle for the progress of the learners. They should be framed according to the developmental needs, maturity level, interest and competency level of the students.

Accordign to Deng, Z (2013), “A school subject is an area of learning within the school curriculum that constitutes an institutionally defined field of knowledge and practice for teaching and learning.”

Grossman and Stodosky (1995) focused on three important characteristics of school subjects.

1. All school subjects do not enjoy the same status.

2. Sequentiality is perceived as other important characteristics in school subjects.

3. The limits of operation of any subject can be broad or restricted.

Self-Check Exercise-1

1. Define school subjects with examples.

2. Explain sequentiality as characteristics of school subjects.

1.4 Meaning of Discipline

The term discipline is used in different contexts. In the present context it is used in the perspective of academics. It is specialized field of study knowledge. It is not confused with rules and regulations of the institution for regulating/controlling students’ behavior. Discipline may be defined as a branch of knowledge. It is associated with organization of learning and creation of knowledge. A discipline possesses an academically recognized name has the quality of teachability, learning and reproduction of fresh knowledge through research. Every discipline has developed its terminology, language and specific research methodology.

Self-Check Exercise-2

Find the correct statements.

1. In academics, Discipline refers to a branch of knowledge.

2. Discipline involves creating new knowledge through research.

3. Every discipline has developed its terminology and language.

4. Discipline is associated with learners, teachers, and other field specialists.

5. It has no specific terminology.

1.5 Meaning of Academic Disciplines

Academic discipline is the logical and scientific subdivision of knowledge. It is taught, learned and researched at the college or university level. Academic disciplines have the following characteristics.

1. Field specific research goals;
2. Accumulated specialist knowledge ;
3. Theories and principles that can organise the specialist knowledge;
4. Specific terminologies or technical language;
5. Specific research methods; and
6. Institutional manifestation in the form of subjects.

Therefore, from the above it is evident that academic disciplines are distinct branches of knowledge. It provides a base for the students' program of study. It is mainly developed to preserve, advance and transmit accumulated knowledge. Research plays a significant role in creating of knowledge. Few examples for academic disciplines are Mathematics, Political Science, Chemistry, and Teacher Education etc. Academic Disciplines have well established structure comprising of students, teachers, research areas, specialists and strong research network.

Self-Check Exercise-3

Identify the correct statements.

1. Academic subjects are related to higher level of education like college or university.
2. Research methods are common to all academic subjects.
3. Academic disciplines are distinct branches of knowledge.
4. There is no need of institutional manifestation of academic subjects.
5. Academic Disciplines have well established structure of research.

1.6 Nature and role of Discipline knowledge in School Curriculum

The nature and role of discipline knowledge in school curriculum is given in the following sections.

1. Disciplines reflect an arbitrary segmentation of human knowledge and, particularly as to subject matter, they may overlap. The boundaries of disciplines are flexible and tend to expand and contract over time.
2. New disciplines may arise and older disciplines have sometimes ceased to exist or been absorbed by others. Regardless of these facts, the complexity and breadth of human knowledge requires the segmentation provided by disciplines and disciplines have represented an appropriate means of formally organizing our universities.
3. The conventional classification of disciplines includes (1) natural sciences (chemistry, biology, physics), (2) social sciences (economics, sociology, psychology, political science), and (3) humanities (language, art, music). This classification indicates differences among disciplines in regard to both the subject matter of their inquiry and the methodological

tools used in their expansion. Such classifications have little value in themselves but are beneficial when further discussing the nature of disciplines and academic inquiry.

4. A means or technique of expanding knowledge may be characterized as a methodology, a concept different from a discipline. The worth of a methodology lies in its application of problem solution. Though a specific methodology may be developed within a given discipline, its application is not conceptually limited to that discipline and it frequently will be utilized within multiple disciplines. Therefore, psychology is clearly a discipline and is so independent of the methodology of behavioral science to which psychologists have richly contributed. Likewise, the disciplines of sociology, organizational behavior, and others have both utilized and contributed towards the development of the methodology of behavioral science.

5. The division of disciplines as between sciences, social sciences, and humanities is a distinction largely based upon the methodology employed and the subject matter of the inquiry. This in turn has led some to believe that only scientific endeavor can legitimately be considered an inquiry, or research. It is commonly referred to in academic circles. Such attitudes are further reflected by those who lay great emphasis upon that portion of the scientific process concerned with empirical hypothesis testing.

6. Academic inquiry is a process of expanding knowledge. In ascertaining whether a specific undertaking might be classified as inquiry, we must examine the relationship that exists between the body of human knowledge and academia. Academia has a major responsibility for

preserving, transferring, and expanding human knowledge. While all academic disciplines clearly meet the test of preserving and transferring knowledge.

7. The activities commonly associated with such disciplines as English, Law, and History represents a greater or lesser degree of the expansion of knowledge when equated to natural sciences. The answer is debatable. This is in contrast to theory building and unique experimentation which may represent the only actual expansion of knowledge. The ultimate utility of the inquiry conducted within a given discipline lies not in its mode of conduct, but in its success in explaining reality, answering existing problems, and predicting future behavior.
8. Although disciplines may be resistant to externally imposed change, they are continuously evolving and developing from within, especially in the STEM (Science, Technology, Engineering and Mathematics) subjects. Their boundaries are flexible and therefore cannot always be easily defined.
9. The accumulation of knowledge within disciplines leads to internal specialization and division. However, disciplines also possess stable characteristics and want to remain distinct and identifiable.
10. Disciplines give structure to the human knowledge, and are vital to sustaining and curating knowledge, and to communicating that knowledge to non-experts and to future generations.
11. Disciplines provide a vast reservoir of specialized knowledge which have value in society and confer benefits to economies. A discipline possesses structure - concepts, principles, theories and methods from which detailed outcomes arise, predictions may be made and theorems

tested. The more fundamental the idea or skill that has been learned, the greater should be the breadth of its applicability to problems and its transferability to other fields of learning or disciplines. By contrast, if learning comprises of unconnected knowledge and lacks structured framework it will rapidly forgotten.

12. Each discipline claims expert knowledge in its own domain. All disciplines are not created equal and possess a hierarchy. Some disciplines are considered more useful than others.

Self-Check Exercise-4

1. Discuss how discipline knowledge and school curriculum is related?

2. Elaborate the importance of discipline knowledge in School Curriculum.

1.7 Summary

Society has assigned academia a major role for perpetuating and expanding human knowledge, therefore, it is appropriate that attention be focused upon the process by which this task is achieved. In formal school education structure different subjects are taught to the students like Mathematics, languages, Science etc. These school subjects that we are teaching in the schools belong to different branches of knowledge known as academic disciplines. Various academic subjects are not taught in the similar way by adopting the same pedagogy. Distinct pedagogical approaches are required for effective curriculum transaction. Academic discipline is the logical and scientific subdivision of knowledge. It is taught, learned and researched at the college or university level. New disciplines may arise and older disciplines have sometimes ceased to exist or been absorbed by others. Regardless of these facts, the complexity and breadth of human knowledge requires the segmentation provided by disciplines and

disciplines have represented an appropriate means of formally organizing our universities. Disciplines give structure to the development of human knowledge, and are vital to sustaining and curating knowledge, and to communicating that knowledge to non-experts and to future generations. A discipline possesses structure - concepts, principles, theories and methods from which detailed outcomes arise, predictions may be made and theorems tested. The more fundamental the idea or skill that has been learned, the greater should be the breadth of its applicability to problems and its transferability to other fields.

1.8 Glossary

1. School Subject: School subject is like an academic tool used in the formal education by which learning is induced through sharing of content. It is segment of knowledge developed for learning.

2. Discipline: In the present context it is used in the perspective of academics. It is specialized field of study knowledge. Discipline is as a branch of knowledge. It is associated with organization of learning and creation of knowledge.

3. Academic Discipline: Academic discipline is the logical and scientific subdivision of knowledge. It is taught, learned and researched at the college or university level. **1.9 Answers to Self-Check Exercises**

Answers to Self-check Exercise-1

1 and 2 refer section 1.3

Answers to Self-check Exercise-2

1,2,3, and 4 –'✓'

Answers to Self-check Exercise-3

1, 3 and 5 –‘✓',

Answers to Self-check Exercise-4

Refer section 1.6.1 and 1.6.2

1.10 Terminal Questions

1. Define school subjects with examples.

2. Discuss the utility of studying school subjects.

3. Explain the role of discipline knowledge.

1.11 References /Suggested Readings

Hirst, P.H. (1964). *Knowledge and Curriculum*. London: Routledge and Kegan Paul.

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Unit -2

Paradigm Shift in the Nature of Discipline

Unit Structure

2.1 Introduction

The process of teaching learning is as old as human civilization. During primitive period survival skills were taught to the new generation. Since then the system of education has undergone numerous changes the discipline of education has started incorporating different paradigms long before. These paradigms were often challenged and new ones were firmly established. During this long period of transformation a number of paradigm shifts have been observed. Apart from the above mentioned

changes in education system/ this discipline is continuously undergoing changes within the classroom and the external world like administrative setup with introduction of management by objectives, total quality management, decentralization and shared leadership in education. Education is a dynamic process and several factors influence its growth and development.

2.2 Learning Objectives

The chapter will enable learners to:

1. Deliberate on Paradigm Shift.

2. Describe the relationship between paradigm shift and discipline.

2.3 Meaning of Paradigm and Paradigm Shift

The term ‘paradigm’ needs to be explained before explaining paradigm development and paradigm shift. The word ‘Paradigm’ has been used since 1400 era. But regarding discipline it has been used since 1960. Paradigm is a Greek word which means ceiling, expansion, pattern and model. Regarding philosophy of science this is analysis of scientific thinking or before doing the actual work a plot prepared according to the concept. This is actually a reflection from 1962 onwards this term has been used. In 1962 Thomas Samuel Kuhn written book was published ‘The Structure of Scientific Revolutions’. From this time onward this term was used frequently. This term was means a blueprint which has two dimensions one is regarding the ‘Concept’ and other is the ‘Practical Aspects’. According to American Heritage Dictionary of English Language (2000) Paradigm is a set of assumption, concepts, values and practices that establish a way of viewing the reality. It is often associates with science. It defines the

procedures that constitute a scientific discipline at a certain point of time. It is discreet and culturally biased. The existence of single reigning paradigm is characteristic of natural science whereas the philosophy and social science are characterized by traditional claims, counter claims and debate over fundamental issues. He observed that scientific research does not progress towards truth and is often subjected to dogma while changing to old theories. A paradigm provides the questions for what should be asked, what phenomena should be observed, and how the observations should be interpreted. A paradigm reflects a consensus view of a specific scientific community, imbibed by the members of that community, either consciously articulated or, possibly, simply assumed and not intentionally acknowledged (Agbo, 2017; Orman, 2016; Guerra et al., 2012; Kuhn, 1970).

Paradigm Shift

Kuhn first proposed that the advancement within a discipline, especially science is not a slow procedure but it takes place quite suddenly. He called these sudden changes as “paradigm shifts”. According to him, science and by extension social science undergoes its process in different phases which are discernible. This means when any discipline independently creates a new outlook, then its nature also changes. Example can be given of grammar related to language teaching outlook has now changed to application of grammar in the teaching of language and thus created a new outlook. This has changed the structure of language teaching. Further teaching of history is now done in analysis method instead of teaching in narration of incident. This analytical method is also applied in other subjects like Economics, management etc. Philosophy and natural science are the originator/mother of many disciplines. Each discipline after

development has been discussed with different subjects and thus the subject has been made more broad and within depth knowledge taken from different subjects. Different subjects content though been discussed but their relationships has not been destroyed.

Self-Check Exercise-1

1. What is a paradigm?

(a) A theoretical assumption (b) An illustration

(c) A theoretical model (d) An example serving as a model

2. Who is responsible for establishing the idea of paradigm shifts?

(a) Galileo Galilei (b) Nicolaus Copernicus

(c) Alfred Wallace (d) Thomas Kuhn

3. A paradigm shift is described as a major breakthrough in fundamental scientific thinking (or paradigm) that changes the route of an accepted idea. (True or False)

4. A paradigm guides scientific research and practice within a discipline. (True or False)

5. A paradigm directs the research inquiries. (True of False)

2.4 Paradigm shift and Disciplines

Regarding classification of discipline Thomas S. Kuhn had classified into two classes paradigmatic and non-paradigmatic. A paradigm resides in the concepts which are practically implemented by some scientific group who develop the law and technique for its use. Regarding our formal education system any related topic had been developed as a scientific thinking or thought which was analysed and this is the central thinking or paradigm.

The term ‘Paradigm Shift’ refers to a change of Paradigm to a new Paradigm or change. This means the discipline and its discussion concepts change to a new or different concept. The change occurs due to many problems which are complex and broad in areas. The main reason of change occurs due to change in the social issues and thinking and thus they are related to teaching and learning. The paradigm shift regarding the discipline of Education is given below.

Old Paradigm	**New Paradigm**
1. From teaching paradigm based on algorithm, lower order cognitive skills (LOCS).	To learning paradigm based on higher order cognitive skills (HOCS), peer interaction, collaboration, mentoring with reflective teachers as coach.
2. From reductionist thinking.	To systems thinking.
3. From teacher centric, authoritative, frontal instruction, face to face instruction.	To student centric, real world, project/ research oriented team teaching, web based virtual learning, student no longer need a ‘place’ to learn.
4. From knowing, recognizing and applying effects for solving exercises.	To conceptualize learning for problem solving and transfer.
5. Education was defined as what teachers teach.	Education today is about what the students demonstrate.
6. From teacher as sage on the stage, actor on stage.	To teacher as guide by the side, interacting coach.
7. From faculty as subject expert.	To expert in the learning styles of the students, developer of modular curriculum, expert in instructional technology, methodology and effective assessor of student’s abilities.

8. From students listening to teachers, taking notes, reading and taking examinations.	To students striving for deep learning and long term retention.
9. From archaic discriminatory examination system.	To continuous comprehensive evaluation with concern for abilities of the students.
10. From elitist cast based education.	To mass based education.

The paradigm shifts in education have shown great challenges to teachers and educational administrators.

Self-Check Exercise-2

1. Kuhn is most associated with the idea of:

(a) Normal science and revolutions (b) Scientific paradigms

(c) Methodological anarchy/against methods (d) Falsification

2. In which year Kuhn's 'The Structure of Scientific Revolutions' was written?

(a) 1965 (b) 1962 (c) 1955 (d) 1974

3. What is the term coined by Kuhn through his book The Structure of Scientific Revolutions?

(a) Objective Criteria (b) Periodic Paradigm Shifts

(c) Scientific Revolutions (d) Incommensurable Paradigms

4. According to Kuhn, how does science progress?

(a) Through periodic revolutions (b) Adopting Linear path

(c) By consensus of community (d) By objective criteria

5. What is Kuhn's view on scientific truth?

(a) Scientific truth is defined by a consensus of a scientific community

(b) Scientific truth is incommensurable

(c)Scientific truth is subjective

(d) Scientific truth is established solely by objective criteria

2.5 Summary

The process of teaching learning is as old as human civilization. During primitive period survival skills were taught to the new generation. Since then the system of education has undergone numerous changes the discipline of education has started incorporating different paradigms long before. These paradigms were often challenged and new ones were firmly established. During this long period of transformation a number of paradigm shifts have been observed. Apart from the above mentioned changes in education system/ this discipline is continuously undergoing changes within the classroom and the external world like administrative setup with introduction of management by objectives, total quality management, decentralization and shared leadership in education. A paradigm resides in the concepts which are practically implemented by some scientific group who develop the law and technique for its use. Regarding our formal education system any related topic had been developed as a scientific thinking or thought which was analysed and this is the central thinking or paradigm. The term ‘Paradigm Shift’ refers to a change of Paradigm to a new Paradigm or change. This means the discipline and its discussion concepts change to a new or different concept. The change occurs due to many problems which are complex and broad in

areas. The main reason of change occurs due to change in the social issues and thinking and thus they are related to teaching and learning.

2.6 Glossary

1. Paradigm: Paradigm is a set of assumption, concepts, values and practices that establish a way of viewing the reality. It is often associates with science. It defines the procedures that constitute a scientific discipline at a certain point of time

2. Paradigm shift: This means when any discipline independently creates a new outlook, then its nature also changes. This is the stage in which new paradigm becomes dominant and replaces the old one.

2.7 Answers to Self-Check Exercises

Self-Check Exercise-1

1. c 2.d 3., 4., and 5 (True)

Self-Check Exercise-2

1. a 2. b 3. b 4. a 5. a

2.8 Terminal Questions

1. Explain Kuhn's Paradigm Shift with suitable examples.
2. Discuss distinct phases of Kuhn's Paradigm Shift.
3. Explain the relationship of Paradigm shift and Disciplines.

2.9 References /Suggested Readings

Adler, P. S. (2010). Marxist philosophy and organization studies: Marxist contributions to the understanding of some important organizational forms by Marxist philosophy and organization studies : Marxist

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Bawn, K., Cohen, M., Karol, D., Noel, H., & Zaller, J. (2006). A Theory of parties: Policy demanders, long coalitions and the electoral blindspot.

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Justine Thomas & Sanusi Mohammed Suleiman (2019). Thomas Kuhn's Paradigm Shift and Social Science: A Theoretical Analysis, International Journal of Comparative Studies in International Relations and Development, p-ISSN: 2354-4198 | e-ISSN: 2354-4201, Volume 5, Number 1 December, 2019, 84-89.

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Unit-3

Emergence of School Subjects and Disciplines from Philosophical, Social and Political Contexts

Unit Structure

3.1 Introduction

Accumulated human knowledge is classified into various disciplines for different reasons. The different academic disciplines/school subjects are emerged over a period of time. Different conditions are responsible for their emergence. Knowledge creation is the key factor for the evolution of any discipline. Human experiences and their continuous interaction with the environment are mainly responsible for emergence of knowledge. In a

formal educational structure, a specific discipline has well defined boundaries and limits. The instant when one pronounces the term angle or triangle, we say he is speaking about mathematics. Discussion about the form of government in a country or election process, we say that he/she is dealing with political science. Categorization of knowledge under different disciplines helps people to get specialized in that disciplines. This specialization helps to identify different principles, laws and also to form theories. The network of researches, laws and principles help to deduct additional new data.

3.2 Learning Objectives

The chapter will enable learners to:

1. Explain the emergence of school subjects and disciplines from philosophical context.
2. Describe the emergence of school subjects and disciplines from socio-political contexts.

3.3. Philosophical Context

From philosophical context, academic disciplines mainly represent the knowledge organization and its relationship with metaphysics, epistemology and axiology. Each discipline holds its history, development and philosophy. Different terms like Philosophy of Science, Philosophy of Social Sciences and Philosophy of Language mean the knowledge base of these disciplines. Every discipline possesses its philosophy and methods of acquiring valid knowledge. It is essential to know the disciplinary knowledge of various disciplines. Different philosophies like Indian or western philosophies stressed the need to study different disciplines because they interpret the reality from different perspectives. The subjects

and curriculum advocated by idealism are different from the subjects and curriculum advocated by naturalism. Different philosophies were emerged in the due curse of time and stressed the importance of ideas, spirit, matter, nature etc. Different subjects are the outcome of the reality maintained by the philosophers at that time. Interpreting philosophy and education separately, it is clear that both aim to impart knowledge where philosophy is contemplative and education is active. The aims of education at different times are determined by the philosophy of life dominant during those days. Changing philosophy of nation always brings about corresponding changes in the aims of education. As philosophy determines aims of education, so also it influences the syllabus and curriculum. Curriculum is powerfully influenced by the philosophy of the times and conditions, so also the text-books are also affected. Different aspects of education are influenced by the philosophy.

Self-Check Exercise-1

Identify the correct statements.

1. Epistemology deals with theory of knowledge.
2. Each discipline holds its history, development and philosophy.
3. Science deals with observations.
4. Different philosophies interpret the reality from different perspectives.
5. Different subjects are the outcome of the reality maintained by the philosophers at that time.

3.4 Socio-Political Contexts

The growth of different academic disciplines is a gradual continuous process. Developing a discipline as peer societal needs is a complex

phenomenon. Different disciplines are meant for human and societal development. Therefore, it is necessary to comprehend that how these disciplines are conceptualized. Education and society are interlinked and interdependent. Education is linked with societal expectation, its norms, values, history, principles, traditions and cultures. These factors also influence conceptualization of different subjects. Academic disciplines are also developed by taking into consideration the social and political conditions of a country. School is a miniature social system and socio-political conditions influence the school curriculum, its structure and transaction. It also influences educational goals.

The changing societal demands, political ideology, national goals, type of government and scientific progress are certain conditions for the emergence of new disciplines. In formal education structure at different levels, curriculum is also constantly changing based on what society feels as important for the students to learn. Following are the important socio-cultural features of Indian education system.

- ➢ Vast educational structure for meeting the academic/learning needs of students from pre-school to higher education level.
- ➢ Development of national policies as per needs and national curriculum frameworks for different levels of education.
- ➢ Previous pattern and structure of education is replaced by the new one.
- ➢ Major focus on celebrating cultural diversity, need for national integration and international understanding.
- ➢ Issues of diversity and inclusion, form the essence of our education system.

- ➢ Respect and acceptance for diversity, Indian knowledge system and local context in all curriculum, pedagogy, and policy.
- ➢ Focus on inclusion

Self-Check Exercise-2

Identify the correct statements.

1. The evolution of different subjects is a continuous process.
2. Discipline is developed irrespective of societal needs.
3. Developing a discipline as peer societal needs is a complex phenomenon.
4. Most disciplines are inter- linked.
5. The changing needs of the society are also responsible for emergence of new disciplines.

3.5 Summary

The different academic disciplines/school subjects are emerged over a period of time. Different conditions are responsible for their emergence. Knowledge creation is the key factor for the evolution of any discipline. Different philosophies like Indian or western philosophies stressed the need to study different disciplines because they interpret the reality from different perspectives. The changing societal demands, political ideology, national goals, type of government and scientific progress are certain conditions for the emergence of new disciplines. In formal education structure at different levels, curriculum is also constantly changing based on what society feels as important for the students to learn.

3.6 Glossary

1. Philosophical Context: It refers to philosophical base of emergence of disciplines and school subjects.

2. Socio-political contexts: It means social and political conditions prevalent in any society.

3.7 Answers to Self-Check Exercises

Answers to Self-check Exercise-1

1,2,3, 4 and 5 –'✓'

Answers to Self-check Exercise-2

1,3,4 and 5-'✓'

3.8 Terminal Questions

1. Define discipline. Explain emergence of school subjects and disciplines from philosophical context.
2. Socio-political contexts are important aspects while framing academic disciplines. Discuss.

3.9 References /Suggested Readings

Szostak, R. (2013), "DefiningDisciplinary Perspective",Department of Economics, University ofAlberta, pp-1-2

Understanding Disciplines and Subjects (Self Learning Material), B.Ed. 2nd Year, Baba Mohan Das College of Education, Rewari, Haryana.

Unit-4

Needed Changes in the Discipline Oriented Text Books

Unit Structure

4.1 Introduction

A textbook is a manual of instruction in any branch of study primarily developed for facilitation of the learning. Textbooks are interlinked to the educational goals, prescribed curriculum and the demands of educational institutions. With the advancement of technology, the format of textbooks is also changing. It is now available in electronic format as e-textbook. It is probably the cheapest and most reliable source of information to students and teachers. It also serves as a reference book for the teachers for

different purposes. It helps the learners to acquire the required information with efficiency. Students can work independently by making rational use of text-books. It supports the students in thoroughly understanding the subject matter and involving in different academic activities. It also helps the students to learn a particular content because of his/her failure to attend certain classes due to unavoidable reasons. A teacher can make use of the text-book to assign home-work, activities and assignments to the students. It also gives direction about the use of various teaching aids and activities to be undertaken.

4.2 Learning Objectives

The chapter will enable learners to:

1. List out advantages of using textbooks.
2. List out limitations of using only textbooks.
3. Deliberate on the needed changes in the discipline oriented textbooks.

4.3 Advantages and Limitations of using textbooks

Textbooks are the instructional medium for teachers and students. As such, they can strongly affect students' learning experiences. It is useful to students and teachers. Text-books provide a scientific framework for the learning of the content. It has both advantages and disadvantages, depending on its use. The advantages of using textbooks are given below.

- ➢ Textbook provides a syllabus for a particular course of study.
- ➢ It provides security for the students because they develop a kind of a road map of the entire course.

- ➢ It provides visuals, activities, practicum, exercises, readings, etc., and so saves the valuable time of teachers in finding or developing such materials.
- ➢ Textbooks provide a basis for assessing students' learning outcomes. Some textbooks include tests or exercises.
- ➢ Some textbooks may include additional supporting materials (teacher's guide, cd, worksheets, and video.)
- ➢ Textbooks provide consistency within a program across a given level, if all teachers use the same textbook.

Textbooks also have few limitations, which can lead to teachers' and learners' dissatisfaction with the course. The following list contains the most frequently stated disadvantages of using textbooks.

- ➢ The textbooks are mainly written by keeping into consideration the learning needs of students having wide individual differences. The content or examples may not be appropriate to few students.
- ➢ The sequence of different units may not be as per the real work-related needs.
- ➢ The activities, readings, visuals, etc., may be boring to some students.
- ➢ The textbook doesn't take the students' background knowledge into account.

So, to minimize the above stated difficulties, the textbook should be used as a resource for learning. It is important but not the only resource. Use a textbook as a guide, be free to modify, change, eliminate, or add the material in the textbook as per requirement of the instructional process.

Self-check Exercise-1

Identify the correct statements.

1. Textbooks are useful to students and teachers.
2. The use of textbooks in teaching-learning process has only advantages.
3. Text-books provide a scientific framework for the study.
4. A textbook is a manual of instruction.
5. Textbook provides security for the students.
6. Teachers should use the textbook as a resource for learning.
7. Teachers should adopt a flexible approach while using textbooks.

4.4 Needed Changes in the Discipline Oriented Textbooks

For the attainment of educational goals, it is necessary to develop a healthy learning environment. Learning is possible through different methods. Learning is possible beyond textbooks and through variety of learning resources. It is not the only learning resources available for students, but its rational use can guide the students for better learning and understanding. It helps the students for revision of content. A textbook should be motivating and helps to arouse the interest. Curriculum development is a gradual process and subject to change from time to time as per different requirements. Learning resources including textbooks in different disciplines and subjects need following changes in order to maintain their quality and efficiency. Desired educational aims can be achieved by supporting teachers and students with suitable teaching-learning materials. A shift is observed in the students' learning from traditional printed material to digital resources and hence there is need to adapt such changes.

Guiding Principles for Needed Changes in the Discipline Oriented Textbooks

Changes needed in the discipline oriented textbooks include the following aspects.

1. Content
2. Learning and Teaching
3. Structure and Organization
4. Language
5. Textbook Layout

1. Content (C)

The content included in any discipline oriented textbook depends on several factors. The main purpose of providing effective content in textbooks is to assist the learning and achieve the educational goals.

- The content should be motivating, balanced, updated, interactive and interesting.
- There should always be a scope for students to learn through their self-efforts after studying a particular topic from the book. Avoid unnecessary information because such information is confusing for students.
- A textbook is meant for guiding diverse learners. If some topics are meant for remedial or enrichment, it should be properly mentioned.
- The content should be scientifically designed in graded difficulty.
- Content should be up to date.

- Concepts should be precise and interlinked. Support the content with interesting examples, illustrations and activities.
- Different concepts should be introduced in a logical and psychological manner.
- The difficulty level should be moderate and always be in constancy the maturity level of learners.
- Connections between different concepts should be highlighted.
- The content should be organized in such a manner that it promotes independent thinking, divergent perspectives and balanced integration of different viewpoints.
- The content should be free from any form of discrimination or biases.
- List of suggested readings should be provided.

2. Learning and Teaching

Instructional activities are the means through which instructional goals can be achieved. Enough scope should be there for open and closed type questions requiring different academic skills for their solution. Students should be involved to apply the knowledge in actual life situations.

- The arrangement and sequence of the content play a very crucial role in making the textbook as a learning resource. It should be organized in the form of suitable learning chunks or learning modules. There should be cohesion among different learning chunks of the content.
- Different age appropriate learning activities should be included in the textbook for actively involving the students. Opportunities should be provided to apply the acquired knowledge in some new situations.

- There is need to link the content/learning activities with actual life exposure and the immediate community resources.
- If the element of interest is absent in the learning activities, they would hardly solve the purpose. Such activities should be interesting. They attract and retain students on the path of learning. For organizing such activities, there should be clear instructions to learners and teachers.
- A textbook should contain list of diverse and meaningful activities pertaining to that content.
- Such academic activities are more beneficial which require extended and open-ended responses.
- A textbook should offer diverse activities for learners. It will help them to improve the functioning of different cognitive skills like information gathering and processing, focusing, organizing, integrating, decision making, judgement, analyzing etc.

3. Structure and Organisation

A suitable structure and organization of the content is needed in the textbook to make it attractive and help to facilitate learning.

- The content should be arranged in a scientific manner so that maximum learning takes place. Key words, technical terms and important concepts should be highlighted.
- The content should be made more meaningful by including table of contents, table of figures, bold chapter titles, headings, outlines and additional sources for further learning.

- Learning objectives should be written and defined behaviorally in the beginning and a brief summary in the end of each unit.
- A simple student's guide can be introduced in the beginning to facilitate the learners to have the idea of the rational to use the textbook.

4. Language

Textbooks also serve the purpose of developing reading habit among students. Language is also the important aspect in any textbook.

- The difficulty level of the language should always be proportionate to the language ability possessed by the students. New vocabulary should be introduced progressively.
- It should help the learners to study directly and independently, and hence create meaning through their own efforts.
- Coherent passages are more beneficial from learners' point of view.
- Familiar and age appropriate language is suitable to motivate learners. The text should connect the students' prior information and experience.
- The language should be correct and specific.

5. Textbook Layout

Appropriate layout increases the face validity of the textbook. Following aspects are essential for improving the layout of discipline oriented textbooks.

- The material should be well-organized with suitable use of space.
- Always avoid unnecessary blank space.

- Illustrations should be accurate, updated and suitably marked to stimulate the learning.
- Try to maintain a balance between text and graphics.
- To reduce the heaviness of textbooks, good quality lightweight paper should be used. Thin volumes are more appropriate for junior classes.
- The font should be learner friendly.

We have to equip our learners with requisite skills for creating knowledge. There is need to develop a habit of “read to learn" and not to read to clear the examination. Excessive information leaves no space for students to learn through self-efforts. Students should be motivated to make best possible use of learning.

Self-check Exercise-2

Identify the correct statements using ‘✓' mark.

1. Learning is not possible beyond textbooks.
2. Textbooks are the only learning resources.
3. Key words, technical terms and important concepts should be highlighted.
4. The difficulty level of the content should be moderate.
5. Coherent passages are more suitable.
6. Excessive information leaves no space for self-efforts.

4.5 Summary

Textbooks are interlinked to the educational goals, prescribed curriculum and the demands of educational institutions. With the advancement of technology, the format of textbooks is also changing. It is now available in electronic format as e-textbook. It is probably the cheapest and most reliable source of information to students and teachers. It has both advantages and disadvantages; depending on the manner in which it is used during instructional process. We have to equip our learners with requisite skills for creating knowledge. There is need to develop a habit of “read to learn" and not to read to clear the examination. Excessive information leaves no space for students to learn through self-efforts.

4.6 Glossary

1. Textbook: A textbook is a book that contains comprehensive information about a discipline or a subject that a student needs through the academic year. It is used as a primary instructional tool in teaching-learning process.

4.7 Answers to Self-Check Exercises

Answers to Self-check Exercise-1

1, 3, 4, 5 ,6 and 7 –‘✓'

Answers to Self-check Exercise-2

3, 4, 5 and 6 –‘✓'

4.8 Terminal Questions

1. Define textbook. Discuss needed changes in discipline oriented textbooks.

2. Explain the need of making changes in discipline oriented textbooks.

3. Textbooks have their own advantages and limitations. Discuss.

4.9 References /Suggested Readings

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UNIT-5

Teaching-learning Processes and its Dimensions

5.1INTRODUCTION

Teaching and learning have been around since the dawn of humanity. Animals have also used this process to teach their young. Over time, it's evolved and changed. If teaching and learning are effective, they help children learn how to use things well. If a child doesn't learn how to live with others, they'll face more problems than someone who can get along with others. The goal of teaching and learning is to help us gain knowledge, develop skills, and change our attitudes so we can adapt and thrive in our

environment. It's about growing, understanding, and becoming better equipped to navigate the world. In this unit, we're talking about the process of teaching and learning, what makes a good teaching and learning process, and what signs of quality teaching and learning are.

5.2 OBJECTIVES

Dear learner, after going through this unit, you will be able to:

- Describe the process of teaching-learning
- Describe various dimensions of teaching-learning.
- Describe indicators of quality teaching and learning.
- Understand the concept of quality learning.

5.3 PROCESSES AND DIMENSIONS OF TEACHING LEARNING

Process of Teaching-Learning:

In today's teaching and learning process, students play an active role at the center of education. The focus is on their growth, curiosity, and engagement. Our modern world is shaped by science and technology, influencing not just economies and politics but also the way we educate and prepare students for the future. The changes that occur as a result of the impact are broadly described as 'Modernisation'. This modernisation has affected the teaching- learning process in many ways. The recent changes in the concept of teaching-learning process have led to the development of newer ares of educational endeavour. In a traditional society the aim of teaching-learning was the preservation of the accumulated stock of knowledge. But in the modern society, the main aim of teaching-learning is not acquisition of knowledge alone. It involves

sparking curiosity, nurturing creativity, fostering meaningful interests, shaping positive attitudes and values, and cultivating essential skills like independent learning.

Teaching-learning process has to serve as a powerful instrument of social, economic and cultural transformation of the society. Teaching-learning process is conditioned by the nature and demands of society to which the learner should get adapted and attuned. One of the main aims of teaching-learning process in the modern society is to keep pace with the advancement of knowledge and skills.

For a pretty long period, the teaching-learning process has been by and large, a process dominated by the institution of professional teachers. Now, the process is to be replaced to a great extent by a process in which the individual learner is expected to take up challenges through an inevitable intellectual revolution. The intellectual revolution has been set in by forces of hardware technologies at low cost, socialization process due to interdependence. Besides, projects, farms, factories, markets, excursions and playgrounds will become classrooms in the new teaching-learning process.

Important aspects of the teaching-learning process:

Teaching and learning revolve around four key aspects: the teacher, the student, the learning process, and the learning environment. The teacher plays a crucial role in creating a space where students can learn and grow. Learning happens through interaction between students and teachers, where knowledge, skills, and ideas are exchanged. This process brings together various elements—students with their unique abilities, teaching

methods, subject material, classroom settings, and tools like discussions, assignments, and creative activities. Everything needs to work in harmony to ensure effective learning.Ultimately, teaching and learning are about preparing young minds to adapt to the world around them. Schools serve as a structured environment In early societies, adaptation required aligning with existing conditions. However, in modern advanced civilizations, efforts are made not only to adapt to current circumstances but also to enhance living conditions by educating the younger generation in ways of thinking and acting that contribute to positive change. Teaching and learning are interconnected, progressing together—one cannot exist without the other. A teacher shares knowledge, and students absorb and apply it. Teaching doesn’t happen in isolation; it needs a purpose and a structure.

To make education meaningful and impactful, we must carefully examine all its key elements. By doing so, we ensure that learning is not only effective but also inspiring and relevant to students' lives. Here are the main aspects that shape the teaching-learning experience.

1. Command, planning and organisation of the subject matter or content and activities:

There are no two opinions about the important factor that the success of the teaching-learning process greatly depends upon the thoroughness of knowledge of the subject matter to be taught by the teacher. The soul of effective teaching learning is good command of the subject matter. The next aspect is to present the subject matter to the class. Here we enter into the field of organisation of the subject-matter and the use of methods of teaching and teaching technology. The teacher’s endeavour will be to use different dynamic and progressive methods of teaching and learning. He

should encourage the students to develop proper habits of learning. He should stress self-learning on the part of the students.

2. Class Control and Discipline:

Appropriate class control and discipline is one of the most important characteristics of a successful teacher. A good teacher is one who can control his class not through fear or high handedness but by virtue of his interest in the learner, good command on the subject-matter and the ability to present it interestingly and effectively. The learners also appreciate good teaching and cooperate with the teacher in the teaching-learning process.

3. Psychology of Learners:

It must be realized by a teacher that all his knowledge of the subject-matter, his ability to present it methodically and effectively and his ability to control the class situation ably, teaching-learning will be effective only if he takes into consideration the interests, abilities, aptitudes and limitations of the learners. A teacher must learn to understand his learners and encourage them. He has to be sincere and honest towards his learners. An ideal teacher is always humble. He has to practise tolerance and patience in dealing with the learners. The participation of the learners is very important and necessary if the teaching- learning has to have a broader and meaningful process.

4. Evaluation:

Assessment holds a significant role in the teaching-learning process. A teacher must thoroughly assess students to determine how they can improve further. Various methods can be employed for this purpose, including self-assessment by both the teacher and the student, which is

highly valuable. The teaching-learning process is shaped by the overall context, and it becomes effective and lasting when connected to real-life experiences. Teachers can greatly enhance learning by considering the needs of their students.

Elements of the Teaching-Learning Process:

The child is to learn and therefore his interests, abilities and aptitudes have to be considered. It must be noted that he is an active being. Attention has to be paid to the individual differences. The teacher is to teach. He should present a good model of teaching. Education should not be considered in terms of 3R's, i.e. reading, writing and arithmetic but in terms of 7 R's i.e., reading, writing, arithmetic, recreation, rights, responsibilities and relationships. This includes the acquisition of knowledge, skills and behaviour. The teacher and the learner must fully understand that learning takes place through mutual co-operation. A learner learns maximum when he is motivated. Therefore the teacher has to provide motivating situations so that the learner is at his best. He should have thorough knowledge of learning theories and teaching strategies. This is concerned with creating motivational situations for the learner. The school should not be taken the only place of imparting or receiving education. It is one of the agencies of education, of course the most important one.

The worth of teaching can be judged only in terms of the extent to which it generates learning. Teaching and learning are viewed as closely related activities. A good educational institution provides a favourable academic environment where carefully planned teaching results in maximum learning on the part of the students. In short, teaching is unique, professional, rational and human activity in which one creatively and imaginatively uses

himself and his knowledge to promote the learning and welfare of others. It's important to remember that learning is the student's responsibility, while teaching is the role of educators. The true measure of better teaching is seen in improved student learning. However, learning can also improve due to factors unrelated to teaching, such as students dedicating more time to studies, having better access to resources like libraries, or feeling more motivated to succeed.

Dimensions of Teaching-Learning Process:

1. The teaching-learning process is a dynamic journey where teachers, students, curriculum, and other key factors come together in a structured way to achieve specific goals. It’s not just about delivering information—it’s about creating a meaningful and organized experience that connects all aspects of teaching and learning. Since teaching and learning are deeply intertwined, effective teaching must always consider how students learn in order to reach the intended objectives. To truly make an impact, educators need a deep understanding of the different dimensions of the teaching-learning process, which help shape a successful and enriching educational experience.
2. **Purpose:**

   The teaching-learning process has two key components: standards and learning targets with teaching points.

   - **Standards** refer to grade-level expectations and meaningful knowledge that go beyond just completing a task. They connect learning to a larger purpose, such as problem-solving or responsible citizenship, and help students develop transferable skills. These

standards are thoughtfully linked across lessons to support student progress.

- **Learning targets and teaching points** make up the second component. A learning target is clearly defined, aligned with standards, embedded in instruction, and easily understood by students. It is measurable, with clear success criteria and tasks that demonstrate students' ability to apply what they've learned in real-world situations.

Teaching points are designed based on students' unique learning needs, taking into account their academic background, life experiences, culture, and language, ensuring that instruction is relevant and effective.

3. **Students Engagement:**

This aspect is further broken down into three key areas: intellectual work, engagement strategies, and student discussion.

- **Intellectual work** involves students actively engaging in deep learning activities such as reading, critical thinking, writing, problem-solving, and making sense of information. They take responsibility for their learning by developing, testing, and refining their ideas.
- **Engagement strategies** leverage students' academic backgrounds, life experiences, cultures, and languages to create meaningful and challenging learning experiences. These strategies promote inclusive participation, ensuring that every student is involved and expected to contribute.

- **Student discussion** reflects subject-specific ways of thinking and communicating. It encourages deep intellectual engagement, allowing students to articulate and refine their thoughts through meaningful conversations.

4. Curriculum and Pedagogy

This aspect encompasses both curriculum and teaching methods.

- Curriculum includes instructional materials such as textbooks and resources, ensuring tasks are appropriately challenging, supportive, and aligned with learning goals and academic standards. These materials are relevant to students' cultural and academic backgrounds and are structured to contribute to a broader learning sequence, helping students develop conceptual understanding over time.
- Teaching Approaches and Strategies focus on how educators make instructional decisions to achieve their teaching goals. Teaching methods align with subject-specific knowledge and culturally responsive practices to engage students in critical thinking. Teachers use a mix of planned and spontaneous instructional strategies to address individual learning needs.
- Scaffolding for Learning involves providing structured support that helps students grasp key concepts and skills. The teacher gradually reduces this support, encouraging students to take ownership of their learning and work independently.

5. Assessment for Student Learning

This dimension consists of two key elements: assessment and adjustment.

- Assessment allows students to evaluate their own progress toward learning goals. Teachers create multiple assessment opportunities, ensuring all students demonstrate their understanding. A variety of tools—such as anecdotal notes, student work samples, and conferences—are used to gather a complete picture of each student's learning style and needs.
- Adjustment involves teachers using assessment data to refine instruction. By analyzing student progress, teachers can make real-time instructional changes, modify future lessons, and provide targeted feedback to enhance learning.

6. Classroom Environment and Culture

This dimension focuses on the learning space, routines, and classroom culture.

- Physical Environment refers to the classroom's layout, including seating arrangements, resource accessibility, and designated learning areas. Teachers utilize the space effectively by moving around to observe and engage with students, ensuring they have access to necessary materials such as books, charts, and technology.
- Classroom Routines and Systems foster student responsibility, independence, and ownership of learning. Effective time management is prioritized to maximize learning opportunities.
- Classroom Culture promotes inclusivity, equity, and academic accountability. A supportive environment encourages risk-taking,

collaboration, and respectful discussions, reinforcing high expectations for all students' intellectual growth.

Self-Check Exercise-1

Q.1 What are the dimensions of teaching learning process?

5.4 INDICATORS OF QUALITY TEACHING AND LEARNING

Cave, Hanney, Henkel, and Kogan (1997) identified three main types of indicators:

1. **Simple Indicators** – These are straightforward numerical figures that provide an objective description of a situation or process without interpretation.
2. **Performance Indicators** – Unlike simple indicators, these involve a reference point, such as a standard, benchmark, or assessment, making them relative rather than absolute. A simple indicator can become a performance indicator if value judgments are applied.
3. **General Indicators** – These are often externally driven and may include opinions, survey results, or general statistics rather than strict performance measures.

Understanding Performance Indicators

Distinguishing between simple and performance indicators can be challenging, as performance indicators always involve a judgment. While there is no universally accepted definition, performance indicators are broadly understood as tools for evaluating institutional performance. They serve purposes such as monitoring progress, setting goals, shaping policies, and assessing educational reforms.

A performance indicator is an authoritative metric—typically numerical—that measures an aspect of an institution's activity. These indicators can be absolute or comparative, ordinal or cardinal. They include both objective data-driven measures (e.g., applying a formula) and subjective evaluations (e.g., peer reviews or rankings). Because performance indicators are linked to specific goals, they inherently carry value and contextual meaning rather than being purely factual.

Categories of Performance Indicators

Performance indicators are commonly classified into four types: Input, Output, Outcome, and Process Indicators, which fall into two broader categories:

1. Quantitative Indicators

Quantitative indicators measure aspects in numerical terms, assigning meaning to values through numerical representation. These include:

- **Input Indicators** – These measure the resources allocated to education, such as funding, faculty numbers, and infrastructure. While they provide insight into institutional resources, they do not directly reflect teaching or learning quality without additional interpretation. For example, resource allocation data must be

analyzed alongside enrollment numbers, resource quality, and variety to understand their impact on education.

- **Output Indicators** – These reflect the measurable results of educational activities, such as graduation rates or test scores. However, they focus solely on quantity rather than quality, making them less effective at capturing the depth of educational experiences. The limitation of both input and output indicators lies in their inability to assess the learning process itself, as they provide data but lack interpretative depth regarding educational effectiveness.

2. Qualitative Indicators

Qualitative indicators rely on descriptive observations rather than numerical data. They provide insights into processes, policies, and subjective experiences, making them more useful for understanding educational quality. These include:

- **Outcome Indicators** – These assess the benefits of education for students, parents, communities, and employers. Unlike output indicators, which measure numerical outcomes, outcome indicators focus on the quality and impact of education. For instance, student satisfaction, skill development, and learning experiences are considered more meaningful measures than retention rates alone. Outcome-based evaluations align with a "student-as-customer" perspective, where education is assessed based on the value it provides in terms of skills and personal development. However, outcome indicators are more challenging to measure compared to

numerical outputs, making them less commonly used despite their greater depth and accuracy in assessing educational quality.

- **Process Indicators** – These examine how education is delivered within an institution, considering factors such as teaching methods, institutional policies, and learning environments. They provide insights into the functioning of educational systems within specific contexts, accounting for institutional diversity. However, factors like funding levels and student enrollment numbers can influence both process and outcome indicators, making comparisons between institutions complex.

Limitations of Indicators in Education

While indicators help identify trends and raise important questions about the education system, they do not provide definitive explanations or solutions. Due to the complexity of education, multiple sources of both the qualitative and quantitative data are needed to make accurate assessments. Without contextual information, relying solely on indicators can lead to misinterpretation. Therefore, it is essential to use these measures within a well-defined framework that acknowledges institutional diversity and clarifies the purpose behind data collection.

Self-Check Exercise-2

Q.1 What do you understand by the qualitative indicator of learning?

5.5 SUMMARY

Dear learner in this unit, we have discussed with you about the distinct aspects of teaching-learning process, dimensions of teaching-learning process and indicators of the quality of teaching and learning. Teaching – learning has four aspect : teacher, students, learning process and learning situations teaching learning process has five main dimensions as purpose, student engagement, curriculum pedagogy, assessment for student learning and classroom environment and culture. Further, in order to assess the quality of teaching-learning process, there are two types of indicators qualitative indicators and quantitative indicators. Furthermore, various input, process, output, and outcome indicators play a significant role in improving students' learning experiences and promoting effective institutional practices that support the teaching and learning process.

5.6 GLOSSARY

Teaching Learning process: The teaching-learning process is a combined process where an educator analyses and gauges learning needs, outlines and establishes learning objectives, and employs new teaching-learning strategies to impart knowledge.

Quality learning: The quality of learning refers to the level of excellence achieved in the learning process, focusing on the effectiveness of both the process and the outcomes.

5.7 ANSWERS TO SELF-CHECK EXERCISE

Self-Check exercise-1

Answer1: Student engagement, classroom, curriculum, assessment, evaluation.

Self-Check Exercise-2

Answer2: Such kind of learning is based on quality not on quantity or numbers.

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5.9 TERMINAL QUESTIONS

1. Explain the teaching-learning process.
2. State the various aspects of teaching-learning process.
3. Describe briefly the dimensions of teaching-learning process.
4. What are the indicators of quality teaching and learning?
5. Describe various indicators of quality teaching and learning.
6. Discuss qualitative indicator of learning in detail.
7. Explain quantitative indicator of learning.

UNIT -6

Individual Differences in Classroom

6.1 INTRODUCTION

In teacher education programmes at different levels, it is assumed implicitly or indirectly that complete understanding regarding learner, content and

teaching-learning process gives deep understanding about teaching-learning process and develops necessary professional skills and competencies in the teachers to face the classroom situations confidently and intelligently. Child is the centre of education and the aim of education is to produce desired changes in the behaviour of child. The teacher tries to accelerate the process of acquisition of such changes in the children and tries to make them civilized and responsible citizen of country. But each child is a unique individual and differ from each other with respect to intelligence, interests, capacities, aptitudes, etc. As a result of it, to teach these children successfully, the teacher must have insight into individual differences, types of individual differences and ways and means of accommodating individual differences in the classroom. In this unit we will be discussing with you, ways and means of improving student-teacher interaction in the classroom, types of individual differences and catering individual differences in the classrooms.

6.2 OBJECTIVES

After reading the unit pupil teachers will be able to :

1. Explain the ways and means of improving students-teacher interaction in the classrooms.
2. Discuss the various types of individual differences in the classrooms.
3. Describes the techniques of catering individual differences in the classrooms.

6.3 WAYS AND MEANS OF IMPROVING STUDENT-TEACHER INTERACTION IN THE CLASSROOM

Every student is unique, with their own strengths, challenges, and ways of learning. No two students are exactly alike—they differ in age, gender, genetics, intelligence, achievements, interests, and emotional, social, and developmental needs. In a classroom of forty students, a teacher faces forty different challenges, each requiring attention and understanding. One child may be attentive, while another struggles to focus. Some students are hardworking, while others may lack motivation. One may quickly complete assignments, while another might miss deadlines despite repeated reminders. Some are naturally gifted, while others need extra support. To create an effective and inclusive learning environment, teachers must recognize and appreciate these individual differences, as they stem from fundamental psychological and developmental variations.

In daily classrooms, there are two types of classroom interactions i.e. verbal interaction and non-verbal interaction, following are the ways and means which a teacher can adopt to improve verbal as well as non-verbal classroom interactions;

- The size of the class should be as small as possible so that teacher can interact with each and every students.
- The teacher should try to pay individual attention to the group under instruction.
- Keeping in view the different needs of the students, teacher should take care of individual differences while engaging them in drill or practical work in classroom or assigning home-task.

- If ability grouping of students is not possible and more specifically in present classroom teaching, special couching and guidance programme for both slow learner and gifted children is most helpful.
- Teacher should try to formulate his own plan and strategy and adopt procedures of teaching based on child centred education.
- The teacher should organize various academic activities such as quizzes, debate, group discussion, declamation, seminars and extempore activities and other co-curricular activities so that pupils may get opportunities to study and work in the areas of their own interest and abilities.
- The teacher should employ new and innovative teaching-learning methods and collaborate latest technology in classroom situations to make learning everlasting and interesting to the students.
- There should be a democratic atmosphere in the classrooms so that the student do not be passive listener but feel pleasure and enjoyment in classroom interactions.
- The teacher should create a friendly atmosphere in the classroom and offer help to students in achieving the objectives of teaching-learning process effectively.
- Teacher should know and understand the needs and the problems of students more closely and in various contexts.
- The teacher should render guidance and counsel individually or collectively, formally directly or indirectly for meeting needs of students.

Self-Check Exercise-1
Q.1 State any two ways for improving teaching learning interaction.

- They can provide an atmosphere of sympathy and warmth, understanding and confidence, which are essential for effective guidance and counselling.

6.4 INDIVIDUAL DIFFERENCES: CONCEPT, MEANING AND TYPES

Every child is unique, differing in physical, emotional, and mental aspects. These individual differences create challenges for teachers, especially when deciding on the best teaching approach to ensure that every student benefits. The psychologist who initiated a systematic study of individual differences was Francis Galton. Since then, many extensive researches have been carried out on this subject, and on their basis, psychologists and educationists have evolved many new methods of education. Although individual differences create many problems for the teacher, from the viewpoint of society and the individual, they are of very great importance. In past ages, there was a time when man's needs were limited and he could fulfil them with ease. In the modem age, these needs have increased, and hence we need individuals with special abilities to cater to them and to contribute to the development in society in a variety of ways. Through a study of individual differences, teachers can discover the

particular talents and capabilities of each particular student and then bring about the proper development of those talents.

Definitions of Individual Differences

In word of **Tyler** - It has been established that there are differences in the various characteristics of personality which can be measured the size and shape of the body, capacity for bodily movements and work, intelligence, attainments, knowledge, interest, aptitudes, etc.

According to **James Drever**, Individual differences refer to variations or deviations from the group's average in mental or physical characteristics, as observed in individual members.

According to C.E. Skinner Individual differences refer to any measurable trait or characteristic that makes up a person’s unique personality.

R.S. Woodworth and D.G. Marquis stated that individual differences exist in all psychological characteristics, including physical abilities, knowledge, habits, personality, and character traits.

After analyzing these definitions, we can conclude that individual differences are a universal phenomenon in social sciences, physical, and biological sciences. They form the basis of psychology and are both quantitative and qualitative. Individual differences are measured using physical and physiological functions, motor capacities, and other indicators.

In education, students have been differentiated based on age since ancient times. As children age, the subjects they learn become more complex. Additionally, intelligence levels and educational attainments have been considered. In the past, it was believed that individual differences were the capacity to acquire skills in a particular subject.

In modern schools, other skills, abilities, and personality peculiarities are also taken into account. This encompasses every measurable aspect of the human personality, such as variability, conformity, learning rate, and relationships between personality characteristics.

Individual differences in physical and mental development, nature, learning ability, specific abilities, interests, and personality traits are all considered.

Types of Individual Differences in Classrooms

The personality traits of individuals are different from one another. There is also a great difference in different traits of the same individual. On this basis, individual differences can be divided into two classes as follows :

1. **Inter-individual differences :**

The variation in differences found in the measurable personality traits of two or more individuals is called inter-individual differences. It includes the differences in their physical traits, differences in their mental traits, differences in their social traits. For example, difference in the weights of individuals, differences in their intelligence, differences in the amount of their sociability etc. will be included in this category.

2. Intra-individual differences :

The difference found in the measurable personality traits of the same individual are called intra-individual differences. This includes differences in different traits of the same individual. For example, some individuals can be mentally ill; some individuals can be physically unhealthy yet they can be intellectually brilliant yet they can log in educational achievement,

The following types of individual differences are found in the classroom as brief described ahead;

1. Average Intelligence*:*

Individuals are seen differing in considerable measure in respect of their general intelligence. It is not possible to send 10 schools children with an intelligence quotient of below 50. Children with intelligence quotients between 50 and 70 can learn only the simplest tasks even the small schools trouble children whose intelligence quotient varies between 70 and 80. Children between 75 and 90 I.Q. Are considered morons and they have considerable difficulty in progressing along with other who form the basis for the formulation of the syllabus and curriculum as well as the method of teaching. Children who are either above or below this level of intelligence require special educational methods and conditions. Children with intelligence quotients varying between 115 and 120 are considered brilliant or intelligent. The following facts have come to light concerning individual differences of intelligence in children :

i. However good and beneficial the environment and the method of education, the moron invariably reaches his highest level of learning before the average or the intelligent child.

ii. In favourable circumstances the average child generally gives a good account of himself in his academic pursuits.

iii. If the circumstances are favourable, the intelligent child shows great alacrity in the process of learning.

iv. Adverse circumstances have the worst effect on all children, and their learning activities are hindered.

2. **Special abilities :**

During the high school as well as the college stage, the individual's differences in respect of special abilities, in addition to the general intelligence, are also important since special professions and specialized fields of vocation all need certain specific abilities. Abilities of this kind are concerned with mental, artistic, personality or motor ability.

3. **Differences of background:**

In school the differences that the children exhibit are the outcome of their different families and their communities. Attitudes towards education and authority differ in each family, culture and class. Some of these attitudes are favourable while others are unfavourable to education. In either condition, the differences of attitudes result in differences among children. Besides these attitudes, the child's emotional, social, aesthetic and moral development is influenced by his family and the neighborhood. Hence differences of background also manifest individual differences in the classrooms.

4. **Alacrity in learning :**

Difference in the quickness or alacrity in learning is visible not only in children of different ages but also among children in the same age group. This difference is dependent upon their maturity and educational background. Differences in the alacrity of learning result in benefits accruing from formal education.

5. **Mental age :**

Children of differing ages as well as children of the same age show differences in their respective mental ages. Generally speaking, all students studying in the same class differ according to their mental ages. It has been observed that in the age of 6, differences in mental age range up to 5 years. Mental age and education are intimately related. The child's level of education is determined according to his mental age.

6. **Motor ability :**

The individual's movements of the hand and feet and other physical abilities are seen to be very individual, as they do not resemble another's to any great extent. Till the individual attains adulthood, his manual dexterity, rate of muscular movement and resistance to fatigue develops children in their learning. Generally, 40 to 60 per cent of the children in schools have I.Q. varying between 95 and 105, being the children with average intelligence continually. In this manner, the same individual in different ages and different individuals in the same age group manifest considerable differences in manual dexterity.

7. **Sex differences :**

MacNeice and Terman discovered the following differences between male

and female students, on the basis of some studies :

(i) Girls have greater skill in memory while boys have greater motor ability.

(ii) Female handwriting is superior while male excel in mathematical logic.

(iii) Girls show greater skill in making sensory distinctions of taste, pain, smell, etc., while boys show greater reaction and consciousness of size- weight illusion.

(iv) Possessing greater linguistic ability, girls are superior to boys in languages, similitude's, word building, compositions and use of long sentences etc. On the other hand, boys are superior in physics and chemistry.

(v) Girls are better than boys in mirror drawing. Faults of speech etc., in boys were found to be three times of such faults in girls.

(vi) Girls are more susceptible to suggestion while there are three times as many colour-blind boys as there are girls.

(vii) Young girls love stories about love, fairy tales, school, home, and daydreaming. They express themselves in different ways through their play. Boys, on the other hand, are drawn to stories about bravery, science, war, scouting, games, sports, scouts stories, and skills.

8. **Differences relating to learning :**

In respect of learning, children manifest such differences as past experience and learning, ability in the use cf various kinds of apparatus, rate of learning, interest in learning, etc.

9. **Difference in respect of development :**

Difference in development is in evidence not only in individuals of different age groups but also between individuals of the same age.

10. **Difference in interests :**

As has been pointed out, the difference in sex leads to a difference in interests. Similarly, factors such as family background, level of development, differences of nationality and race, etc. cause difference of interests.

11.**Differences in Study Habits**

Children and adults exhibit diverse study habits. We may study a subject of interest, vary the amount of time devoted, serve different purposes, and employ various methods, modes, and mediums. Similarly, students in a class differ in their learning pace, comprehension, study preferences, and environmental needs. Some study well alone, while others require companionship. Some prefer nighttime study, while others rise early. Some require minimal guidance, while others need constant support. This diversity highlights the wide variations in study habits among learners.

12.Differences in Achievements :

Self-Check Exercise-2
Q.1 Define individual differences.

Individuals differ in their achievements in various aspects of life, such as academic and professional pursuits. Some excel in specific areas while struggling in others, while others dominate in most fields. Similarly, children studying a particular course may excel in some areas while performing poorly in others. In internal or external achievement tests, students in the same class may exhibit varying performance levels, ranging from low to high. These variations and differences persist even among students in the same section, school, and taught by the same teacher in the same environment. In classroom teaching, variations among students can be observed in their experiences, responses to questions, supervision of classroom activities, and completion of home assignments and projects. These differences highlight the wide range of achievements among learners in any learning situation.

6.5 CATERING INDIVIDUAL DIFFERENCES IN CLASSROOM

The present school system does schooling for average students and neglects the slow as well as the rapid learners. The bright students are forced back and slow learners are dragged or left behind by declaring them as failures. Thus to cater the individual differences present in the classroom following measures should be taken by the teacher as well as school to achieve the objectives of modern education. Following are techniques to cater individual differences in classrooms;

1. Adjusting Curriculum:

In school, the curriculum should be modified to suit the needs of the dull children. Failure to achieve this, adversely affects the development of all three kinds of children. Whereas the backward students start playing truant

from school the brilliant children find the studies inadequate and turn their intellect to more perverse. To accommodate the diverse individual differences among students, the curriculum should be as flexible and adaptable as possible. It should offer a variety of courses and co-curricular activities, allowing students to explore subjects that align with their interests and abilities. Additionally, the curriculum should be designed to meet local needs and cater to the unique potential of different student groups.

2. Limited size of the class:

Considering the individual differences among students, an ideal class size should not exceed 20 students for effective teaching. When a class has 50 or more students, it becomes nearly impossible to address each student's specific needs properly..

3. Adjusting Method of Teaching:

A one-size-fits-all approach to education is neither effective nor advisable for all children. Teaching methods should be adapted to align with students' individual differences and cognitive needs. To accommodate these variations, it is crucial to adjust instructional strategies accordingly. Teachers should have the flexibility to develop their own plans and choose teaching methods that best suit their students. They should tailor their approach to meet the needs of different ability groups, ensuring that each student receives the support they require.

4. Educational Guidance:

By understanding the unique differences among students, a teacher can provide invaluable guidance in shaping their educational journey. Teachers play a crucial role in helping students select subjects for higher studies that align with their strengths and natural inclinations, ensuring they make choices that suit them best.

5. Vocational Guidance:

Different professions demand specific physical, mental, and personality traits. By understanding each student's unique mindset and tendencies, a teacher can effectively guide them toward a career path that best suits their strengths and abilities.

6. Contribution of School, Family and Community in Education:

Recognizing the differences among children highlights that school education alone is not enough, as many of these differences stem from family and community influences. Modern educational psychologists emphasize that achieving holistic development requires collaboration between schools, families, communities, and religious institutions.

7. Individual Training:

Having knowledge of individual differences, now many methods of individual training have been devised. In America, the Dalton plan, project method, Winnetka method, contract plan and activity programme methods have been devised for individual training which can also be adopted in Indian classrooms. A brief resume of the various methods is given below;

(i) Dalton Plan: In this, children are not taught in class rooms. They are given subjects that suit their interests and they are given a project that

covers a period of 15 days to a month. Such treatment leads to the development of neutrality, independence, co-operation and sociability etc.

(ii) Project method: In this the children are required to do work of even day requirements, such as cooking, stitching, furniture making, etc. And in the process of this work, they are taught novel things.

(iii) Winnetka system: In this method, the student on his own tries to attain a certain definite objective and the teacher offers very little assistance. Later on, through some tests, the extent to which the student has attained his goal, is discovered.

(iv) Contract Plan: In this, similar to the Dalton method, the subjects of study are determined and similar to the Winnetka method the student's progress is measured through tests. In this manner it is a synthesis of the Dalton and Winnetka method.

(v) Activity Programme: In this approach, the curriculum is designed around activities that align with students' interests. These activities are guided by democratic principles, fostering not only engagement but also the development of democratic values in children.

8. Ability Grouping

Based on the results of various tests that assess individual differences and potential in different areas, students in a class or activity can be grouped into homogeneous groups. This grouping helps tailor instruction to better accommodate their unique abilities, making learning more effective and personalized.

It is evident from the foregoing description that modern education makes proper arrangements for a child's education, keeping in view his peculiar nature and special abilities. In a democratic society every individual has the right to achieve a definite level of development. Hence, even more essential it is that individual differences be kept in mind while educating people of democratic countries.

Self-Check Exercise-3
Q.1 Suggest any two ways to reduce individual difference.

6.6 SUMMARY

Dear learner, in this unit, we have explored various strategies to enhance student-teacher interaction in the classroom, as well as the types of individual differences and how to address them effectively. Individual differences refer to the variations among individuals in one or multiple traits, such as physical and mental development, gender, learning pace, specific abilities, interests, and personality.

Understanding these differences can greatly assist parents and teachers in planning and organizing educational experiences tailored to each child's unique needs. The psychology of individual differences has significantly transformed education by making the learning process more personalized, ensuring the well-being and development of each student. As a result, approaches like ability grouping, curriculum adjustments, differentiated

teaching methods, and customized learning environments are becoming key components of new educational reforms and innovations.

6.7 GLOSSARY

Teaching : Teaching is a process where systematic methods are used to transmit knowledge into someone.

Learning: Learning is the process of acquiring new understanding, knowledge, behaviors, skills, values, attitudes, and preferences.

6.8 ANSWERS TO SELF-CHECK EXERCISE

Self-Check Exercise-1

Answer1: Innovative methods of teaching, playful learning activities.

Self-Check Exercise-2

Answer1: Individual differences are the lasting psychological traits that set one person apart from another, shaping their unique identity and individuality.

Self-Check Exercise-3

Answer1: Individual training, curriculum changes

6.9 REFERENCES / SUGGESTIVE READINGS

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6.10 TERMINAL QUESTIONS

Dear learners, check your progress by attempting following questions:

1. List various ways and means of improving students-teacher interaction in the classroom.

2. Write short note on individual differences.

3. Describe the types of individual differences present in classrooms.

4. How is he knowledge of individual difference useful for teachers?

5. How can the individual difference be catered in the classrooms?

UNIT-7

Sources of learning

7.1 INTRODUCTION

Technology plays a crucial role in education, as advancements in information technology have opened new opportunities for learning. It has the potential to enhance education quality, expand access to high-quality learning, facilitate knowledge-building through unlimited access to resources and people, and reach remote populations to fulfill their fundamental right to education. In today's era of globalization and industrialization, the world needs globally competent students who can compete anywhere. To achieve this, we require well-trained teachers, making urgent and comprehensive reforms in teacher education essential. There must be a stronger alignment between professional teacher

preparation and ongoing professional development in terms of level, duration, and structure. The field of teaching and teacher education has undergone significant changes due to information and communication technologies (ICT). The 21st century, often referred to as the Digital Age, demands the integration of technology into teacher education through content, pedagogy, collaboration, and technical and social considerations. In a rapidly evolving global landscape, technology has become the foundation for national progress and development. A strong teacher education system is essential for improving both the quality of education and the working conditions of teachers. A well-prepared and effective teaching workforce is crucial for shaping the future of students. Teacher training institutions equipped with modern technology can develop skilled educators, who in turn nurture responsible citizens. ICT can play a transformative role in expanding teacher education across the country, addressing the shortage of qualified teachers in India.

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7.2 OBJECTIVES

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

- Describe various sources of learning.
- Discuss the concept of classroom learning.

7.3 SOURCES OF LEARNING

Modern era is an era of science and technology which has revolutionalised the field of learning. The learning process has been filled with recent and new innovative sources of learning. Modern technology comprises a variety of electronic tools, media, and environments that can be used to enhance learning, foster creativity, stimulate communication, encourage collaboration, and engage in the continuous development and application of knowledge and skills. It has now evolved to a point where its power to transform schools is evident. The field of technology is in a state of constant change. Development has been uneven. Many in the education community are aware of the need for more guidance and discourse on how to maximize any investment in technology. Many educators want to know how technology will make a difference to their students in the classroom. Trained to evaluate curricula and develop methods for teaching traditional disciplines, many educators feel unprepared to evaluate or use technology. The use of technology cuts across all academic areas, and it is changing rapidly, gaining greater capabilities seemingly every day. Most institutions—from businesses supported by resource- rich technology departments dedicated to mastering these powerful, expensive, and evolving electronic tools, to schools and school districts—are hard-pressed to keep current. Few general, informative, and stable guidelines exist anywhere. Thus, concrete examples of successful technology use and thoughtful criteria can be an important source of practical expertise and information for others.

Print

Printed materials form the foundation of education and serve as the origin of all modern learning delivery systems. The earliest distance learning courses were conducted through correspondence, where study materials

were mailed to students and returned upon completion. Although advancements in technology have introduced new tools for distance education, print remains a vital element in all distance learning programs.

Advantages of Print

- Print materials can be used anytime and anywhere, as they don't require special equipment like electricity, screens, or digital devices. Their portability makes them especially valuable for students in rural areas with limited access to advanced technology.
- Since students control the pace of their learning, they can skip over familiar sections and focus on areas that need more attention, making print a flexible and efficient learning tool.
- Print is the most cost-effective instructional resource, with widespread availability for easy and inexpensive duplication.
- Compared to high-tech digital tools, print materials are simple and affordable to edit and update, ensuring they remain relevant over time.
- When creating printed learning materials, educators can focus entirely on delivering quality content without worrying about technical complexities.
- Reading is natural for most students, allowing them to engage with content without being distracted or overwhelmed by the learning process.

- Since print doesn’t compete for a student’s attention the way digital media often does, it remains one of the clearest and most effective ways to deliver information.

Limitations of Print

- Print relies solely on written text, offering only an indirect representation of reality. Even with well-illustrated images or sequential photos, it cannot fully capture motion or dynamic experiences.
- Research has shown that students need higher motivation to successfully complete print-based courses. While effective instructional design can help engage passive learners, reading a book or completing written exercises requires more effort than watching a video or participating in an interactive discussion.
- Learning is most effective when students receive feedback and engage in interaction, regardless of the teaching method used. Since print materials are naturally passive and self-directed, even when they include feedback mechanisms or interactive exercises, students may be tempted to skip directly to the answers without fully engaging in the learning process.
- Television exposure helps children develop strong viewing skills at an early age, often by the age of four. However, many children struggle to build adequate reading skills even by age 12. Since poor reading abilities can limit the effectiveness of even well-designed print

materials, efforts must be made to strengthen literacy for print-based learning to be truly effective.

Electronic: Electronic media encompass television, radio, the Internet, fax, CD-ROMs, DVDs, and any other format that relies on electricity or digital data encoding. The term "electronic media" is commonly used in contrast to print media.

The Radio: The educational radio was quite popular and was gaining widespread acceptance as an enrichment source in the teaching of certain subjects until the appearance of the television in the 1950's. It was, then, almost abandoned in favour of the glamour of the more visual television medium. Its impact on education, now, seems to be little, although it has much to offer education. It is a credible source of information there must be fruitful ways to use it in instruction. Though emphasis may remain on television and other media we should not lose an important instructional medium through default. In order to increase the effective use of radio, it is necessary that there should be a provision of radio sets in the school. Radio broadcasts should be supported with printed materials, illustrations, slides, posters, filmstrips, etc. followed by discussions also. Radio programmes should be prepared very carefully keeping in mind the objectives of teaching-learning, interest of the student and students previous background. Awasthy (1965) said, "A radio script, no matter how well it is written, is but the bare bones of a program. What counts is how well it is put across. Between the script and its broadcast lies the whole technique of production and the success or otherwise of the producer."

The All India Radio had taken the initiative to start educational broadcasting programme for children from Bombay station in 1929 and from Madras in 1930. In 1 932 the Madras AIR station initiated a syllabus-based (SB) programme of broadcasting which was followed by other stations also. This radio programme was based on syllabus and covered almost all subjects. The AIR also produced and broadcast a series of programmes of teaching English and foreign languages in collaboration with the Central Institute of English and Foreign Languages Hyderabad. It is an admitted fact that educational radio programmes can substantially enrich and supplement the teaching learning experience. It is a potential medium of communication within easy reach and capable of covering vast area including even the | interior and isolated parts of the country. Radio service has I established a wide network and infrastructure throughout the country. I With little more insight and planned way of production of educational I programmes, it can contribute substantially to quantitative as well I qualitative improvement of education at all levels.

The Television: Television is the chief and the most trusted source of information. Instant replays, stop and slow motion, split screen, etc. are the techniques that greatly increase the versatility and utility of television as a medium of teaching learning. In the initial stages development of educational television was similar to commercial television programme and used commercial T.V.'s broadcast method of transmission, whereby a signal was sent out for general reception, for programmes of educational interest. After that it assumed a mode which transmitted by means of a closed circuit to a limited number of receivers. This mode used primarily in schools and colleges came to be called instructional television (ITV) and was distinguished from the general broadcast method which was, often,

confused as educational television or ETV. The television has six great advantages. These are (1) distribution (ii) instantaneous relay (iii) magnification (iv) storage (v) immediate feedback and (vi) assembly. Television has the capacity of broadcast distribution which means transmissions are on wavelengths and can be picked up by the domestic aerial and receiver. This makes programmes available to millions of viewers. Educational television (ETV) was, first, produced and telecast by AIR in 1960. By 1965 six thousand T.V. sets were installed in secondary schools with the help of the Ford Foundation. The regular educational broadcasting programmes were started in 1965. In 1975-76 Satellite Instructional Television Experiment (SITE) was started. The Doordarshan and space Application Centre) (SAC) produced and telecast T V. programmes for primary school children in 1975. A large number of villages were provided with the T.V. educational programmes in various states of India when the NASA (USA) loaned to India the ATSF. The government of India, then, provided T.V. viewing facilities in 40% of The SITE covered villages. The Indian National Satellite (INSAT-1A) in 1982 and INSAT-IB in 1983 were used for telecasting ETV programmes. The Doordarshan, Central Institute of Educational Technology and Centres for Educational Technology produced programmes for primary school children which were telecast by the Doordsarshan. Several states of India are covered under INSAT project. The total duration of T.V. transmission by INSAT was one hour and twenty five minutes. The morning forty minutes were meant for school education from 10’30" to 1115. Twenty minutes programme was earmarked for children between 5-8 years and another twenty minutes programme was devoted to children from 9-11 years. Every Sunday from

10’30” to 10’50” twenty minutes telecast was devoted to programs for teachers.

The ETV, particularly, with the help of SITE and INSAT has played a significant role in distance education. The ETV programmes have immensely affected various aspects of national development pertaining to education, industry, agriculture, and health education. However, in the field of education the use of ETV is still not fully exploited. The classroom teaching at all levels is still largely dominated by the talking teacher sparingly using audiovisual aids and modern technology.

Closed-Circuit Television: There is a growing feeling that closed circuit T.V. is the most useful form of television for education. The two most important advantages of closed circuit television are reduced cost and its ability to reach a limited audience. The signal is not broadcast but is confined in a cable or set of w s In order to receive the signal one has to be “on the cable’’. That means his over long distances It is usually confined to a single building or complex of buildings. The second major advantage of this form of the medium, i.e., its capability for reaching limited audiences has a significant effect on the type of information relayed. Special type of educational programmes useful for only a particular section of students such as a teachers training class can be presented without this interference of other people for whom the programme has no relevance. Thus, privacy of instruction is maintained.

The Internet: Internet is a computer-based information service. It had its origin in the U S A. in 1969 as ARP net. The ARP net was meant only for use by military personnel. Its full name was Advance Research Project network of America. The procedure of exchanging information developed

by ARP net scientists was used only by the government or its contractors of the U.S.A. But, afterwards in 1979 it was merged with the parallel academic network known as Usenet News. It was this Usenet News which came, in course of time, to be known as Internet. The Internet is the short form of Inter-network system. It is a network of computer system which makes it possible to create a pool of global information and services. A network simply means an interconnection of two or more computers created for exchanging information among themselves. It is a new information technology which has brought a global revolution. It makes us realize how small world we live in. It creates an ocean of information and a broad way of communicating with people globally. It is the world's largest network of computer system which enables people the world over to talk with each other. Some decades ago the telephone and the fax machine made their entry and changed the perception of communication; and now, the internet is doing the same. Slowly and slowly it is taking over the world of communication and information in a big way. Everyone who is not on it already wants to be on line because it has entered almost all spheres of human activity. The estimated number of internet users worldwide was said to be more than 100 crores in 2003 and the total number of computers engaged in this was estimated to be 25 millions. The Internet provides accurate and ample information without wasting much time and money. The Internet can be used for conducting business (E-commerce), for exchanging messages (E-mail), taking part in discussion, download software and also unload information and chat with other online persons. Since, the Internet is a huge store house of information and data on numerous topics, it is of immense educational value. Information about even advanced research in various field is made available. It makes us

able to interact with pioneer researchers and educationists in the world. Distance and location are no more barriers in imparting education and training. It removed even the limitations of class, size of audience, time, place, learner's speed and pace, etc. Internet can significantly contribute to the qualitative improvement of education at all levels as it stores high quality teaching-learning programmes and rich source of information. No student or any teacher can buy latest books. They are numerous. Even a good library can not afford that. But, on Internet this latest and more reliable information can be made available easily without spending much. The Net comes handy for all concerned with acquisition of knowledge and skills. Net is versatile and provides comprehensive information in many fields. It is very useful for motivating students and supplementing classroom teaching at all levels of education. It is of great help even in case of non-formal and distance education. Internet service is of great help to the researchers and the teachers in the universities. Software libraries, documents, information about researches and discoveries are available to all users on the Internet. The researchers and the university teachers can, now, participate, in discussions on specific topics on internet. Such software's have been developed.

The Audio Equipments: Sound is the most dominant medium of teaching learning. The teacher speaks and the students hear it and derive a meaning out of it. Sound is the information carrying medium. Audio technology has become extremely sophisticated in recent years. Some of this technology has found its way into the instructional process. This is a fact that the most prolific audio source of classroom teaching is the teacher. His lecturing, questioning, motivating, disciplining, directing scolding, encouraging, etc all involve audio media for the students. This excluded,

there have entered into the instructional process some useful electronic audio devices. The audio side of audio- visual applications tends to be neglected, but it is as important as the visual perhaps more so. The following are some of the useful audio systems which can be used for teaching:

1. Phonograph
2. Tape recorders
3. Radio

1. The Phonograph: This is the high fidelity and stereophonic sound equipment which was very popular a few years ago. This was used in the classrooms for a long time before the new devices emerged on the scene. This was used for primarily enriching the classroom teaching and motivating the students. Voice of very eminent persons was recorded and records were played in the classroom. For example, recording the actual voice of Pandit Jawahar Lai Nehru and Mahatma Gandhi and playing these records in the classroom may give just the touch of realism needed to liven an otherwise routine class. Similarly, the actual voice and way of reciting their own poems in case of poets like Mahadevi Verma, Dinker, Bachchan, Nirala, etc. recorded and records played in the class would stimulate students' genuine interest in literature. One of the most fruitful uses of the phonographs has been in the education of the blind. Long before the advent of the tape recorders phonographs were helping to overcome the severe instructional disadvantage under which the blind would work.

2. The Tape-recorders: Magnetic tape recorders, now, have high quality specifications. One of the most interesting at the moment is the small cassette- loading mains-operated or battery operated. It is inexpensive, very portable and gives a moderate sound quality suitable for most teaching-learning purposes. It is ideal for educational The tape recorder is an electronic gadget. It has a magnetic tape which is used for recording voice which may be a song , a lecture, a talk or any other form of the voice. The voice once recorded can be reproduced any time in future, any number of time and by any one who knows about it. The voice can be erased also. The lectures, talks, discussions can be recorded and stored for future use. The pre-recorded tapes of lectures ortalks by eminent teachers and professors played in the classroom are quite stimulating for the students. Tape recorders are used in sleep learning, for storing data from space probes, for composing music, for experiments in acoustics, for recording historic events, etc. The language laboratory gave the tape recorder its first big thrust into education. They have also been used in music classes, English literature classes, speech classes and various other school and college activities. The tape recorders can be very effectively used for remedial teaching, for skill learning, enrichment, follow-up exercises, reinforcement of known skills and review. Tape-recorders have one great advantage that they are quite inexpensive as compared to other electronic gadgets. Another advantage is that they can be used even when electricity power is not available. They can work with battery sets. They are so handy being portable that they can be carried anywhere easily for use. Their operation is so simple that anyone can use them without any special training. Production cost of audio cassettes is comparatively much less and affordable by individual students too. The great disadvantage of the tape

recorders is that they are sound-based only. Devoid of visuals their use is not as interesting and attractive as that of video tapes. Still a great disadvantage is that in their case there is no scope for feedback and interaction. They provide only one way communication. The students has no chance to ask questions and seek clarifications.

Video Equipments: A video tape recorder (VTR) is very similar to an audio tape recorder (ATR). The only difference is that the VTR is capable of recording the picture as well as the sound on magnetic tape. Pre-recorded video tapes can be played through T V. in the classroom. Video films are like audio films with an additional advantage of showing pictures and movements also. Video films on many educational topics have been produced by several business firms. They can be shown through T.V. in the classrooms to the students. Also they can be prepared by the teachers on specific topics if the facilities are made available to them. Video films are just like the ordinary cinematic films. They are most convenient and very useful for teaching learning purposes. They are a very effective mass media of communication. They provide education as well as entertainment. In the past thousands of video films have been produced in India by the film centres at Bombay, Madras and Calcutta. A large number of documentary films have been produced by the film Division of the Government of India. They cover almost all subjects of national interest including documentaries, cartoons, and T.V. films in various languages of India. These are a very interesting medium of education. One great advantage of video cassettes is that the teacher has full control over the machine. The student also can manipulate it at any time anywhere. It makes, in this way, self-learning easy and possible. Video cassettes with suitable educational programmes are very useful in case of distance education. They may be useful in case of

skill training programmes such as teachers' training, management training, etc In fact, there can be no field of knowledge where video cassettes, video films and video tapes cannot be used for supplementary and enriching the educational programmes being run.

Traditional Knowledge

Another name of Traditional education is back-to-basics, conventional, or customary education which refers to long-standing teaching practices historically used in schools. Some educational reforms advocate for progressive methods, emphasizing a holistic approach that prioritizes individual student needs and self-expression. Reformers argue that traditional teacher-centered methods, which rely on rote memorization, should be replaced with student-centered, task-based learning. However, many parents and conservative groups support maintaining objective educational standards through testing, which aligns more closely with traditional teaching approaches. Traditional education has historically relied on strong elements of coercion, which are now considered less acceptable in many cultures. It has often involved practices such as corporal punishment for discipline, the enforcement of dominant languages and religions, and the segregation of students based on gender, race, or social class. In many cases, boys and girls were even taught different subjects.

The curriculum in traditional education has always placed significant emphasis on time - honoured academic knowledge. While modern education systems vary greatly across cultures, traditional schooling still tends to be more rigid and structured compared to alternative education models. In Britain and its former colonies, schools often reflect the English Public School system, characterized by strict uniforms and a militaristic

approach to discipline. In contrast, schools in South Africa, the USA, and Australia tend to allow more open and spontaneous communication between students and teachers.

Experience

Instructional materials are differentiated in different ways depending upon the criterion used. The criteria used happen to be (1) according to the sense stimulation such as visual, audio and audio-visual, (2) according to projection facilities made available such as projected, non projected and activity aids, and (3) according to the kind of experience provided by the aid used. This is the classification given by Edgar Dale in his book Audio visual Methods in Teaching which was published in 1964. The basis of his classification of aids is the kind of experience that is provided by the particular aid. He presented this classification in the form of a diagram which he called the cone of experience, the pinnacle form of representation of experiences. This basis of classification may be considered as the effectiveness of communication. As may be seen from the following cone the most effective aid is the one that provides direct and purposeful experience and that forms the base of the cone. This is the experience gained directly through the senses. As we go up the cone, gradually, the experience generated by the aid at that level becomes less and less direct and less and less effective. At the top is placed only the lecture or verbal medium of communication which is least effective being highly abstract.

Direct and Purposeful Experiences: Direct experience occurs when the learner sees or hears, touches or smells something which is real. For example, if he goes and visits Taj Mahal, he gets the first hand experience of what it is. But, if he only sees the picture of Taj Mahal it is the indirect

experience. Direct experience results into more effective learning. There are various kinds of aids and instructional materials which are used for teaching. Those aids which provide direct experience such as working on projects, field visits, case studies, doing experiments himself or seeing experiments being conducted, i.e., demonstrations are the most effective devices of teaching. The learners experience greater interest and motivation through the use of such aids.

Contrived or Indirect Experiences: As we go up the cone the aids mentioned therein progressively become less and less effective as the experience they provide is only indirect or contrived and not direct. Dale has arranged these teaching aids sequentially according to the degree of effectiveness of experience they provide. For example, the projected and non-projected aids provide only the second-hand experience. What they project is not the real, but a contrived representation of the real. If projected and non-projected aids are compared, it may be seen that non-projected aids are less effective as compared to projected aids, the experience provided by them being far removed from reality.

Abstract Experiences: At the top of the cone are aids like teacher's talk, lectures, use of blackboards, display boards, etc. which are highly abstract. These provide the least effective learning experience. The cone of experience of Edgar Dale simply illustrates that so far as learning is concerned abstract experience is the least effective and direct experience the most effective. Based on this principle the various teaching-learning aids are arranged in a serial order from most effective (providing direct experience) to least effective (providing abstract experience).

Self-Check Exercise-1
Q.1 What are the different sources of knowledge in modern age?

7.4 SUMMARY

Dear learner, in this unit, we have discussed with you various sources of learning as print media, electronic media, traditional knowledge, nature, experiences, etc. In this unit, we have studied various sources of learning such as print, electronic (radio, television, computer, internet, email, etc.), various types of experiences as well as new concept of learning beyond text books. Several issues such as school environment, involvement of pupils, classroom management, maximum use of learning sources and other factors associated with teaching learning process. This content will help the learner to aware of modern teaching-learning practices.

7.5 GLOSSARY

Textbook: A textbook is a book containing a comprehensive compilation of content in a branch of study with the intention of explaining it

7.6 ANSWERS TO SELF-CHECK EXERCISE

Self-Check Exercise-1

Answer1: Internet, television, radio, personal experiences.

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7.8 TERMINAL QUESTIONS

Dear pupil teachers, attempt the following questions to check your progress.

1. Explain various sources of learning.

UNIT-8

Issues in Classroom Learning

8.1 INTRODUCTION

Classroom learning means the traditional form of education where students attend classes in a physical classroom setting, typically with a teacher present. This mode of learning allows for direct interaction between students and teachers, as well as among peers. It often includes lectures, discussions, activities, and assessments conducted face-to-face. While traditional, classroom learning remains a cornerstone of education, it has evolved alongside online and hybrid learning models to accommodate different learning preferences and technological advancements. In this unit, we shall discuss about issues and challenges in classroom learning.

8.2 LEARNING OBJECTIVES

After going through this unit, students will be able to:

- Describe the importance of learning beyond text book.
- Describe the strategies of learning beyond text books.

8.3 LEARNING BEYOND TEXT BOOKS: CONCEPT, IMPORTANCE AND STRATEGIES

Vail educators have dedicated thousands of hours to analyzing, prioritizing, and scheduling academic standards, as well as developing instructional and assessment strategies. The outcome of this extensive work is a district-wide instructional program called Beyond Textbooks. Over the past decade, Vail's educators have cultivated a teaching philosophy that goes beyond traditional textbooks and state standards, fostering teacher collaboration, enhancing the learning experience, and driving student achievement. Beyond Textbooks is a comprehensive system that encompasses curriculum development, instructional enhancement, student assessment, and multi-tiered intervention strategies. The program was developed in response to the district's growing student population, which increased from 3,600 in 2001 to over 12,000 in 2015. By implementing this approach, Vail significantly improved student performance in math and reading—raising achievement levels from at or below state averages to consistently surpassing them by 20% or more, with over 90% of students meeting proficiency benchmarks across most grade levels.

The impact of Beyond Textbooks extends beyond Vail, as the district has partnered with over 100 school districts and charter schools in Arizona, California, Idaho, and Wyoming. These institutions are now using the program to enhance student achievement within their own schools. Importantly, the name Beyond Textbooks does not imply a rejection of

traditional textbooks but rather represents a broader educational philosophy aimed at strengthening teacher collaboration, optimizing instruction, and fostering student growth.

The Beyond Textbooks Approach

At its core, Beyond Textbooks follows a collaborative, teacher-driven approach to curriculum development rather than a top-down model. The process begins with teachers working alongside the Curriculum Department to analyze state content standards and identify essential learning objectives for each subject and grade level—those that will provide students with lasting knowledge beyond standardized test dates.

Teachers then "unwrap" these standards to break them down into key concepts, essential vocabulary, student-friendly language, critical questions, and performance-based assessments that demonstrate mastery. The resulting documents serve as the foundation of core subject curricula, establishing district-wide guidelines on what should be taught and what students should learn for each standard.

Following this, teachers and curriculum specialists collaboratively:

- Develop curriculum calendars that outline pacing and instructional goals.
- Design and implement common assessments aligned with the curriculum.
- Facilitate teacher collaboration across grade levels and subject areas.

- Identify and create instructional materials that support effective curriculum implementation.

A key component of Beyond Textbooks is its digital platform, which provides a system of electronic delivery for curriculum resources. This web-based tool houses digital curriculum materials, instructional aids, and various teaching resources accessible to all educators within the program. Through this platform, teachers can:

- Review curriculum standards and pacing guides.
- Access and contribute to a shared database of teaching materials.
- Collaborate with peers across the district and beyond.

This approach transforms the traditional “beg, borrow, and steal” method of sharing teaching resources into a highly structured, technology-driven collaboration model that enhances instructional practices.

Beyond Vail: Expanding the Program’s Reach

Initially developed as a local initiative, Beyond Textbooks has grown significantly over the past six years, forming partnerships with over 100 diverse school districts and charter schools. Currently, the program reaches more than 13,000 teachers and 140,000 students across multiple states.

To ensure successful implementation, Vail provides ongoing professional development for partner schools. Training includes:

- The philosophy and core practices of the Beyond Textbooks framework.
- Implementation strategies for effective integration into schools.

- Technical training on using the Beyond Textbooks digital platform, including access to digital curriculum calendars, unwrapped standards documents, formative assessments, and teacher-created instructional resources.

Additionally, partner schools have the opportunity to contribute their own digital resources, fostering a collaborative and evolving repository of instructional materials for educators within the network.

Today's educators have a new responsibility to prepare students to compete in a technology-driven global economy. In this new economy, digital literacy controls access to information and opportunities for advancement. Schools are no longer seen as repositories of information but as facilitators of learning. It is a dramatic shift that is causing IT departments in many districts to embrace a new mission to support 21st-century, technology-enabled learning. An explosion of new online tools is making that possible by offering students access to a world of information anytime, anywhere. These tools blur the lines between curriculum and technology, pushing education CIOs into the spotlight. Technology leaders must work closely with curriculum and instruction to make sure that the digital learning tools and applications they choose are compatible with their district's infrastructure, hardware, budget, and curricular needs. Following points have emphasized the importance of learning beyond text books;

- Over the last two years, the number of online learning tools available to teachers and students has skyrocketed.
- Once the exclusive domain of educational publishing companies, digital learning tools and content are now also being produced by enterprise

technology companies, non-profit organizations, and individuals. There are online tools and resources for every need, from virtual learning platforms to subject-specific applications.

- “Teachers may already be using many online learning tools on their own to supplement their lesson plans”.
- Shift to student-centred learning “The evolution of technology has made knowledge accessible to anyone with an Internet connection,”.
- Support collaboration and interaction The future leaders of this world will need to be independent learners and collaborative thinkers.
- By providing opportunities for collaboration in the classroom, students can come to rely less on teachers and more on themselves and their peers to solve problems.
- Technology is now allowing students to collaborate and interact with members of their communities at home and around the world like never before.
- “Today, students can exchange ideas with students and adults around the world through email or video conferencing”.

In addition to adapting Beyond Textbooks resources to create lessons, plan activities, and quiz students, Queen Creek Elementary School teachers have incorporated the Beyond Textbooks strategy of meeting by grade level weekly to analyze students’ test data and gauge understanding. Teachers use that data to plan more in- depth learning experiences for students who mastered the standard, re-teach those who need more help, and determine

what changes may be necessary to improve how they teach the concept

Self-Check Exercise-1
Q.1 State any two utilities of technology in learning.

the next year.

8.4 MAJOR ISSUES IN CLASSROOM LEARNING

Purposeful learning in the classroom or in any other situation is a function of a large number of variables. When a variable changes the efficiency of learning does also. In general teacher characteristics, teaching actions and interactions with the students, and physical characteristics of the setting including instructional materials and media significantly influence the quality and quantity of students learning. The active and substantial support of the responsible education authority. There is a growing emphasis on individualized instruction in education. Among the many factors that influence the quality of education and its role in national development, the competence, dedication, and character of teachers stand out as the most crucial. Ensuring a strong and qualified workforce in the teaching profession requires recruiting skilled educators, providing them with high-quality professional training, and fostering optimal working conditions that enable them to perform effectively.

To achieve excellence in education, several key aspects must be considered:

- Creating a supportive and enriching school environment that fosters student growth.
- Encouraging active student participation in the teaching-learning process.
- Maintaining positive teacher-student relationships that promote respect and engagement.
- Implementing effective classroom management strategies to enhance learning experiences.
- Establishing a well-structured school management system that ensures smooth operations.
- Developing a shared commitment to clear educational goals and values.
- Encouraging collaboration among educators through joint planning, shared decision-making, and continuous evaluation.
- Providing strong leadership to drive and sustain improvements in education.
- Ensuring staff stability throughout the academic year to maintain consistency in teaching.
- Developing ongoing professional training programs tailored to each school's instructional and administrative needs.
- Designing a well-structured curriculum that guarantees students acquire essential knowledge and skills.

- Fostering strong parental involvement and support in their children's education.
- Promoting school-wide values that prioritize collective achievement over individual recognition.
- Maximizing effective learning time to optimize student outcomes.
- Active support of educational authority.

By addressing these factors, schools can significantly enhance the quality of education, improve student learning experiences, and contribute to broader national development goals.

O

Self-Check Exercise-2
Q.1 State any three major issues in classroom learning.

8.5 SUMMARY

A textbook is a comprehensive academic resource typically used in educational settings to provide structured information and learning materials on a particular subject. It serves as a primary source of content and guidance for students and educators alike. Textbooks are usually organized systematically, covering topics in a logical sequence and often include illustrations, diagrams, exercises, and summaries to aid

comprehension and retention. We have also learnt about. Various issues and challenges in classroom.

8.6 GLOSSARY

Learning: Learning is the process by which a person acquires new understanding, behaviours, knowledge, values, skills, attitudes, and preferences.

Classroom: Classroom refers to a specially designed space to teach the students without any interruption.

8.7 ANSWERS TO SELF-CHECK EXERCISE

Self-Check Exercise-1

Answer!: video conferencing, quick access to information.

Self-Check Exercise-2

Answer1: passive methods of learning, fearsome environment, burden of studies.

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8.9 TERMINAL QUESTIONS

1. List down various strategies for learning beyond text books.

2. Explain major issues in classroom learning.