MAEDN-506

Curriculum Evaluation

MA EDUCATION

4th Semester

Rajiv Gandhi University
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CURRICULUM EVALUATION

MA [Education]
FOUTH SEMESTER
MAEDN 506

RAJIV GANDHI UNIVERSITY
Arunachal Pradesh, INDIA - 791 112

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About the University

Rajiv Gandhi University (formerly Arunachal University) is a premier institution for higher education in the state of Arunachal Pradesh and has completed twenty-five years of its existence. Late Smt. Indira Gandhi, the then Prime Minister of India, laid the foundation stone of the university on 4th February, 1984 at Rono Hills, where the present campus is located.

Ever since its inception, the university has been trying to achieve excellence and fulfill the objectives as envisaged in the University Act. The university received academic recognition under Section 2(f) from the University Grants Commission on 28th March, 1985 and started functioning from 1 st April, 1985. It got financial recognition under section 12-B of the UGC on 25th March, 1994. Since then Rajiv Gandhi University, (then Arunachal University) has carved a niche for itself in the educational scenario of the country following its selection as a University with potential for excellence by a high-level expert committee of the University Grants Commission from among universities in India.

The University was converted into a Central University with effect from 9th April, 2007 as per notification of the Ministry of Human Resource Development, Government of India.

The University is located atop Rono Hills on a picturesque tableland of 302 acres overlooking the river Dikrong. It is 6.5 km from the National Highway 52-A and 25 km from Itanagar, the State capital. The campus is linked with the National Highway by the Dikrong bridge.

The teaching and research programmes of the University are designed with a view to play a positive role in the socio-economic and cultural development of the State. The University offers Undergraduate, Postgraduate, M.Phil and Ph.D. programmes. The Department of Education also offers the B.Ed, programme.

There are fifteen colleges affiliated to the University. The University has been extending educational facilities to students from the neighbouring states, particularly Assam. The strength of students in different departments of the University and in affiliated colleges has been steadily increasing.

The faculty members have been actively engaged in research activities with financial support from UGC and other funding agencies. Since inception, a number of proposals on research projects have been sanctioned by various funding agencies to the University. Various departments have organized numerous seminars, workshops and conferences. Many faculty members have participated in national and international conferences and seminars held within the country and abroad. Eminent scholars and distinguished personalities have visited the University and delivered lectures on various disciplines.

The academic year 2000-2001 was a year of consolidation for the University. The switch over from the annual to the semester system took off smoothly and the performance of the students registered a marked improvement. Various syllabi designed by Boards of Post-Graduate Studies (BPGS) have,been implemented. VSAT facility installed by the ERNET India, New Delhi under the UGC-Infonet program, provides Internet access.

In spite of infrastructural constraints, the University has been maintaining its academic excellence. The University has strictly adhered to the academic calendar, conducted the examinations and declared the results on time. The students from the University have found placements not only in State and Central Government Services, but also in various institutions, industries and organizations. Many students have emerged successful in the National Eligibility Test (NET).

Since inception, the University has made significant progress in teaching, research, innovations in curriculum development and developing infrastructure.

About IDE

The formal system of higher education in our country is facing the problems of access, limitation of seats, lack of facilities and infrastructure. Academicians from various disciplines opine that it is learning which is more important and not the channel of education. The education through distance mode is an alternative mode of imparting instruction to overcome the problems of access, infrastructure and socio-economic barriers. This will meet the demand for qualitative higher education of millions of people who cannot get admission in the regular system and wish to pursue their education. It also helps interested employed and unemployed men and women to continue with their higher education. Distance education is a distinct approach to impart education to learners who remained away in the space and/or time from the teachers and teaching institutions on account of economic, social and other considerations. Our main aim is to provide higher education opportunities to those who are unable to join regular academic and vocational education programmes in the affiliated colleges of the University and make higher education reach to the doorsteps in rural and geographically remote areas of Arunachal Pradesh in particular and North-eastern part of India in general. In 2008, the Centre for Distance Education has been renamed as "Institute of Distance Education (IDE)."

Continuing the endeavor to expand the learning opportunities for distant learners, IDE has introduced Post Graduate Courses in 5 subjects (Education, English, Hindi, History and Political Science) from the Academic Session 2013-14.

The Institute of Distance Education is housed in the Physical Sciences Faculty Building (first floor) next to the University Library. The University campus is 6 kms from NERIST point on National Highway 52A. The University buses ply to NERIST point regularly.

Outstanding Features of Institute of Distance Education:

(i) At Par with Regular Mode

Eligibility requirements, curricular content, mode of examination and the award of degrees are on par with the colleges affiliated to the Rajiv Gandhi University and the Department(s) of the University.

(ii) Self-Instructipnal Study Material (SISM)

The students are provided SISM prepared by the Institute and approved by Distance Education Council (DEC), New Delhi. This will be provided at the time of admission at the IDE or its Study Centres. SISM is provided only in English except Hindi subject.

(iii) Contact and Counselling Programme (CCP)

The course curriculum of every programme involves counselling in the form of personal contact programme of duration of approximately 7-15 days. The CCP shall not be compulsory for B A. However for professional courses and MA the attendance in CCP will be mandatory.

(iv) Field Training and Project

For professional course(s) there shall be provision of field training and project writing in the concerned subject.

(v) Medium of Instruction and Examination

The medium of instruction and examination will be English for all the subjects except for those subjects where the learners will need to write in the respective languages.

(vi) Subject/Counselling Coordinators

For developing study material, the IDE appoints subject coordinators from within and outside the University. In order to run the PCCP effectively Counselling Coordinators are engaged from the Departments of the University, The

Counselling-Coordinators do necessary coordination for involving resource persons in contact and counselling programme and assignment evaluation. The learners can also contact them for clarifying their difficulties in then respective subjects.

In this book,

Unit 1 gives a detailed account on the meaning, types and tools and techniques of curriculum evaluation.

Unit 2 discusses the different models of curriculum development and evaluation.

Unit 3 describes preparation of textbook and the curriculum followed at the national, state and local level.

Unit 4 discusses the aim, role and areas of curriculum research.

SYLLABUS

Objectives :

1. To familiarize the students with the concepts of curriculum design.
2. To enable the students to develop a conceptual framework of curriculum evaluation
3. To develop an understanding models for designing curriculum
4. To develop the awareness among the students about the issues of curriculum.

Course Content:

UNIT I. **Curriculum Evaluation:**

- Meaning, Nature and Need of Curriculum Evaluation
- Types of Curriculum Evaluation.
- Tools and Techniques of Curriculum Evaluation.

UNIT II. **Models of Evaluation:**

- Models of Curriculum Evaluation: Scientific models of Matfessel-Michael Evaluation, Provus's Discrepancy Evaluation model,
- Humanistic Model of Stake's Responsive Evaluation model, Paclett and Hamilton's Evaluation Model.

UNIT III. **Curriculum Issues:**

- Curriculum at National, State and Local Level; Advantages and Disadvantages.
- Preparation and Evaluation of a Text-Book.
- Core - Curriculum
- Academic time in the implementation of Curriculum

UNIT IV. **Research in Curriculum:**

- Concept, Aims and Areas of Curriculum Research
- Research in Content Analysis
- Constructivist Approach

Practicum:

1. Detail activities of a curriculum design
2. Presentaiton of a seminar
3. Analysis of school curriculum
4. Analysis of a school subject under MLOs (Minimum Learning Outcomes)

CONTENTS

UNIT 4 RESEARCH IN CURRICULUM

UNIT 1 CURRICULUM EVALUATION

Structure

1.0 INTRODUCTION

Many improvements have taken place in the educational system of the country over the last two decades. Many scientific discoveries are now available as tools to hasten acquisition of productive education that would be useful in contributing effectively to the development of the nation. Arts and science have evolved newer and bigger methods of communication, which are vital components for excellent teacher-student relations. It is therefore important that as the world progresses, the curriculum must be revised and improved. This need for revision cannot be overemphasized as it can be seen in the speed of revisions of many books. Technology has almost made it mandatory that the curriculum must be revised from time to time.

This unit primarily deals with curriculum evaluation and revision principles and how these are to be achieved.

1.1 UNIT OBJECTIVES

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

- Discuss the meaning, nature and the need for curriculum evaluation
- Identify the focus of curriculum evaluation
- Explain the outcomes of curriculum evaluation

1.2 MEANING, NATURE AND NEED OF CURRICULUM EVALUATION

The term curriculum evaluation has been used in various terms of reference. Some writers have used curriculum evaluation to refer to curriculum product evaluation; others use the term in reference to curriculum programme evaluation. Curriculum products such as textbooks or natural curricula are evaluated prior to large-scale implementation. These evaluations are conducted using pre-specified external criteria, outcome data from field trials, or both. Curriculum programmes refer to the instruction that takes place within specific field contexts.

1.2.1 Meaning and Nature of Curriculum Evaluation

Evaluation is defined as the process of accumulating data on a particular programme in order to assess its value or worth. Evaluation is performed with the aim of determining whether a programme should be adopted, rejected or revised. Evaluation is performed for various purposes. For instance, programmes are evaluated to answer its questions and concerns. The public want to know whether the curriculum implemented has achieved its aims and objectives. In a similar manner, teachers want to know whether what they are doing in the classroom is effective and the developer or planner wants to know how to improve the curriculum product.

- McNeil (1977) states that "curriculum evaluation is an attempt to throw light on two questions: Do planned learning opportunities, programmes, courses and activities as developed and organised actually produce desired results? How can the curriculum offerings best be improved?" (p. 134).
- **Ornstein and Hunkins** (1998) define curriculum evaluation as "a process or cluster of processes that people perform in order to gather data that will enable them to decide whether to accept, change, or eliminate something- the curriculum in general or an educational textbook in particular" (p.320).
- **Worthen and Sanders** (1987) define curriculum evaluation as "the formal determination of the quality, effectiveness, or value of a programme, product, project, process, objective, or curriculum" (p.22-23).
- Gay (1985) argues that the aim of curriculum evaluation is to identify its weaknesses and strengths as well as problems encountered in implementation; to improve the curriculum development process; to determine the effectiveness of the curriculum and the returns on finance allocated.
- **Oliva** (1988) defined curriculum evaluation as the process of delineating, obtaining, and providing useful information forjudging decision alternatives. The primary decision alternatives to consider based upon the evaluation results are: to maintain the curriculum as is; to modify the curriculum; or to eliminate the curriculum.

In simple terms, evaluation can be understood to be a disciplined inquiry to assess the worth of things, and 'things' include programmes, procedures or objects. Although similar data collection tools may be used, research and evaluation are two different processes.

Research and evaluation can be differentiated on the basis of the following three dimensions:

- Evaluation does not usually have generation of knowledge as its objective. Evaluation is applied and research is basic.
- The process of evaluation results in information that may be used in decision-making or in the formulation of policies. Evaluation provides information that can be immediately used while research may not have the same benefits as evaluation.
- Evaluation is a judgement of worth. Evaluation result in value judgements while research need not and some would say should not.

With respect to curriculum, the process of evaluation involves making value judgments regarding the quality and benefits of the curriculum. Curriculum evaluation is influenced by its audience and requirements. Potential audience may include the following:

- **Policy makers** and other **stakeholders** (administrators, teachers, students, parents, communities) - to inform future action.
- **Donors** - to attract funding or to report on the utilization of funds.
- **Researchers** - for international comparison and identification of effective practices.

Evaluation of curricula is basically concerned with the following:

(i) Impact of the curriculum

- on individual students, their needs, their level of engagement and their performance;
- on society, including the appropriateness of values communicated and attitudes fostered, and the level of public satisfaction;
- on the economy including labour markets as an indicator of economic development;

(ii) Process through which the curriculum was developed

(iii) Content and design of the curriculum compared with:

- recent social, technological, economic or scientific changes;
- recent advances in educational research and educational paradigms;

(iv) Possible future directions for curriculum change.

1.2.2 Evaluation as Comparing Objectives and Outcomes

Learning outcomes are broad objectives that explain what the learners are supposed to know or be able to do and may be based upon the following:

- The requirements of the learner
- The requirements of society
- What the learner should be aware of a specific subject

As learning outcomes are broad objectives, they are stated in common terms. For instance, 'the learner will become well-known with the main forms and conventions of medieval literature' or 'the learner will build up a general understanding of hydrocarbon-bearing formations' are both logical learning outcomes. However, learning outcomes like these cannot be observed, gauged or evaluated on their own. Each learning outcome, therefore, must be supported and described by one or more particular objectives.

Objectives are the chief building blocks of good quality curriculum design. They sustain the learning outcome in that each is a small step in arriving at what the learner is presumed to know or be able to do. Objectives have the following traits:

- They define specific outcomes or competencies to be attained in terms of skills, content mastery, attitudes or values.
- They form the basis upon which to choose or design teaching materials, content or techniques.
- They offer the basis for deciding or assessing when the coaching purpose has been accomplished.
- They provide a structure within which a learner can put in order his efforts to complete the learning tasks.

Well-written objectives are cautiously worded. They involve qualifiers to limit the circumstances and terms under which the objectives are met.

1.2.3 Need for Evaluating Curriculum

Before knowing the technique to evaluate curriculum, we must know why we should evaluate any curriculum at all. The reasons help us understand why we need to evaluate the curriculum:

- Students may be discontented with the existing curriculum and methods of teaching
- Students are not attaining the desired goals set in the curriculum
- There is an alteration or change in the student market
- The professional anticipations could be changing, which consecutively calls for a amendment in the curriculum.
- Changes can also take place in the time and staff resources

The need to evaluate curriculum crops up because it is essential for both teachers and students to decide the extent to which their existing curricular programme and its working have generated positive and curriculum-wise appropriate outcomes for students. To evaluate curricular effectiveness, we must first recognize and explain the curriculum and its objectives and then verify its contents for correctness, totality, depth, relevance and quality.

1.2.4 Focus of Curriculum Evaluation

Evaluation is a word employed in various ways sometimes with imprecise and overlapping meanings (La wton [Emeritus Professor at Institute of Education, London], 1973). It is much wider than that measurement. It is more basically concerned with determining on the value or worth completeness of a learning process as well as the efficiency with which it is being done. Curriculum evaluation refers to the procedure of studying the plus point or worth of some aspect, or the whole of a curriculum. Depending on the manner in which the term curriculum is defined, the focal point or objects of curriculum evaluation could comprise the following:

- Curriculum design
- Learning environment
- Instruction Process
- Resources

- Materials used in instructional practice

It is also necessary to learn about the capability as well as the provision of the necessary teaching resources for example teaching aids, laboratories, library books and instruments (Wiles [an experienced educational consultant] & Bondi [a senior curriculum consultant], 1989). Curriculum evaluation is obviously a procedure by which we attempt to measure the value and usefulness of any piece of instructive activity which could be a logical project, or a piece of work under taken by or with students.

1.2.5 Purpose of Curriculum Evaluation

Education trains future generation to take their suitable position in the society. It becomes necessary that second-rate educational goals, substances and methods of teaching are not retained but up-dated in consonance with the advances in social cultural and scientific field. It is also significant to determine how different educational institutions and situations infer a given or approved curriculum. Therefore, there is a need for curriculum evaluation. Curriculum evaluation checks and reports on the excellence of education. Cronbach [an American educational psychologist] (1963) distinguishes the following three kinds of decisions for which evaluation is used:

1. **Course improvement:** Deciding what instructional material and methods are acceptable and where changes are required.
2. **Decisions about persons:** Recognizing the needs of the student for the sale of planning of instruction and grouping, acquainting the student with his own deficiencies.
3. **Administrative directives:** Finding out how good the school system is, how superior individual teachers are.

The obj ective of evaluation must be to answer questions of selection, adoption, support and value of educational matters and activities. It helps in recognizing the essential improvements to be made in content, training methods, learning experiences, educational facilities, staff-selection and progress of learning objectives. It also serves the need of the policy makers, administrators and other members of the society for the information about the learning system.

Subject Content

Subject content is organized collection of information. The information is more often than not structured into smaller units akin to records having fields and sub-fields. Records are compilation of fields, viz., author field, title field etc. Fields are compilation of data and sub-fields are data inside a field. For instance, in author field, forename, date of birth etc. may be sub-field.

Subject content is distinguished by the subject domain it covers. There are several databases developed in specific subject areas and services are generated employing these specialist databases. For example, 'Chemical Abstracts' is a well-known service based on the information resources in the field of chemistry. The key feature of subject databases is that its range is limited by the subject area it covers. Therefore, intensive work is needed at the data collection and evaluation phase. Some databases include a particular discipline for example engineering, art, science, etc. Some databases are more common in nature and/or cover various subject areas and are searchable by each of them.

Organization and Mode of Transaction

Let us now discuss the organization and mode of transaction.

Organization of curriculum: The previous section dealt with some of the important curricular concerns and imperatives in the context of educational priorities. While designing a school curriculum for the national system of education, it would be necessary that the guidelines for its formulation and its **transaction** are drawn keeping in view these concerns.

National curricular framework: The national curricular framework for elementary and secondary education is envisaged in the context of the National System of Education. The basic features and the main thrusts of the curricular framework are as follows:

(i) Emphasis on the development of human resources for the realization of the national goals of development.

(ii) Broad-based general education to all learners at the elementary (primary and upper primary) secondary stages.

(iii) A common scheme of studies for elementary and secondary stages.

(iv) The common core components comprising the following: the history of India's freedom movement; the constitutional obligations; content essential to nurture national identity; India's common cultural heritage; egalitarianism, democracy and secularism; equality of the sexes; protection of the environment; removal of social barriers; observance of the small family norm and inculcation of the scientific temper.

(v) Emphasis on defining Minimum Learning Outcomes (MLO) for each area of learning at all stages of education.

(vi) Provision for flexibility in terms of selection of content/components and learning experiences, which would facilitate the attainment of minimum learning outcomes laid down for each stage of school education.

(vii) Emphasis on child-centred and activity-based processes rather than the teacher-centred approach during the transaction of curriculum.

(viii) Recasting of the examination system and introduction of continuous and comprehensive evaluation that incorporates both scholastic and non-scholastic aspects of education spread over the total span of instructional time.

(ix) Establishment of appropriate machinery, such as a National Testing Service (NTS) for the selection, and the development of norms of comparable competence across the nation.

(x) Applicability of the curriculum to all learners, irrespective of their modes/channels of learning in order to ensure comparability of attainment and to facilitate horizontal and vertical mobility of the learners.

(xi) Provision of essential facilities for effective **transaction of curriculum** in all schools/non-formal learning centres.

Minimum levels of learning: In order to bring about a broad commonality in the standards of education throughout the country, emphasis has been laid on the introduction of the norms of minimum levels of learning for each stage of school education indicated in terms of minimum learning outcomes to be attained by all the pupils in respect of each auricular area at each stage of school education. The

minimum learning outcomes for each curricular area will have to be specified keeping in view the research findings regarding the mental ability of pupils at different stages of their development and the academic and physical resources that could be made available in the school for effective transaction of the curriculum.

The emphasis on defining the Minimum Levels of Learning highlights the importance of the integrative nature of learning-evaluation. Put differently, learning (development) and evaluation (assessment) have been construed as two inseparable aspects of the same phenomenon. It is futile to evaluate the progress of the learners towards the stated objectives unless it is ensured that conscious efforts have been made to provide adequate and appropriate learning experiences for growth and development. Thus, a major shift from evaluation (passing judgement) to learning (development in terms of desired objectives) has been advocated.

While emphasis has been laid on the introduction of the norms of minimum levels of learning and adoption of a common scheme of studies at different stages of school education, flexibility is envisaged in the selection of content and learning experiences as well as in the selection of strategy for curriculum transaction in order to make leaning more relevant to the needs and environmental contexts of the pupils and to allow scope for initiatives and experimentation on the part of the teacher, the school and the local educational authorities. A high degree of flexibility and local initiatives are envisaged in designing and introducing remedial and enrichment programmes and materials not only by the State educational authorities, but also by the individual schools and teachers to cater to the needs to slow and fast learners studying in the same class/grade in a school. However, the scope for flexibility in the methodology and approach to transaction of curriculum is not expected to be used for introducing differential courses or similar measures which would accentuate disparities in standards of education in different parts of the country.

Common core components

While the rationale underlying the school curriculum of a country reflects its socio-cultural and political ethos, its faithful transaction reflects the genius of its people. The search for national identity has been on since the resistance to colonization of the country began. This search has not ended yet.

National curriculum

As a matter of fact, it is more acutely felt now than ever before. Therefore, it is but natural that there is a strong plea for centring the curricular efforts for promotion of national integration and social fusion and cultivation of values as enshrined in the Constitution. Thus, an important aspect of the common core components is the emphasis on instilling a nationally shared perception and values and creation of an ethos and value system in which a common Indian identity could be strengthened.

The ways and means have to be found out to introduce the common core components at all levels of school education. Some suggestions are offered to initiate action on the subject.

After the minimum learning outcomes and related general content are identified for each area of learning and for each grade, further scrutiny may be made to explore the possibility of infusing the specific core component with the theme.

Where such natural infusion is not possible, an attempt can be made to select new content for each of the ten components to be added as topics/units to each relevant subject. One can envisage cyclic development of a new course of study pertaining to each of the components. For example, a set of courses on the history of India's struggle for freedom can be developed for grades I to X, independent of other subjects.

On the other hand, it is also possible to integrate such content appropriately in the regular subjects included in the present scheme of studies.

An eclectic organization is possible by way of integrating clusters of components such as social science components or science components or moral value components and designing syllabi for different grades.

At the primary stage, core components could be integrated with language and environmental studies so as to make them a medium to develop appreciation of culture and perception of the individual, social and national identity through activities, songs, stories, reading material, plays, skits, etc.

At the upper primary stage, both infusion and unit approach could be adopted.

At the secondary stage, the elements of civics, economics and sociology may be identified in an integrated manner. In addition to the common core components, the integrated course could cover the content which would reflect the contribution of India in the field of science, astronomy, metallurgy, medicine, creative arts, etc. in the ancient, medieval and contemporary periods. The core components could be made more interesting through visuals and biographical notes of scientists and eminent Indians in different fields. However, while introducing the core components, it is necessary to ensure that the depth and coverage of information is kept at the appropriate level and does not increase the total information load beyond the existing level in different subjects. This could be done by reducing the content in some of the existing subject areas and properly blending the core components in the total scheme of studies as far as possible.

Tools, techniques and modes of evaluation

The method of evaluation used by schools has pretty much been the same, i.e., by paper-pencil tests. Since a long time, schools measure the student's progress through written tests. However, written tests are not always suitable for every area of learning. Therefore, there is a need to create a new technique which can assess the student's performance. The school needs to make a conscious selection from available tools and techniques. Some tools and techniques that can be used by school are as follows:

- Observation schedules
- Rating scales
- Interviews
- Oral communications
- Interest inventories
- Anecdotal records

The schools also need to make a conscious effort to de-formalize internal and external examinations. If schools introduce more informal means to evaluate the learner's experience, they will not only reduce the anxiety and fear experienced by the learners but in turn will enhance the process of learning at all stages. Learner achievements need to be

evaluated by applying the principle of relevance and flexibility to curriculum development.

In school education, the primary stage of learning is regarded as a period of transition where the student begins learning through informal play activities with the help of organized and formal methods of teaching. The growth and development of young learners needs to be evaluated through similar informal and relaxed methods. In the initial stages of learning, no rigid and/or formal testing should be introduced. It is better that oral testing is used to assess the student's learning at the primary stage of education. By using oral testing, the development of basic skills can be evaluated in language, numeracy, health, nutrition and sanitation. It is very essential that the school provide periodic checkups to assess the physical, social and emotional growth of a child and this assessment also needs to be carefully documented. In a similar manner, psychomotor skills with respect to non-scholastic areas like work experience, education and physical education should be conducted and documented. Thus, with the assistance of informal and formal observations along with various tools and techniques, sufficient evidence of the student's growth and development needs to be collected to create profiles of the learners. Once the student reaches middle school, written tests need to be given more significance while retaining the tools and techniques used at the primary level.

CHECK YOUR PROGRESS

1. What do you understand by the term curriculum evaluation?
2. What are learning outcome based on?

1.3 TYPES OF CURRICULUM EVALUATION

The curriculum can be evaluated in different ways. These ways are thus called the types of curriculum evaluation, which can be discussed under the following headings:

Curriculum Product Evaluation: This implies revision of curricular materials available by the very people who have created this material. This can be done in various ways. P. Tamir (1985), a professor of Science Education at the Hebrew University of Jerusalem, categorized these as follows:

(a) Part-time school-based curriculum development

(b) National curriculum study organizations; within the structure of national curriculum development centres

(c) Curriculum development done by the university teams

(d) Curriculum product evaluation is also conducted by local, state or national textbook selection committees, which also think about other instructional material.

Evaluation based on external criteria: Curriculum can be evaluated based on external criteria related to the appropriateness of the material. Tyler (Tyler, Louise L., professor of Education, Emerita. Los Angeles) and Klein (M. Frances Klein is Eminent Scholar Visiting Professor at Jacksonville State University, Alabama) (1976) offer an excellent example of curriculum product evaluation employing pre-specified criteria. These criteria had a definite behaviourist orientation.

Their evaluation procedure uses the following characteristics:

- Specification of instructional objectives on which the material is based
- Appropriateness of the materials given the skills

- Background knowledge, age, ethnicity and socio-economic background of the intended students
- Adequacy of the teachers' manual for classroom application and for providing an explanation of the content selection, sequence and presentation

Brophy (Jere Brophy is University Distinguished Professor of Teacher Education at Michigan State University and a Fellow of the International Academy of Education) and Alleman's (Janet Alleman is a professor in Department of Teacher Education at the Michigan State University) work (1991), derived more heavily from research on teaching, provided a constructivist framework for the evaluation. The criteria they proposed for evaluation include:

- Goal relevance
- Appropriate level of difficulty
- Feasibility
- Cost effectiveness
- Multiple goals
- Motivational value
- Topic relevance

1.3.1 Formative and Summative Evaluation

The term formative suggests that the data collected for evaluated as been assembled during the development or formation stage in order to conduct revisions on the content. Formative evaluation may include determining:

- Who requires this programme? (At what level should this programme be taught?)
- What is the necessity of this programme? (Are students required to learn a particular skill?)
- How to meet the need? (How to introduce a subject?)

In the field of education, formative evaluation is used to access information to enhance a programme.

In case of formative evaluation, experts make their evaluation on the basis of the following:

- Instructional strategies and materials used
- Learning outcomes
- Objectives that it wants to achieve

For instance, in certain cases a curriculum plans a learning outcome however the learning activities do not match. The main function of a curriculum is to help students apply critical thinking however if there are no suitable learning activities to provide opportunities for students to practice critical thinking. Therefore, formative evaluation by experts will only be beneficial if done before the programme starts. After evaluation, a review done by the panel of experts may help in modifying and revising selected strategies.

In formative evaluation, on some occasions, learners may also be included to review the content material to check the usability of the material. For instance, if the required prerequisites are available, the students will be motivated to learn. Formative evaluation also helps to pinpoint problems like spelling errors, errors in sequence of

content, inappropriate examples or illustrations. Feedback that is obtained could be used to revise and enhance instruction. It can also help in deciding whether they programme should be implemented or not.

In summative evaluation, data is collected after the implementation of the curriculum programme. This type of evaluation can take place right after a new course material is introduced, i.e., to evaluate the effectiveness of the programme or at a later stage when the students have gone through the new course material. In summative evaluation, it is essential to state the specific questions that need to be answered in the evaluation and what decisions will be made as a result of the evaluation. The evaluation will also find out if the learners have achieved the objective of the programme and whether the programme has produced the desired results. For example, the use of simulation software for geography class that increases the decision-making skills of learners. With the help of formal assessment and the marks obtained by students in these formal assessments one can determine the outcome of the programme. Summative evaluation can also determine if the innovation was:

- Cost effective
- Efficient in terms of time taken
- Unexpected outcomes

Student's performance will determine the level at which the students met the specified objectives. In this type of evaluation, data can also include qualitative interviews, direct observations and document analyses.

1.4 TOOLS AND TECHNIQUES OF CURRICULUM EVALUATION

In order to conduct a curriculum evaluation, the following conditions are essential:

- The process of learning should centre on a particular curriculum programme or contrast two-three programmes simultaneously.
- The evaluation process should take place through a standard method
- The curriculum that is being evaluated needs to be reviewed in detail

Prior to evaluating the curriculum, the data needs to be assembled and decisions need to be made as to how the evaluation will be conducted. There are three stages of evaluation that will be followed while evaluating a curriculum:

(i) Articulating of programme theory

(ii) Selecting research design and methodology

(iii) Other considerations

Articulating of programme theory

- Prior to evaluation, the evaluation questions need to be decided and articulated. At this stage the components used in the evaluation process need to be determined as well.
- In order to articulate the diverse curriculum programmes, the evaluator needs to focus his techniques on different principles and consider different viewpoints to reach a suitable conclusion.
- Student behaviour and role in class needs to be closely monitored, especially the methods and strategies applied by them in problem solving.

- A learner's growth and development also needs to be measured. The evaluator also needs to check their proficiency over current and preceding topics.
- An informed judgment can be made by the decision makers after a comprehensible articulation of the curriculum takes place.

Selecting research design and methodology

There are three methodologies to evaluate curriculum, which are as follows:

(a) Content analysis
(b) Comparative study
(c) Case study

Features of Content analysis

- The evaluation under content analysis is highly influenced by the personal values of the concerned people who are responsible to conduct the evaluation.
- Curriculum analysis should not be limited to simply defining the content. The content also needs to be compared with other curricula.
- A balance needs to be established between the course content and the set objectives.
- The study material should aim to enhance student thinking and promote use of logical reasoning in real life incidents.

Features of Comparative study

- Decisions regarding the selection of relevant variables are taken to help make a comparative study of two or more curricula.
- This type of analysis will identify the effect of the curriculum
- Making a comparative analysis of two or more curriculum programmes helps to decide whether the curriculum that has been finalized is properly designed and implemented.

Features of a case study

The main function of case studies is to interpret and identify the complex factors that influence and affect curriculum implementation.

An effective case study depends on the acquired data, student observation and by interviewing the people involved in the programme.

Other considerations that need to be followed:

- The evaluators should be able to comprehend the curriculum designers' point of view and at the same time the evaluators should be able to independently take decisions to ensure objectivity and fairness.
- The factor of time should also be taken into consideration while the evaluation process takes place. Evaluators need to ensure that there is a sufficient timeframe for the implementation of the curricula.
- It is of utmost relevance that emphasis is given on meta-analysis and the accumulation of knowledge during the evaluation of the curriculum.

1.4.1 Outcome of Curriculum Evaluation

The ultimate objective of evaluation is to bring about qualitative improvement in education. Therefore, evaluation should be construed as a powerful instrument for improving teaching and learning. Instead of using it mainly as a grading device, it should be used more as an effective feedback mechanism for the benefit of the learners, teachers and parents so that timely corrective and remedial measures could be taken to ensure that the Minimum levels of learning laid down are attained by one and all learners. Retrieval of such feedback should be of immense use to the concerned agencies for the introduction of concomitant changes in instructional materials and methodology of teaching. Evaluation should also help in improving the organization of external examinations. Finally, in the long run, as suggested by the Education Commission (1964-66), it should help determine and gradually raise standards of attainment at the State and National levels.

While the purpose devaluation should be diagnostic, that is, to ascertain strength and weaknesses of the learner, it should be predominantly so at the elementary stage of school education. Since a majority of the learners quit school at the end of this stage, the school system must ensure that the learner is fully equipped with knowledge, concepts/ideas, attitudes and values expected from a good citizen of the country. It, therefore, necessitates that more emphasis is laid on development and assessment of basic skills (competencies) and desired attitudes and values rather than rote memorization of information from books.

1.4.2 Change and Refinement of Content

Content refinement depends on the following main factors:

1. Clean and normalize content to attain the best probable relevancy throughout query time
2. Normalize content - ideally data (particularly structured data) - should be reliable and without duplication
3. Appreciate that intake of content will be affected by the quantity and number of different types of data, as well as the latency of the source systems
4. Optimize document processing - take away all needless document processing components and choose the right workstation for the content type and task at hand
5. Marry content with the suitable document processing•- language detection, synonyms, spell checking, lemmatization, taxonomy classification, custom plug-ins, etc.

   Finest practices in content development include the following:

   - **Planning ahead:** It refers to deciding which content requires to be prepared, by whom and at what excellence level. You require to factor staff-driven processes into your resources, work and time approximations.
   - **Aiming to increase relevancy:** It implies that people use a search platform to find the information they need only when they require it. Focus efforts on increasing the relevancy of the results returned.
   - **Normalizing content:** Ideally, data (particularly structured data) should be consistent and without duplication.
   - **Logically separating multi-lingual and localized content:** this can be done by isolating documents on a per-site or language basis.
   - **Striving to normalize acronyms:** This can be with no trouble by expansion in the search system, i.e., IBM ! I.B.M ! International Business Machines.
   - **Automating where possible:** Since information is generated and consumed at incredible rates, its automation should be done as and when possible. One can

use automated research tools to save time and decrease error rates.

1.4.3 Curriculum Revision

The final stage in evaluating a curriculum involves trying to find out whether the course or curriculum was successful by means of a linked process of assessment and evaluation, and then using the feedback thus obtained to improve and refine the course or curriculum by going round the cycle once again.

Defining assessment and evaluation

At this point, it would probably be useful to explain exactly what do we mean by the terms assessment and evaluation. Although we tend to use the two terms synonymously, they have different connotations when used in an educational or training context.

> 'By assessment, first of all, we mean those activities that are designed to measure learner achievement brought about as a result of an instructional programme of some sort.'
>
> 'Evaluation, on the other hand, refers to a series of activities that are designed to measure the effectiveness of the instructional system or a section or component thereof.'

The two processes do have a lot in common. We assess the learning outcomes and we evaluate the success of the curriculum on the basis of how the objectives in the curriculum have been specified and achieved. Indeed, one cogent argument for articulating the desired educational outcomes of a course or curriculum in fairly detailed (preferably behavioural) form whenever possible is that this is generally of considerable assistance both in assessing the students and in evaluating the course or curriculum, since the designer should, as a result of writing the objectives/learning outcomes in this way, have a fairly clear idea of the behaviour that is to be measured. Conversely, the feedback obtained from the results of properly-designed assessment and evaluation procedures often demonstrates a need for changes in the objectives or learning outcomes of the course or curriculum, as well as in the methods adopted for trying to achieve these.

A curriculum can be evaluated by the results that it claims to achieve and the teachings that it inculcates in the students. One can look at the following factors while evaluating a curriculum:

- Does the curriculum support students to use their own way of thinking to find answers to real-world problems in a more creative and practical way?
- Does it offer them practical information about the subject being taught?
- Does it help students to take up lateral thinking and form their outlooks about a certain topic or concept?
- Does the curriculum groom their personality?

Things to be kept in mind when revising the curriculum

Curriculum revision can be a fulfilling experience provided we keep in mind the faculty involvement, resources and stakeholder expectations. A curriculum revision can be a

rewarding experience. The following things should be kept in mind when revising the curriculum:

1. **Faculty involvement:** The faculty of the programme have valuable information about the programme. For example, they know the type of students in the programme and their learning abilities. Faculty also know the course content and, in many cases, know the weaknesses of the courses. Their input into the process of curriculum revision is very valuable, but many of them may be resistant to change - especially when they feel 'their course' is threatened. Leaving faculty out of the curriculum revision process invites resistance to the proposed changes.
2. **Consider why a change is necessary:** There are many reasons why a curriculum may need to be revised. Changes in resources, changes in the material covered and changes in faculty are just a few of the causes of need to revise a curriculum. However, consideration must be given to changes other than curriculum changes that could fix problems within a programme. In order to do this it is important to collect data that quantifies the need for change. Courses can be redrafted, interrelated to other course by using this data.
3. **Have a plan:** When the decision has been made to consider curriculum revision, a plan must be formulated and the goals of the revision must be stated. The first step is to decide who is going to oversee the revision. It is also necessary to get a committee to collect information. Designing surveys, distributing them, reviewing the suggested changes in relation to other curriculum and using the data to commence the revision process are important activities. Once a determination to revise a programme has been made, an agreement as to the goals of the revision must be determined. This could relate to decisions, to reduce the number of hours in the curriculum, include concentrations in the curriculum, eliminate courses and update the content of the curriculum.
4. **Consider requirements of accreditation agencies and government:** When revising a programme, consideration must be given to the guidelines provided by accrediting agencies. **'Principles of Accreditation: Foundations for Quality Enhancement'** that the government has prescribed must be kept in mind. This sometimes makes it mandatory for the curriculum revision team to retain broad heads of topics. They may be reduced in content or added on in content but it may be mandatory to include the specified content.
5. **Consider stakeholders:** Stakeholders are an important source of information about the needs of a programme. Students, alumni, faculty and employers should be allowed to provide their insights into the needs of the programme. For example, the survey results of a particular programme indicated that the alumni and faculty indicated a particular course contained too much material on one aspect and not enough material on another important aspect. The result of this weakness was the modification of the course; however, the entire curriculum did not need to be revised.
6. **Consider what other programmes are doing:** It is important to conduct a benchmarking study of peer programmes, competitor programmes and aspirant programmes. Information collected can be used as a starting point for discussion. This helps ensure that the revision is not done in isolation and has relevance to similar programmes running in the state or country.
7. **Consider the resources available:** When revising the curriculum, it is important to review the availability of the resources for the revised programme. These resources could include faculty, finances, technology resources, etc.
8. **Consider assurance of learning goals:** It is important to address the learning

goals for the programme. It is necessary to develop rubrics clarifying the need for change. There should be systematic processes to develop, monitor, evaluate and revise the substance of a course. Learning outcomes and objectives must be clearly spelt out. It is also necessary to imbed assurance of learning goals and measurement within the revised courses.

9. **Consider compromise:** Every member of the faculty will have his or her concept of the ideal programme. Unfortunately, each of these concepts differs. In order for a curriculum revision to succeed, many compromises must be made. All the members would have to arrive at compromises and ultimately decide on what is best for the course in question and for the students impacted in particular.
10. **Remember it will change:** Change has today become the only constant feature of any endeavour and it would be good for us to remember that in spite of the revision that may have been undertaken, there may still arise a need for change and we need to be prepared for that.

By keeping these warnings in mind, a curriculum revision can be a rewarding and productive endeavour. A new curriculum can meet the needs of a programme. The change in the curriculum can bring added enthusiasm to the faculty, and a new approach can address stakeholders' needs.

CHECK YOUR PROGRESS

3. Give an example of a product of curriculum.
4. What is the characteristic of'Learning Objectives'?
5. What is the main condition to evaluate curriculum?
6. What is meant by 'output evaluation'?

1.5 SUMMARY

- Objectives are the chief building blocks of good quality curriculum design. They sustain the learning outcome in that each is a small step in arriving at what the learner is presumed to know or be able to do.
- Curriculum can be evaluated based on external criteria related to the appropriateness of the material.
- The first step for evaluation is to state and articulate the evaluation questions and explain what components will be considered in the evaluation process.
- The evaluator must be able to understand the thought process of the curriculum designers and their thinking behind setting the goals and objectives, and at the same time, be independent enough to ensure objectivity and fairness.
- Education trains future generation to take their suitable position in the society.
- In order to bring about a broad commonality in the standards of education throughout the country, emphasis has been laid on the introduction of the norms of minimum levels of learning for each stage of school education indicated in terms of minimum learning outcomes to be attained by all the pupils in respect of each curricular area at each stage of school education.
- The principles of relevance and flexibility applicable to curriculum development need to be followed in evaluating the attainment of the learners.

- The final stage in evaluating a curriculum involves trying to find out whether the course or curriculum was successful by means of a linked process of assessment and evaluation, and then using the feedback thus obtained to improve and refine the course or curriculum by going round the cycle once again.
- When revising the curriculum, it is important to review the availability of the resources for the revised programme. These resources could include faculty, finances, technology resources, etc.

1.6 KEY TERMS

- **Curriculum evaluation:** It is the method by which we attempt to measure the value and effectiveness of any specific educational activity regarding the student who takes part in it.
- **Learning outcomes:** These are broad objectives that explain what the learners are supposed to know or be able to do.
- **Content:** It refers to the subjecfcmatter of a book, speech or programme.
- **Education:** It refers to a process of teaching, training and learning, especially in schools or colleges, to improve knowledge and develop skills.

1.7 ANSWERS TO 'CHECK YOUR PROGRESS'

1. The term curriculum evaluation has been used in various terms of reference. Some writers have used curriculum evaluation to refer to curriculum product evaluation; others use the term in reference to curriculum programme evaluation.
2. Learning outcomes are broad objectives that explain what the learners are supposed to know or be able to do and may be based upon the following:
   - The requirements of the learner
   - The requirements of society
   - What the learner should be aware of a specific subject
3. A textbook is an example of a product of curriculum.
4. 'Learning Objectives' define specific outcomes or competencies to be attained in terms of skills, content mastery, attitudes or values.
5. To evaluate curriculum, the main condition implies to focus on the gathering the data and the decisions that must be made for appropriate evaluation.
6. 'Output evaluation' implies evaluating the direct effect of the programme. This could include a number of variables like the number of students who successfully complete the course, the changes in their knowledge, attitudes, practices and the grades they get.

1.8 QUESTIONS AND EXERCISES

Short-Answer Questions

1. What is the meaning of curriculum evaluation?
2. How is the National Curriculum Framework developed?
3. What are the tools, techniques and modes of evaluation?
4. How is content refined?

Long-Answer Questions

1. Discuss the types and models of curriculum evaluation.
2. Describe the organization and mode of transaction with regard to curriculum evaluation.
3. Explain the difference between assessment and evaluation with the help of examples.
4. What needs to be kept in mind while revising the curriculum.

1.9 FURTHER READING

Ornstein, Allan C, Francis P. Hunkins. (2004). *Curriculum—Foundations, Principles, and Issues.* Boston, United States: Allyn and Bacon.

Taba, Hilda. (1962). *Curriculum Development: Theory and Practice.* San Diego, California: Harcourt, Brace & World.

Bhatt, B. D., SitaRam Sharma. (1992). *Principles of Curriculum Construction* New Delhi: Kanishka Publishing House.

Bobbitt, John Franklin. (2013). *The Curriculum.* Memphis, Tennessee: General Books LLC.

Bobbitt, John Franklin. (1924). *How to Make a Curriculum.* Boston, Massachusetts: Houghton Mifflin Company.

Chauhan, S. S. (2009). *Innovations in Teaching Learning Process, IE.* New Delhi: Vikas Publishing House Pvt. Ltd.

Dewey, John. (2010). *The Child and the Curriculum: Including the School and Society.* New York, United States: Cosimo, Inc.

UNIT 2 MODELS OF CURRICULUM DESIGN AND EVALUATION

Structure

2.0 INTRODUCTION

Curriculum designing is the well-organized preparation of what is going to be instructed in schools at a given time in a given semester. They are official documents, as they guide the teachers and students alike. They are made obligatory by central and state educational departments. All schools and teachers are provided a particular curriculum for implementation in schools by the educational boards.

These days, a regular re-examination of the prescribed curriculum is done so that the best possible experiences can be provided to children by schools. These experiences help them to cope with technological, social, economic and political changes taking place in the society. In this unit, principles of curriculum designing have been discussed. In addition, models of curriculum development have also been explained.

2.1 UNIT OBJECTIVES

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

- Describe the models of curriculum development proposed by Ralph Tyler, D. K. Wheeler, Hilda Taba and System Analysis
- Discuss the models of curriculum evaluation by Matfessel-Michael, Provus, Stake and Paclett and Hamilton's Evolution Model

2.2 MODELS OF CURRICULUM DEVELOPMENT

Curriculum design refers to how we conceptualize the curriculum and arrange its major components to provide guidance and direction as one develops the curriculum.

Curriculum model refers to a plan of action that can be employed to structure a subject or knowledge area from a theory into practice. Let us discuss some of the main models on curriculum development.

2.2.1 Ralph Tyler's Model of Curriculum Development (Administrative Approach)

Ralph W. Tyler (1902-1994) was an US educationist who worked in the sphere of assessment and evaluation. He was the advisor to a number of bodies that established guidelines for the expenditure of federal funds and influenced the fundamental policy of the Elementary and Secondary Education Act of 1965. Tyler chaired the committee that finally developed the National Assessment of Educational Progress (NAEP).

Tyler formalized his reflections on viewing, analyzing and interpreting the curriculum and instructional programme of an educational organization in his book named *Basic Principles of Curriculum and Instruction* (1949). The book described a deceptively simple structure for delivering and evaluating instruction comprising the following four parts that were famous as the *Tyler Rationale:*

1. What educational puiposes should the school seek to achieve? (Defining appropriate learning objectives.)
2. How can learning experiences be chosen which are likely to be useful in achieving these objectives? (Introducing useful learning experiences.)
3. How can learning experiences be organized for successful instruction? (Organizing experiences to maximize their effect.)
4. How can the effectiveness of learning experiences be evaluated? (Evaluating the process and revising the areas that were not effective.)

Tyler's achievements

Tyler's achievements can be summed up as follows:

- Tyler advised President Truman on reforming the curriculum at the service academies.
- In 1952, under Eisenhower, Tyler chaired the President's Conference on Children and Youth.
- The Johnson Administration used Tyler's advice to outline many of its education bills and programmes.
- Tyler was named founding director of the Center for Advanced Study in the Behavioral Sciences in 1954 and held that position through 1967.
- As a member of the governing board, Tyler is credited with playing a significant role in determining the character of the center as a new type of educational institution.
- In 1964, the Carnegie Corporation asked Tyler to chair the committee that would finally develop the National Assessment of Educational Progress (NAEP) in 1969.
- Tyler also contributed to the following educational agencies o The National Science Board
  - o The Research and Development Panel of the U.S. Office of Education
  - o The National Advisory Council on Disadvantaged Children
  - o The Social Science Research Foundation
  - o The Armed Forces Institute
  - o The American Association for the Advancement of Science
- Tyler also served the Association for Supervision and Curriculum Development (ASCD) and helped publish its *Fundamental Curriculum Decisions* in 1983.

Key aspects of Tyler's research

The following are the key aspects of Tyler's research on curriculum development: **The nature and structure of knowledge**

These are as follows:

- Selection of subject matter
- Organization of subject matter and discipline
- Theoretical basis of methods and approaches

Curriculum development process

It depends on the following:

- Philosophy of education
- Goals and aims
- General instructional objectives
- Specific instructional objectives and outcomes
- Task analysis and content selection
- Learning activities

Selection of subject matter

The subject matter is selected on the following grounds:

- **Criteria:** Relevance, importance, priority
- **Scope:** Amount, depth of coverage, concentration
- **Sequence:** Hierarchy and progression of complexity or difficulty

Organization of subject matter

The subject matter should be organized on the basis of the following factors:

- Discuss subjects or courses
- Broad fields or disciplines
- Core or interdisciplinary
- Skills and processes
- Projects and activities

Approaches to subject matter: For better understanding of the subject matter, the following aspects can be checked:

- Textual
- Experimental
- Developmental
- Psycho-social
- Experiential

Needs of the learner

A student or learner has the following needs:

- Cognitive development
- Linguistic development
- Psycho-social development
- Moral/affective development
- Vocational focus

2.2.2 Hilda Taba's Model (Grass-root Approach)

Although Ernest Hemingway once stated that in each port of the world you could meet at least one Estonian, it is a rare occurrence when the existence and achievements of great personalities originating from this 1 million strong nation are associated with their native country and nation in the minds of their foreign colleagues. In this sense, Hilda Taba is not an exception. She is known worldwide as an outstanding US educationalist and curriculum theorist, but very few know that she was bom, brought up and educated in Estonia. Probably, even more surprising is the fact that Taba, belonging to the list of the most outstanding educators of the twentieth century and whose academic work climaxed with the publication of the monograph *Curriculum Development: Theory and Practice* (1962), remained unknown in her native country for decades. Therefore, in spite of the fact that Taba's approach to curriculum design spread throughout the world and her monograph took an honourable position on the bookshelves of European education libraries in the 1960s, her educational ideas reached Estonian educators only atthe end of the 1980s.

The above-mentioned circumstance is one of the many controversial aspects in Hilda Taba's life that evidently played an important role in her development as a scientist and gave a unique colouration to her educational ideas. Another controversy, undoubtedly playing a major role in the formation of Taba's theoretical ideas and thinking, was the collision between German and American educational traditions that she experienced in her studies of pedagogy. For instance, the undergraduate educational preparation that she received at the University of Tartu had a strong disposition towards German didactics and educational philosophy. However, her subsequent post-graduate studies in the United States of America were strongly influenced by the ideas of progressive education, which she came to admire and which became a cornerstone of her educational thinking.

It remains unknown whether Taba had dreamed of pursuing her academic career in the United States or of returning to Estonia after her post-graduate studies abroad. However, the fact that she competed for the professorship in education at the University of Tartu in 1931 rather points to her intention to bind her working career and life to Estonia. These plans did not come about, as she was not selected for this position. But what is even more amazing was that she could not find any other job in Estonia worthy of her qualifications. So, the author of the doctoral dissertation *The dynamics of education: a methodology of progressive educational thought* (1932), which later earned wide recognition among educators, decided to return to North America. This unexpected change in her plans and the subsequent move caused Taba to experience serious difficulties and misery at the beginning of her career. Hilda Taba's road to excellence was in some parts due to chance, her enormous desire to succeed and the favourable conditions for educational research in the United States, and she became one of the brightest stars in the educational constellation of the 1960s. Nowadays, her work in the field of curriculum design, alongside that of Ralph W. Tyler, belongs to the classics of pedagogy. Several contemporary authors still frequently refer to Hilda Taba's

ideas and base their work in the field of curriculum theory and practice on her conceptions developed decades ago.

There are over 100 recent articles and monographs referring to the work of Taba in the Education Resource Information Center (ERIC) database. Furthermore, countless references to her name and educational ideas on the Internet are additional proof that her academic contribution to the field of education has lasting value.

Some ideas about Hilda Taba as a person can be found in Elizabeth H. Brady's (1992) commemorative article. Brady, one of her closest colleagues during the days of inter-group education projects (1945-51), wrote: 'Taba was very energetic, enthusiastic, active, seemingly tireless; she led life at a tempo which sometimes led to misunderstandings and often wore out friends and staff. She was small in stature, perky in manners and in dress and always intent on the next thing (Brady, 1992, p. 9).'

Hilda Taba (Figure 6.2) died unexpectedly on 6 July 1967, at the peak of her academic capabilities and power.

Some of Taba's philosophical ideas on curriculum development

There are many academic papers in English and in Estonian describing Hilda Taba's ideas and research on specific areas of education. But there are fewer writings on Taba's general principles and beliefs regarding research and education that made her work unique, inventive and original.

Many of the ideas that made Taba world famous kept developing and evolving gradually throughout her career. A preliminary, and therefore incomplete, analysis of her scientific heritage suggests at least four principles that seem to govern her vision of curriculum theory and curriculum development (Krull & Kurm, 1996, p. 11-12):

1. Social processes, including the socialization of human beings, are not linear, and they cannot be modelled through linear planning. In other words, learning and development of personality cannot be considered one-way processes of establishing educational aims and deriving specific objectives from an ideal of education proclaimed or imagined by some authority.
2. Social institutions, among them school curricula and programmes, are more likely to be effectively rearranged if, instead of the common way of administrative reorganization—from top to bottom—a well-founded and coordinated system of development from bottom to top can be used.
3. The development of new curricula and programmes is more effective if it is based on the principles of democratic guidance and on the well-founded distribution of work. The emphasis is on the partnership based on competence, and not on administration.
4. The renovation of curricula and programmes is not a short-term effort but a long process, lasting for years.

The principle of considering social processes as non-linear is the most important one, and it probably governs all of Hilda Taba's educational work. Taba pointed out already in her doctoral dissertation that 'ends and aims, as they are in actual life, seldom present themselves as simple and easily comprehensible units' (1932, p. 142) and, therefore,' a purposive act must be regarded primarily as an outgrowth of previous activity and not as an independent unit starting and activating because of some end or purpose clamouring for actualization' (1932, p. 143), Applying the principle to curriculum

design, this means that it is unreal and impossible to set up rigid general goals of education from which more specified objectives would be derived for a concrete plan. The general goals are also subject to modification in order to become adapted to the real circumstances, whereby they are dependent more or less on the content and character of the educational step planned.

The second principle of the efficiency of the bottom-up approach suggests the most convenient way to help individuals and human social organizations to accept and to adapt to new situations and ideas. Taba's view can be well interpreted in the light of Donald Schon's concept of'dynamic conservatism' (Schon, 1971), which expresses the tendency of individuals and social organizations to oppose energetically changes that derange or offend their convictions and understandings by building up structures and mechanisms that will interfere with these changes.

The expected changes in the individual or social consciousness will take place only if individuals or groups, under pressure to introduce these changes, conserve or acquire the ability to learn. So, the changes and learning underlying it take place more easily, and meet less opposition if they are not imposed by the central institutions but are initiated in the periphery, and gradually spread all over the structure.

The third and fourth principles underline the necessity for the democratic guidance of curriculum development and the long-term nature of this process, and are essentially derived from the first two principles. They are explicitly spelled out in the description of the organization for social studies curriculum development used in Contra Costa County.

Source: *Text on Hilda Taba has been adapted from UNESCO: International Bureau of Education website: http://www.ibe.unesco.org/fileadmin/user_upload/archive/publications/ThinkersPdf/tabae.pdf*

The Taba-Tyler Model: A Comparison

Tyler's model is deductive, while Taba's is inductive. Tyler's approach was administrative, while Taba's model reflects the teacher's approach. The spirit of Tyler's model is that administration should design the curriculum and the teachers should implement it. Taba believes that the teachers are aware of the students needs; hence they should be the ones to develop the curriculum and implement in practice. The **grass-roots approach is** another name for Taba's apprach. Taba believes that the demand for education in a particular society should be studied first. She also pays attention to the selection of the content and its organization with the objective of providing students with an opportunity to learn with comprehension. She was against the higher authorities dictating the curriculum to the teachers. She also believed curriculum was best designed inductively, starting with specifics and building up to a more general design. Tyler put emphasis on aims, evaluation and control. This approach may be perfect, perhaps, for market-oriented education. However, it was not adequate for the development of responsible and creative individuals capable of meeting the challenges of the ever changing circumstances. Many educational systems today, using Tyler's model, have come to crises and require reforms based on a totally different model of curriculum development.

2.2.3 D. K. Wheeler's Model of Curriculum Development

D. K. Wheeler stated that curriculum refers to the planned experiences provided to the learner under the guidance of the school. E. Eisner mentioned that 'the curriculum of a school, or a course, or a classroom can be conceived of as series of planned events that are intended to have educational consequences for one or more students.' In 1967,

Wheeler came up with a cyclic model of curriculum process (Figure 6.2) going through the following five phases:

- Aims, goals and objectives
- Selection oflearninr. experiences and Selection of content
- Organization of integration of learning
- Experiences and content
- Evaluation

2.2.4 System Analysis Model

System Analysis is closely related to training psychology and cybernetic. It emerged during the Second World War and has greatly influenced the decision making of the management in business, industry, government and military. Over the period of time, System Analysis has gained considerable standardization.

Meaning of System Analysis

The word system has been derived from the field of engineering. A system is when agents work independently and dependently together to achieve the required goals. The term 'system' conveys the meaning of analysis and development. The term, 'system analysis' has emerged from the scientific management concept. It involves utilization of scientific mathematical techniques in organizational operation as a part of decision-making activities of the management. It assumes that no comprehensive system development can take place without prior system analysis. It helps administrators to use scientific and quantitative methods for analysing management problems. System technology brings to educational management a scientific-quantitative approach for solving complex educational administrative problems.

Procedure of System Analysis

For conducting system analysis study, the following steps must be followed:

1. **Formulation of objectives:** To state objectives in general terms an objective may be written in behavioural terms of fiscal functions.

2. **Review of System operation:** System analysis is problem-oriented and includes a comprehensive review of the system operation. Comprehensive review of the whole system is necessary to isolate the main problem to the solved.
3. **Collection of data:** It involves the statistical techniques and procedure.
4. **Analysis of data:** It is done to make the matter meaningful and is employed to experimental paradigms to study the effect of independent variable.
5. **Isolation of the problem:** It is necessary to follow the above steps in order to isolate specific problem of the system. The collection and analysis of data helps in identifying and defining the problem.
6. **Specify operations in the problem:** It is much more comprehensive than the original review of the total operations. It helps to understand the relationship of all facts of the problem to the total operation system.
7. **Block Diagram:** In the final step in the analytical stage of the system analysis, a block diagram is prepared for all functions of the sub-system that make up problem area. It denotes logical structure of the sub-system operations and similar to the block diagram.

Design

After the system analysis, the investigator attempts to design a tentative solution to the problem. The new solution is subjected to testing. A tentative solution and retesting the tentative solution continues until an analyst reaches to an optimal solution. Once the optimal solution is obtained, the analyst departs from the loop.

Evaluation

Aformal evaluation of the new solution is done for checking its workability. The evolution involves implementation of tentative solution. It is best to evaluate all new system solutions in small scale.

System Operations

It involves two aspects:

- Implementation of new system operation
- Maintenance of the system where a new system is designed

Criteria for Evaluating System

The total system should operate in an optimal fashion and has some criteria. These criteria are as follows:

- **Performance:** Performance forms the basis of the effectiveness of any system. The design of the problem solution ascertains the effectiveness of new system in achieving the objectives. The performance criterion is the concept of validity of the new system. The system is valid if it does what it is supposed to do. Therefore, most of the evaluation of the performance is quantitative.
- Cost: Analysis of system is influenced by the function of cost. The amount of resources put into tne system function in terms of money, staff and facilities. This is a valuable criterion for evaluation system analysis of projects.
- **Utility:** The ultimate criterion for evaluating system project is utility of the

system. Investment represents the utility of a given function. Many educational functions require an assignment of a numerical utility.

. • **Time:** Time factor as an evaluative criterion is closely associated with effectiveness. There is high correlation between time and cost. Much of the contribution of modern electronic data processing involves time.

Application of System Analysis in Education

The purpose of system analysis is to get the 'Best environment in the best place for the best people, at the best time and in the best price. ' The system approach in instruction is an integrated, programmed and a complex instructional media of hardware whose components are structured as a single unit with a schedule of time and sequential phasing. System analysis greatly influences educational administration and organization. It provides scientific and quantitative basis for studying the problems of educational system. The educational implication of system analysis has been found in the following areas of education:

- **Approach:** It brings to educational management a scientific-quantitative approach for solving complex education administrative problems.
- **Problems:** It enables educational administrator to identify the actual problem and abstains a verified solution of the problem.
- **Training:** The training programmes can al so be improved with the help of system analysis. The new concept of management can be used in training programmes.
- **Sub-systems:** The sub-systems of education is analysed to understand the actual problem and tentative solutions can be verified or tested on a segment of the system.
- **Change:** Any change in the educational system can be brought objectively, empirically and economically with great utility with the help of System Analysis.

CHECK YOUR PROGRESS

1. What is the source of Tyler's thoughts on curriculum development?
2. Which factors help in organization of subject matter?
3. According to Hilda Taba, when will the expected changes in the individual and social consciousness take place in the process of curriculum development?

2.3 MODELS OF CURRICULUM EVALUATION

Evaluation Research

The field of evaluation research has undergone noteworthy changes since the time of Tyler's work in 1949 due to current trends of receptive evaluation and qualitative research. Tyler, who is supposed to be the earliest writer in this field, was a supporter of

objective-based evaluation. Other authors supported other kinds of measurement because they argued that the determination of objectives is, itself, subjective.

An effectual Curriculum Evaluation Model has the capability of doing the following:

- It can be brought into existence and use without making undue demands and burden upon the resources of the district.
- An effective model has the capacity of being applied to all levels of curriculum starting from programmes of study, fields of study and lastly to the courses of study.
- All noteworthy aspects of curriculum i.e. the written, the taught, the supported, the tested, and the learned curricula can be assessed by it.
- Able to clearly make distinctions between the intrinsic value and the worth i.e. value for a given context.
- Effective models are approachable by the stakeholders and are able to make the data available when.it is required for decision making.
- They are goal-oriented and emphasize on objectives that were set.
- Is sensitive to and makes appropriate provisions for assessing unintended effects.
- Formative aspects are given due attention and provisions are made for assessing formative aspects of evaluation.
- Curriculum evaluation models should be sensitive to and make provisions for assessing the special context for the curriculum.
- Assessment of the aesthetic or qualitative aspects of the curriculum is well provided by them.
- Fulfils requirements for making assessment of opportunity cost—the opportunities lost by those who study this curriculum.
- For gathering and analysing data both quantitative and qualitative methods are used.
- The current findings in reports are receptive to the exceptional needs of audiences.

Theories and Models

The writing about the evaluation research in education started with the efforts and work of Ralph W. Tyler. Tyler was strongly grounded in the scientific method and on this basis Tyler (1949) assumed that programmes should be evaluated exclusively on the basis of their ability to meet the objectives that have been set before. An objective is the result that a programme is trying to achieve. Tyler's writing inferred that evaluation should be carried out by outside experts. Though objective-based evaluation is still considered to be a fundamental method for conducting evaluation research, the opponents of Tyler are of the opinion that other methods may be better. This group of opponents, led by Eisner (1979), had this argument that objective based evaluation is often subjective, because the choice of objectives is a value-laden purposeful act. Not only his goal attainment model but other areas of Tyler's work also have come under disapproval. It includes the time period of evaluation as this limitation can cause the danger of allowing objective based evaluation. Opponents of Tyler developed many contrasting models of evaluation.

Tyler considered evaluation research to be a way of deciding whether the programme that has been implemented is meeting a set of predetermined criteria or

not. Cronbach (1963) contradicted these intentions of Tyler, claiming that the centre of attention should be on improving the progress of new programmes, rather than waiting until the previous programme is in place. Evaluators should be asked to look into a programme midway through its implementation, for it is at this point that an evaluator can be most helpful in improving the programme.

The theories espoused by these leaders in evaluation research have led to the expansion of different other evaluation models. Popham (1975) characterized these models in four groups:

- Goal-attainment models
- Judgmental models emphasizing intrinsic criteria
- Judgmental models emphasizing extrinsic criteria
- Decision facilitation models

Goal Attainment Models

Fathered by Ralph Tyler in the 1930s, goal attainment or objective-oriented models still provide direction and assistance to many evaluations and occupy an important place in the literature. An example of a goal-attainment model is the paradigm developed by Metfessel and Michael.

2.3.1 Scientific Evaluation Models of Metfessel and Michael

It engages stakeholders as facilitators, formulates specific goals and objectives, translates the formulated objective into transmissible form, select/constructs instruments to aid determine programme efficiency, carries out intermittent observations, analyses data, interprets data, and develops recommendations.

The steps of their model are given below:

1. Members of the whole community directly and indirectly can be added up as the participants in the evaluation process
2. Developing of wider goals and specific operational objectives both cognitive and non-cognitive in nature
3. The objectives that are specified should be translated so that they are communicable and can be implemented to assist learning and makes a smooth progress
4. To check whether the programme has achieved the objectives that were specified earlier we should develop criterion measures and instruments
5. The programme should progress toward measuring the attainment of the objectives and finally proceed towards attainment of the objectives in the real sense
6. Next measure is to analyse the data
7. Interpretation of the data should be done based on standards and values
8. At the end, recommendations should be formulated for the improvement of programme as well as for revisions in the goals and objectives if required

Metfessel and Michael have been known better for the list of criterion measures than for their paradigm which is added to the article as the appendices. It can be used by the evaluator in the fourth step of the model. The measures mentioned by Metfessel and Michael are wide-ranging, with those for determining student behaviour including self-inventories, standardized tests, rating scales, projective tests, anecdotal records and

case histories. In the evaluation system formulated by Metfessel and Michael measures are also provided for teacher and community behaviour.

Advantages of objective-oriented evaluation approach

- Simplicity of the programme
- Straight forward i.e. easy to understand
- Follows, implements and produces significant information

Criticism of the model by Metfessel and Michael

No programme is said to be a perfect model. Despite their several advantages, there are number of criticisms of goal-attainment models.

- Scriven (1967) was the first to caution against arbitrary goal-based evaluation without an associated evaluation of the quality of the goals: In this reference he commented 'it is obvious that if the goals aren't worth achieving then it is uninteresting how well they are achieved.' It is unfortunate that many evaluators do not take note of Scriven's advice and the goals that are established for a programme often remain unscrutinized.
- Another drawback of the goal-based models is to provide an effective foundation for shaping programme results. For this the objectives of programme must be made clear and specific. Hardly ever the evaluators afforded the comfort of explicit programme goals. Even if the programme objectives existed they were unclear, common, and too broad to provide a foundation for comparing results.
- A very common criticism of goal-based evaluations is that it focuses its attention only on the results of the programme, provisions of its proposed objectives which narrows the evaluation in such a way that the different measures used to achieve the results and their relationship to programme outcomes are uncared for. Concerning the judgement of overall value of the programme as far as its success in achieving the objectives is concerned, global judgments of merit can be made but no basis for programme improvement is provided by the data though it is equally an important part of evaluation. In other words, the goal-attainment model is not decision oriented; only limited information can be provided for decision makers.

In decision-oriented models, the rationale of evaluation is to present information for the decision makers for a numbers of decisions to be taken like:

- Decisions concerning whether or not a program is required
- Whether the programme should to continued or needs to be expanded
- Whether the programme sh ould be terminated
- Decisions is to made regarding program certification or licensing;
- Decision is required about the ways to be adopted for programme improvement

The next stated model is a decision-oriented model for programme evaluation and point of reference that is obvious in the definition of evaluation that provides the conceptual base for its development.

2.3.2 Provus Discrepancy Evaluation Model (DEM)

It was developed in the year 1966 by Malcolm Provus and is regarded as a *Systematic Approach for the Evaluation of Career Planning and Placement Programmes.* The Discrepancy Evaluation Model gives information for programme assessment and programme enhancement. Malcolm Provus' Discrepancy Model is a very popular model

and gets its name so because the key point in the definition of evaluation given by Provus is based on the discrepancy between performance and standards. Under the DEM, evaluation is defined as the comparison of an actual performance to a desired standard. The DEM can be used as a formative assessment to decide whether to amend or stop a programme. The model is perfect for finding problems by ways of the discrepancy. It can also be used to design a programme from the time of its setting up to conclusion, leading to summative evaluations.

Evaluation has been defined by Provus as the process of

- Defining the standards of the programme
- Making it clear whether a discrepancy does exist between some aspect of programme performance and the standards governing that aspect of the programme
- If discrepancy exists then this information is used either to bring change in performance or to change programme standards

Having rested on the information yielded as a consequence of the evaluation done, there can be four possible decisions to be made.

- Programme can be ended
- Can be customized as per requirement
- Can continue or be repeated as is
- Standards can be changed

Discrepancies are determined by examining the three content categories i.e. input, process, and output at every stage and then programme performance information is compared with the defined standards at each stage.

- The design criterion is used to compare the design of the programme.
- Programme operations are compared and judged against the input and process sections of the programme design.
- The extent to which provisional objectives are achieved is compared with the accomplishment of the terminal objectives which in turn is compared with their specification in the programme design.
- Costs of other programmes with similar goals are kept as criteria for comparing the cost of the existing programme.

The Discrepancy Model consists of five stages based upon a programme's natural development;

- Programme design
- Installation
- Process
- Product
- Cost benefit analysis

Each of these stages involves an assessment between reality, or performance, and standards.

1. The first stage is *design* which refers to the nature of the programme—its objectives, students, staff and other resources required for the programme, and the genuine actions planned to encourage attainment of the objectives that are preset. The programme design becomes the benchmark against which the programme is compared in the next stage.
2. In the second stage, *installation,* involves determining whether an implemented programme is harmonious with its execution plan.
3. The third stage *Process,* is the stage in which the person working as an

evaluator serves in a formative role, he/she compares performance with laid down standards and focusing on the. extent to which the interim or enabling objectives have been achieved.

4. The fourth stage, *product,* is related with comparing actual attainments against the standards (objectives) that were derived during Stage 1 and if discrepancies are occurring it has to be noted down.
5. The last final stage is concerned with the query of *cost.* A cost-benefit analysis is done of the completed programme and compared to other programmes that are similar in nature.

Because the chief function and point of reference of the Discrepancy Model is to make available the information for decision makers, Popham (1975) classifies it in his four-part model medley as a 'decision facilitation' model. But, as Popham acknowledges, there is overlap between the categories and the Discrepancy Model is vulnerable to the same criticisms levelled at the goal-attainment models.

In recent times, the discrepancy analysis proposed by Malcolm Provus in 1966 was used as the base for numerous approaches to programme evaluation. However, Provus' untimely death with his books out of print, the evidence of his work has mainly lived on through the works and efforts of Daniel Stufflebeam and his associates at The Evaluation Center. DEM is referred to as an evaluation method, Scriven was of the opinion that the term ' evaluation has been incorrectly used in place of 'monitoring' which is a more apt term. Gredler (1996) suggests that this model will only prove to be successful under the following conditions:

- If the evaluation is formal and the programme is in the formative stage rather than the summative stage.
- If evaluation is an information management programme incorporated for improvement and assessment or evaluation is a part of programme expansion
- When evaluation is done to advance, uphold or conclude a programme
- When the evaluator functions as a facilitator, examiner of standards, observer of actual behaviours and design expert.
- When every stage of the evaluation programme performance is compared with the programme objectives to determine discrepancies.
- When the programme evaluation process identifies shortcomings

It can be concluded that Provus' DEM is an excellent and widely-accepted utilitarian model to use to evaluate educational programmes. Provus defined evaluation as 'the procedure in accordance to programme standards, determining whether a discrepancy exists between some aspect of the programme and standards governing that aspect of the programme, and using discrepancy information to identify weaknesses of the programme.' His stated that the purpose of evaluation is to 'determine whether to improve, maintain or terminate a programme.' His model is primarily a problem-solving set of procedures that seeks to identify weaknesses (according to selected standards) and to take remedial actions with cessation (end) as the option of last resort.

2.3.3 Humanistic Model of Stake's Responsive Evaluation Model

This model was pioneered by Stake (1973), and was further identified with Guba and Lincoln (1981). Responsive evaluation is not a much different model for conducting evaluation as a process for determining a model or models to use in evaluation. Evaluation in education is well thought of to be responsive if notice is paid to programme activities, stakeholder requirements for information is fulfilled, and if contradictory values and perspectives are recognized in reporting a programme's success or failure.

The humanist and constructivist theoretical frameworks identify the requirements and characteristics of the learner in combination with the creation of

knowledge within a learning framework. These two theoretical frameworks helped in evaluating the usefulness of the portfolio component of QA programmes of health regulatory colleges in order to make sure that the needs of the individual learners are fulfilled. Still, given that the research is located in the context of QA programmes, it is significant to refer to a programme evaluation model. The idea of adding a programme evaluation model to the whole conceptual framework was to make certain that the viewpoints guiding the study included issues of programme design, development, and maintenance instead of just the needs and characteristics of the learners who are engaged in the compulsory unremitting learning activities. The model was brought into use to analyse the data and to evaluate the effectiveness of the portfolio component of QA programmes in some colleges.

This type of design is called as Emergent design. The concept of emergent design is to enter the evaluation technique or process without having biasness towards the various types of models to be used in conducting the evaluation. The type of models to use or best fit for the problem will 'come into sight' based on the types of information that the evaluation is generating. There is profound stress on stakeholder's contribution in this model. Programmes should be evaluated based on the needs of the stakeholders, not on whether the programme is meeting the objectives as it is in case of Goal-attainment model. Stake (1991) stated that the process begins by determining the issues or concerns of stakeholders. It is from these issues that are related to the stakeholders and data which is available relating to these issues, that the evaluation design begins to form.

Different models may be used for different issues and designs may vary as the evaluation process progresses. Stake and Hoke (1976) illustrated, 'We who take the responsive evaluation approach complete our studies without strong proof that the programme was a success or failure and even without hard data for making good comparisons, but we often end up with people understanding their programme better.' Stake was very confident in claiming in a speech that was delivered to the audience at the Gothenburg Institute of Educational Research, that responsive evaluation 'is an approach that sacrifices some precision in measurement, hopefully to increase the usefulness of findings to people in and around the programme.' Robert Stake's Responsive or Issues-centred programme evaluation model provides an important tool to swot up portfolios. Stake's responsive evaluation model was shaped as a result of his conviction that conventional evaluation models are too constricted in design and thus they lack to acknowledge the proposed and unintended difference between how curriculum works in practical sense and the external judgments and decisions made about the curriculum.

Guba and Lincoln (1981) suggested the following four phases to responsive evaluation:

1. Organizing the evaluation
2. Identify major issues and concerns
3. Conduction of research for gaining relevant information
4. Presentations of report results and recommendations

As clearly stated above, these steps leave reasonable bit of flexibility for a researcher to select the options from other evaluation models and research methods.

Pulley (1994) described a methodical five step approach:

1. Identify the decision makers
2. Identify the information needs of decision makers
3. Systematically collect both quantitative and qualitative data
4. Transform data into significant and meaningful information
5. Involve and inform decision makers on a continuous basis

Evaluation Standards

Robert Stake's Responsive Evaluation Model (REM) gets its source from a naturalist paradigm and places value on understanding both people and programmes in a particular context.

Responsive evaluation permits for the explanation of manifold perspectives that are often recognised as to be the' Source of Conflict', concerns, or contextual complexities among the various stakeholders. The viewpoints are represented as *concerns* or *issues* and become the source for developing the *standards* whereby a programme can be evaluated. Stake (1975) has used the word *issues* to echo a sense of complication and urgency. As a result, the outcomes of the evaluation are more significant and therefore more likely to be acted upon. Also, it is central to make a note that this kind of evaluation is concerned with 'how a programme or curriculum operates.' Therefore it emphasizes the process rather than the outcomes. The use of issues orients an evaluation to make it more responsive to a variety of concerns and therefore can provide a more holistic account of a programme or curriculum. As responsive evaluation models permits for both qualitative and quantitative research methodologies therefore, responsive evaluation is often criticized for being too open and in real meaning, susceptible to the concerns and interests of the evaluator, who may in turn have complexity in prioritizing the issues raised by various stakeholders. Responsive programme evaluation models are supposed to give emphasis to insignificant issues instead of providing an evaluation of a programme in terms of a set of fundamental criteria. However, Stake strongly advocates that the lack of meticulousness, precision and measurement in responsive evaluation is a precious settlement made in order to increase the usefulness of the research findings.

The steps of responsive evaluation are described by Stake, are as follows:

- Documenting events
- Recording change
- Assisting in the decision-making process
- Seeking understanding
- Help in inferring remediation

The responsive evaluation model is compatible with the purpose and objectives of the study of the effectiveness of self-directed learning and self-assessment in portfolio models in various QA programmes, since a responsive evaluation tool can include how QA programmes were established and whether these programmes balance the needs of the individual learner while ensuring continued competence. Moreover, a responsive approach to evaluation in this context will help to assess if programme change and remediation are required for QA programmes in order to maximize their full potential.

The data matrix as figured by Stake in the year 1967 provides a framework for an evaluator to congregate and analyse the compulsory data for assessment of an

educational programme, including statements of the various stakeholders. Here care should be taken to define the difference between description and judgment and the roles they accomplish in Stake's data matrix for educational programme evaluation. Description within this evaluation framework includes inslruction and accomplishment and the relationship between the two. Judgment as described in the evaluation framework of Stake, suggests that the evaluator processes the judgments made by others rather than portraying a personal judgment. As a result, the evaluator gathers subjective opinions in an objective manner

The evaluation model proposed by Stake (1967) consists of the description and judgment matrices. Within the description matrix, there are both intents and observations. By the intents of the educational programme Stake means the conditions, demonstrations, and behaviours that are taken into consideration when a programme is designed. The intents may also take account of elements of the hopes, anticipations, and even uncertainties related to the implementation of an educational programme. In contrast, observations are the description of the surrounding environment and events as experienced by the evaluator. The judgment matrix includes both standards and judgments, which also play an important role in putting up with educational evaluation to reach at conclusions in Stake's process of evaluation. The primary goal of education is brilliance and merit, which requires clear standards. The standards of an educational programme show a discrepancy between stakeholders, and it is the accountability of the evaluator to point out which standards are attributable to which group. Therefore, before making a judgment, the evaluator makes sure whether the standards that are set have been met and consequently assign magnitude to each set of standards. The final component of the data matrix is the rationale of the educational programme, which is considered to be the philosophic backdrop or purposes of the programme i.e. Stake's Responsive Model Program.

According to Stake (1967), evaluation of an educational programme requires that the antecedents, transactions, and outcomes of a programme have to be taken into account. The antecedent is defined as those condition that are present before the commencement of the learning, while the transactions are measured to be the sequence of actions and engagements that make up the process of education. Thus according to Stake, final outcomes of the evaluation programme are the achievements, skills, and abilities that are produced from an educational experience. The evaluator must glance at the relationship between these three indicators. Apart from the above objectives to be achieved the evaluator also makes an assessment of the situation of what was the planning done and what in reality has been occurring in an educational programme, thereby establishing possibility and congruence between the intents of the programme and the evaluator's observations.

The functional organization of Robert Stake's responsive evaluation model can be identified as 12 recurring events that may possibly happen simultaneously and with a number of repetitions till the evaluation is completed. The specific events included in the responsive evaluation model include:

- Discussion with clients
- Identifying scope of programme
- Discovering concerns
- Harmonizing issues with the different concerned parties
- Formatting the evaluation making it ready for use by the intended audience

A significant portion of time in responsive evaluation is for observing the programme, after which discussion is held with various stakeholders involved in the programme. It is because of the discussion done with all the interested parties that permits the evaluator to substantiate the scope of the programme, activities, and purposes along with making comparisons amongst the various stakeholders. This helps the evaluator to establish the context of the evaluation. Stake has placed 12 events to illustrate the various processes involved in a responsive evaluation. He observed that the connection between events is not necessarily clockwise and predictable but rather a liquid movement between all events that creates a holistic evaluation model for educational programmes.

Evaluation of Stakes's Model

It was expected that Stake's responsive evaluation model would be a good match to a study of the selected QA programmes as it gave us a strong framework for examination of documents and for analysing data from discussions with administrators. However, on conduction of only some of the events that were proposed by Stake gave a limited scope to the study of the effectiveness of the model. Responsive programme evaluation is criticized for its weakness to the concerns of the evaluator, and therefore the evaluation may focus only on insignificant issues instead of purposeful criteria.

Regardless of the critiques, responsive programme evaluation has been useful in medical education studies to uncover meaningful information for decision-making processes.

Curran et al. (2003) reported that responsive evaluation model was used in evaluating the Clinical Skills and Assessment and Training (CS AT) programme at the Faculty of Medicine at Memorial University of Newfoundland. The study included the interview of 12 graduates relating to their experiences with the CSAT programme, and an external evaluator conducted a meta evaluation of the responsive evaluation process. A customized version of Robert Stake's 12-step responsive evaluation model was applied to the CSAT programme and the results demonstrated that the evaluation gathered rich and descriptive information about the educational processes. Stake further contend that the study was fruitful in establishing the importance of responsive evaluation to the medical community because it advocates focus on the stakeholders' need for information, uncovers conflicting concerns related to the achievement of medical educational programmes, and at length, defines the underlying processes of medical education leading to programme success.

2.3.4 Parlett and Hamilton Evaluation Model

The Illuminative Evaluation Model of Parlett and Hamilton (1977), was chosen for testing purpose because it corresponded with the philosophy and value system of the investigator. This model had the following features as an advantage:

1. Allowed the study of varying and emerging problems
2. Encouraged manifold viewpoints and perspectives
3. Focused mainly on performances and issues than on the programme's outcomes
4. Provided means for studying spontaneous actions and situations

In Illuminative Evaluation Model, the wider contexts in which education programmes function are taken into account. Its main concern is with explanation and interpretation rather than measurement and prediction. It stands explicitly within the substitute methodological paradigm. The aims of illuminative evaluation are to study the innovatory programme; how is school situations in which it is applied; what are the

advantages and disadvantages for those who are directly concerned with it; and how does it affect the intellectual tasks and academic experiences of the students. In short, it seeks to deal with and to illuminate a complex array of questions

Illuminative evaluations is said to have three principal stages characteristically:

- Observation
- Inquiry
- Explanation

The first stage is an exploratory stage during which the investigator becomes well-informed about the programme and people involved in it and tries to comprehend and text the day-to-day reality of the setting or settings under study. No attempt is made to manipulate, control or eradicate situations of programme developments. Persons involved in the programme like faculty, participants, planners and any other related to it are observed and interviewed. Documents are reviewed to obtain an historical perspective as well as a perspective on how people look upon the innovation.

The second stage is a narrowing focusing process. It is an interactive process between evaluators and relevant decision-makers or information users. Narrowing and focusing the study means dealing with several basic concerns. What is the purpose of the evaluation? How will the information be used? What will be known after the evaluation that we do not know now? What can we do after the evaluation that we cannot do now for lack of information? What topics or concerns should be selected for intensive investigation?

Narrowing and focusing are key elements because programmes are so complex and have so many levels, goals, and functions. There are always more potential study topics than there are time and resources to examine. The alternatives, therefore, have to be narrowed, clarified and redefined.

When the alternatives have been clarified and defined, the evaluator must determine evaluation procedures. Illuminative evaluation does not have simple, standardized procedures for those functions, so the evaluator might incorporate other models that offer guidelines for operationalizing the model. For example, if the study focuses on participant reactions, the extent to which the programme content was assimilated and/or the change in job behaviour, the evaluator might incorporate Kirkpatrick's'(1967) or Hamblin's (1974) model. Both these models offer guidelines for operational zing the evaluation.

The third stage consists of quest of general principles underlying the organization of the programme, spotting patterns of cause and effects, and explaining individual findings within broader explanatory context.

Within the three stage framework of illuminative evaluation, the investigation can combine four different data gathering techniques permitting the programme to be examined from a number of angles. These are:

- Observation of the participants and events
- Interview with participants, resource persons, and administrators
- Questionnaires covering many aspects of the program
- Historical research with existing documents.

The following paragraphs describe the data gathering techniques in more detail.

- Observations are an essential part of illuminative evaluation. They are intended primarily to build-up a continuous record of on-going events to add interpretive comments on obvious and latent features of the programme, and to uncover tacit assumptions and interpersonal relationships.
- Interviews are used primarily to determine the perceptions and view of individual participants. Discovering the view of participants is crucial to assessing the impact of the programme. Informal interviews often provide unique insights into programme processes experienced by different people.

Illuminative Evaluation Stages

Stage One - Observation

The investigator becomes knowledgeable about the program and people involved.

Activities

- Review or discover what is expected at the outset
- Consider the questions, hypotheses or issues already raised
- Look for possible studies to use as models
- Review historical documents
- Form initial plan of action
- Anticipate key problems and events
- Consider possible audiences for preliminary and final reports

Stage Two - Inquiry

The investigator narrows and focuses the study.

Activities

- Arrange access to programme negotiate plan of action
- Discuss arrangement to maintain confidentiality of data, source and reports
- Select and develop questionnaires or standardized procedures if any
- Work out record-keeping system
- Make observations, conduct interviews, use questionnaire
- Keep records of activities and changes

Stage Three - Explanation

This is the analytic and interpretation phase.

Activities

- Classify raw data and begin interpretations
- Gather additional data, triangulate data to validate key observations
- Search for patterns of data
- Seek linkages between programme arrangements, activities and outcomes
- Select illustrations

- Draw tentative issues, organize according to issues
- Describe the setting where the activity occurred
- Draft reports
- Describe methods of investigation
- Revise and disseminate reports

Questionnaires and tests are included to obtain information that sustains or qualifies earlier tentative findings.

Historical research using documentary and background sources provides information about the development of events. The gathering of background information yields a historical perspective of the way the programme was regarded by different people before the evaluation began. This information can be obtained from letters, minutes of meetings, and reports. The data gathered often suggest topics that need investigation and expose aspects of the programme that otherwise would be missed.

The three stages of illuminative evaluation do not function separately; they overlap and are interrelated. The transition from stage to stage occurs as problem areas become progressively clarified and redefined. Beginning with an extensive data base, using the data gathering techniques mentioned above, the investigator systematically reduces the scope of the inquiry to give more concentrated attention to the merging issues. This 'progressing focusing' permits unique and unpredicted phenomena to be given due weight. It reduces the problem of data overload and prevents the massive accumulation of unanalysed material (Parelett & Hamilton, 1976)'.

2.3.5 Context, Input, Process, Product Model (CIPP Model)

The CIPP Model was introduced by Daniel Stufflebeam (1971). Stufflebeam's model when applied in an educational setting determined whether a particular effort resulted in a positive change in school, college, university or at a training organization. His model is based on decision-making regarding the programme that is to be introduced. For an evaluation to be performed correctly so it can assist in the decision-making process, the curriculum evaluators have to:

- Delineate what needs to be evaluated and determine the information required for evaluation.
- With the help of selected, techniques and methods, assemble the required information.
- Make the information available to concerned parties.

With the help of the four types of evaluation, i.e., context, input, process and product, a decision is made whether to maintain, modify or eliminate the new curriculum or programme.

This model of evaluation that has been proposed by Stufflebeam puts into use of both formative and summative evaluation to check the overall effectiveness of a curriculum programme.

2.3.6 Eisner's Connoisseurship Model

With a background in aesthetics and art education, Elliot Eisner (1979) developed the connoisseurship model. In the connoisseurship model, the approach of evaluation deals with qualitative appreciation. Eisner's model is based on two closely-related constructs—connoisseurship and criticism. According to Eisner, connoisseurship is the art of appreciation where recognition and appreciation takes place through perceptual memory

that draws from experience to appreciate what is significant. It is the ability both to perceive the particulars of educational life and to understand how those particulars form a part of a classroom structure. Eisner states that criticism is the art of disclosing qualities of an entity that connoisseurship perceives. In this type of disclosure, the educational critic is more likely to use what Eisner refers to as 'non-discursive,' a language that is metaphorical, connotative, and symbolic. It uses linguistic forms to present rather than represent conception or feeling.

Eisner suggests that educational criticism has three aspects, which are as follows:

(i) Descriptive aspect that is an attempt to characterize and portray the relevant

qualities of educational life—the rules, the regularities, the underlying

architecture, (ii) Interpretive aspect uses ideas from social science to explore meanings and

develop alternative explanations to explicate social phenomena, (iii) Evaluative aspect makes judgments to enhance educational processes and

provides grounds for the value choices made so that others might better

disagree.

2.3.7 Scriven's Goal-free Model

Michael Scriven was the first scholar to question the role of goals and objectives in the evaluation process. Scriven had the opportunity to be a part of several evaluation projects where he observed that the so-called side effects were more significant that the original objectives. This led Scriven to question the difference between intended and unintended effects and the goal-free model was the outcome of this satisfaction.

When conducting a goal-free evaluation, the evaluator functions as an unbiased observer who starts be generating a profile of needs for the group served by a given programme (Scriven has not clearly stated the process of how this needs profile is to be derived). The actual effects of the programme are then evaluated by the evaluator using methods that are primarily qualitative in nature. If the programme is responsive to one of the identified needs, then the programme is deemed to be useful.

Scriven's main contribution was to redirect the attention of evaluators and administrators to the importance of unintended effects—a redirection which is especially useful in education. Scriven also suggests thatgoal-free evaluation needs to complement and not supplant goal-based assessment. If used alone, it does not provide sufficient information to the decision-maker.

2.3.8 Tyler's Objectives-centered Model

Ralph Tyler proposed the objectives-centred model which continues to influence many assessment projects. In his book, Principles of Curriculum and Instruction, Tyler explains his model which takes place in several rationally and systematically related steps:

(i) This starts with previously determined behavioural objectives which specify the content of learning and the expected student behaviour.

(ii) Identify scenarios where the student is provided with an opportunity to express behaviour embodied in the objective and that evokes or encourages such behaviour.

(iii) Select, modify or construct suitable evaluation instruments and also check these instruments for objectivity, reliability and validity, (iv) Use of instruments to achieve summarized or appraised results.

(v) Make a comparative analysis of the obtained results received from several instruments before and after in a certain period of time. This will help to measure the change that is taking place

(vi) Analyse results to assess the strength and weaknesses of the curriculum, (vii) With the help of the results make necessary changes in the modifications.

CHECK YOUR PROGRESS

What are the different methods of evaluation?

State the basic concept of evaluation paradigm of Metfessel and Michael.

How has Provus defined evaluation?

2.4 SUMMARY

In any process of curriculum development, contemporary thinking in education plays a very significant role.

To exchange a few words with students about what a topic is intended to do is fine educational practice.

Aims may serve as organizing doctrines of educational course for more than one grade.

Goals may encompass the whole programme, subject area, or manifold-grade levels. They may be in both nebulous language or in more particular behavioural terms.

Content selection requires offering suitable balance to subject knowledge, process skills and the growth of the student as learner as well as to specify and context.

Ralph W. Tyler (1902-1994) was an US educationalist who worked in the sphere of assessment and evaluation. He was the advisor to a number of bodies that established guidelines for the expenditure of federal funds and influenced the fundamental policy of the Elementary and Secondary Education Act of 1965.

In 1967, Wheeler came up with a cyclic model of curriculum process going through the following five phases:

o Aims, goals and objectives

o Selection of learning experiences and Selection of content

o Organization of integration of learning

o Experiences and content

o Evaluation

According to Hilda Taba, the development of new curricula and programmes is more effective if it is based on the principles of democratic guidance and on the well-founded distribution of work.

System Analysis is closely related to training psychology and cybernetic.

- The term, 'system analysis' has emerged from the scientific management concept. It involves utilization of scientific mathematical techniques in organizational operation as a part of decision-making activities of the management.
- After the system analysis, the investigator attempts to design a tentative solution to the problem.
- A formal evaluation of the new solution is done for checking its workability.

« The purpose of system analysis is to get the 'Best environment in the best place for the best people, at the best time and in the best price.'

- According to Worthen and Sanders (1987) evaluation can be considered as a formal or well-org^iized approach to scrutinize the value of a programme based not only on its outcomes but also on its context, inputs, processes and procedures, and products.
- Evaluation can be done as formative, summative, or a combination of the two.
- Tyler considered evaluation research to be a way of deciding whether the programme that has been implemented is meeting a set of predetermined criteria or not.
- Discrepancy Evaluation Theory was developed in year 1966 by Malcolm Provus and is regarded as a *Systematic Approach for the Evaluation of Career Planning and Placement Programmes.* The Discrepancy Evaluation Model gives information for programme assessment and programme enhancement.
- Provus Discrepancy Evaluation Model designed by Malcolm Provus in 1969, is a well experienced and generally accepted utilitarian model to use in evaluating educational programmes.
- Humanistic model was pioneered by Stake (1973), and was further identified with Guba and Lincoln (1981).
- The humanist and constructivist theoretical frameworks identify the requirements and characteristics of the learner in combination with the creation of knowledge within a learning framework.
- The model was brought into use to analyse the data and to evaluate the effectiveness of the portfolio component of QA programmes in some colleges.
- The Illuminative Evaluation Model of Parlett and Hamilton (1977), was chosen for testing purpose because it corresponded with the philosophy and value system of the investigator.
- In Illuminative Evaluation Model, the wider contexts in which education programmes

function are taken into account. Its main concern is with explanation and interpretation rather than measurement and prediction. It stands explicitly within the substitute methodological paradigm.

2.5 KEY TERMS

- **Aim statement:** It is a beginning point; a declaration of educational intention and direction for the subject.
    - **Topic description:** It is more often than not the first information about a topic that potential students encounter.
    - **Learning outcomes:** These are the statements of the capabilities that a student should be able to display on triumphant completion of the topic.
    - **Curriculum model:** It refers to a plan of action that can be employed to structure a subject or knowledge area from a theory into practice.

2.6 ANSWERS TO 'CHECK YOUR PROGRESS'

1. Tyler formalized his thoughts on viewing, analyzing and interpreting the curriculum and instructional programme of an educational organization in his book named *Basic Principles of Curriculum and Instruction* (1949).
2. The subject matter should be organized on the basis of the following factors:
    - Discuss subjects or courses
    - Broad fields or disciplines
    - Core or interdisciplinary
    - Skills and processes
    - Projects and activities
3. According to Hilda Taba, in the process of curriculum development, the expected changes in the individual or social consciousness will take place only if individuals or groups, under pressure to introduce these changes, conserve or acquire the ability to learn.
4. Evaluation can be done as formative, summative, or a combination of the two.
5. The concept of Evaluation Paradigm of metfessel and Michael is to engage stakeholders as facilitators, formulates specific goals and objectives, translates the formulated objective into transmissible form, select/constructs instruments to aid determine programme efficiency, carries out intermittent observations, analyses data, interprets data, and develops recommendations.
6. Evaluation has been defined by Provus as the process of:

    - Defining the standards of the programme
    - Making it clear whether a discrepancy does exist between some aspect of programme performance and the standards governing that aspect of the programme
    - If discrepancy exists then this information is used either to bring change in performance or to change programme standards

2.7 QUESTIONS AND EXERCISES

Short-Answer Questions

1. Define the term 'curriculum design'.
2. How is the'topic description'developed?
3. Differentiate between 'goals' and 'objectives' in the context of curriculum development.
4. What is meant by the organization of learning experiences?
5. According to Tyler, which were the fundamental questions in developing curriculum?
6. What are the advantages of objective-oriented evaluation approach.

Long-Answer Questions

1. Discuss the processes of selection of content and selection of learning experiences.
2. Describe R. Tyler's model of curriculum development.
3. Evaluate D. K. Wheeler's model of curriculum development.
4. Review the model of curriculum development proposed by Hilda Taba.
5. Write a short note on the Discrepancy Model of Provus.
6. Discuss models of curriculum development of Stake and Parlett and Hamilton.

2.8 FURTHER READING

Ornstein, Allan C, Francis P. Hunkins. (2004). *Curriculum—Foundations, Principles, and Issues.* Boston, United States: Allyn and Bacon.

Taba, Hilda. (1962). *Curriculum Development: Theory and Practice.* San Diego, California: Harcourt, Brace & World.

Bhatt, B. D., Sita Ram Sharma. (1992). *Principles of Curriculum Construction* New Delhi: Kanishka Publishing House.

Bobbitt, John Franklin. (2013). *The Curriculum.* Memphis, Tennessee: General Books LLC.

Bobbitt, John Franklin. (1924). *How to Make a Curriculum.* Boston, Massachusetts: Houghton Mifflin Company.

Chauhan, S. S. (2009). *Innovations in Teaching Learning Process, IE.* New Delhi: Vikas Publishing House Pvt. Ltd.

Dewey, John. (2010). *The Child and the Curriculum: Including the School and Society.* New York, United States: Cosimo, Inc.

UNIT 3 CURRICULUM ISSUES

Structure

3.0 INTRODUCTION

Education in India is provided by the public sector as well as the private sector, with control and funding coming from central, state, and local governments. Takshasila was the earliest recorded centre of higher learning in India. The Nalanda University was the oldest university-system of education in the world in the modern sense of university. Western education became ingrained into Indian society with the establishment of the British Raj.

Education in India falls under the control of both the Union Government and the State Governments, with some responsibilities lying with the Union and the states having autonomy for others. The various articles of the Indian Constitution provide for education as a fundamental right. Most universities in India are controlled by the Union or the State Government.

The role of the Government of India was limited to coordination and deciding on the standards of higher education. This was changed with a constitutional amendment in 1976 so that education now comes in the *concurrent list.* That is, school education policies and programmes are suggested at the national level by the Government of India though the state governments have a lot of freedom in implementing programmes. Policies are announced at the national level periodically. The Central Advisory Board of Education (CABE), set up in 1935, continues to play a lead role in the evolution and monitoring of educational policies and programmes.

In this unit we will study the role of the government in education at the national, state and local level.

3.1 UNIT OBJECTIVES

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

- Discuss the curriculum at national, state and local level
- Explain the preparation and evaluation of a textbook
- Describe core-curriculum

3.2 CURRICULUM AT NATIONAL, STATE AND LOCAL LEVELS

India has made progress in terms of increasing the primary education and expanding literacy to approximately three quarters of the population. India's improved education system is often cited as one of the main contributors to the economic rise of India. Much of the progress, especially in higher education and scientific research, has been credited to various public institutions.

Curriculum means:

- That which is taught in schools
- A set of subjects
- A course of study
- Content
- A program of studies
- A set of materials

- A sequence of courses
- A set of performance objectives

On this basis, curriculum can be defined as a wide-ranging plan for an educational/training programme/course to offer new/improved manpower to fulfil the rising needs of a vibrant society.

There is a national organization that plays a key role in developing policies and programmes, called the National Council for Educational Research and Training (NCERT) that prepares a National Curriculum Framework. Each state has its counterpart called the State Council for Educational Research and Training (SCERT). These are the bodies that essentially propose educational strategies, curricula, pedagogical schemes and evaluation methodologies to the states' departments of education. The SCERTs generally follow guidelines established by the NCERT. But the states have considerable freedom in implementing the education system.

3.2.1 National Level

Much development took place between 1964 and 1985 in the field of education in India. One education commission was there in this period i.e. *National Education Commission also known as Kothari Commission (1964-66)* which was appointed by the government of India to make all-inclusive review of the educational system in order to renovate or modify the existing education. The outcome of this commission was a National Policy on Education in the year 1968. To look into the different aspects of education three five year plans were also executed during this period. Finally when the National Policy on Education, 1968 was evolved, many of its major recommendations were either rejected or diluted in terms of vague and non-specific suggestions with a view to avoid all the controversies that erupted due to the commission's recommendations. The education system failed to fulfil the needs and demands of the various social groups and empirical evidences show that this formal education system suffered from a myriad of limitations. India underwent many changes in the last phase of nineteen century due to unstable government, economic crisis and other causes. It was felt necessary to review the role of education and developments that took place in the past. The result was a status document called *Challenge of Education: A Policy Perspective* prepared by the Indian government after a deep and careful analysis.

Rajiv Gandhi, the then Prime Minister of India, on the basis of Kothari Commission forwarded the National Educational Policy. The nation discussed and reflected upon this issue as to what should be the draft of the new Educational Policy that can develop citizens for 21st century who can stand along with the world. The policies should be such that can fulfil the needs of the nation. Keeping this in mind the National Policy was drafted in the year 1986 and suggestion were given for different aspects and levels of education that could be put into practice without further delay. Due to the change of government at the centre there was an indifferent attitude towards the Educational Policy and a review committee was formed. This committee evaluated the practical aspects of this educational policy to judge its effectiveness and usefulness. The attitude of this committee was positive towards this educational policy.

Special features of the National policy of Education which formed the basis for the Curriculum for the nation are as follows:

- The NPE1986 contended that the role of education is essentially to transform a static society into a vibrant one with commitment and

development and change. The policy recognised the need for creating not only access to education for all sections but also getting them involved in the process of continuing education so as to promote a learning society.

- Further, the Policy also laid special emphasis on the role of education in adequately equipping the new generation stepping into 21st century with required skills and competencies.
- Following the 42nd amendment of the Indian Constitution with the authority to legislate on education concurrently with the States so far as organization and structure of education is concerned, the NPE operationally defined concurrence as a meaningful partnership between the Centre and States and placed clear responsibility on the Union Government regarding the national and integrative character of education, quality and standards, manpower planning research and advanced study, culture, human resources development and the international aspects of education.
- The NPE 1986 gave an unqualified priority for Universalization of Elementary Education and indicated a vital shift from mere provision of schooling facilities for the improvement of facilities, universal enrollment and participation and achievement of satisfactory levels of learning. The Policy advocated due track approach with simultaneous attention on adult literacy and primary education. While shifting its focus from enrollment *per se* to enrollment as well as retention and achievement, it also laid conditionality for success.
- There are some common points between the NPE 1968 and NPE 1986. They refer to the recurrence of the commitment towards a Common School System and the common educational structure of 10+2+3. The NPE 1986 has gone a step further while reemphasizing the place of common core curriculum in the National System of Education by specifying the underlying values. They are India's common cultural heritage, egahtarianism, democracy and secularism, equality of sexes, protection of the environment, and removal of social barriers, small family norm and inculcation of the scientific temper.
- Another important milestone of the NPE 1986 is its commitment to laying down minimum levels of learning at each stage of education aimed to ensuring the quality of education and comparability across the nation.
- The NPE 1986 declares that the entry into the higher education and technical education would be based on the requisite merit regardless of the origin of the aspirant.
- Another important indication for the promotion of opportunity and creating learning society is found in the thrust given to open and distance learning in the policy.

The Policy proposed a three-pronged strategy to realize the task of universalization of primary education:

- Firstly, to provide a motivating school environment through child-centred and activity-based learning process at the primary stage. In this context, the policy emphasized the need for providing supplementary remedial instruction to first generation learners and allowing them to progress.
- Secondly, to improve the inputs for teaching-learning process by providing essential facilities in primary schools in terms of classrooms, teachers, and other teaching-learning equipments. The above facilities are to be delivered to all the primary schools in a phased manner under the scheme called Operation Black Board (OBB Scheme).
- Thirdly alternative stream of systematic non-formal programme is to be designed to ensure the coverage of children who dropout from the habitation without schools, working children and girls who cannot attend

regular schools to ensure universalization. In order to ensure the quality of such non-formal education, efforts will be made to use modern technological aids and the services of talented local young men and women from local community with training.

With respect to the quality, the Policy proposed to formulate curriculum for inculcating values of healthy, work ethos, humane and composite culture.

Establishment of Navodaya Schools

For the first time in independent India a nationwide programme of special schools under the name of pace setting schools has been proposed. Such schools are meant for talented children largely rural, selected with due care bestowed for equity and social justice consideration. These institutions are residential in nature and education is provided free of charge. Such schools have already come into existence as Navodaya Schools under the subsequent Five Year plans all over the country.

Apart from the special courses at the +2 stage, the Policy envisages appropriate flexible non-formal vocational courses for the youth who leave the formal school at the primary stage, school dropouts and neo-literates with special preference to the needs of women. Provision of tertiary level vocational courses is made for those who complete their higher secondary education through academic stream and who require such courses.

National Open School (NOS)

The National Open School was started in India by the Central Board of School Education in 1979. The objective of establishing this School was to provide alternative opportunity through distance education mode to a heterogeneous clientele comprising the rural people, urban poor, women, SC/STs, working adults and school dropouts who are unable to attend the formal school system. The unique features of these NOS are that it takes education to the doorsteps of motivated learners and does not impose limitations of time and place. Further, it makes provision for studying at one's pace and convenience. Various types of support services are provided to the clientele including Personal Contact Programmes through a number of Accredited Institutions which are located across the length and breadth of the country. The Government of India had conferred autonomous status to NOS with administrative control vested with the Department of Education, MHRD in 1989 which was subsequently amalgamated with it in 1990. The NOS has the authority to conduct its own Secondary/Senior Secondary examinations and issue certificates.

The commencement of the Seventh Plan coincided with a comprehensive review of the policy. Accordingly, the plan provided for reorientation of the education system so as to prepare the country to meet the challenges of the next century. The main thrust areas in the Seventh Plan were:

- Achievement of universal elementary education
- Eradication of illiteracy in the age group of 1 -35 years
- Vocational and skill training programmes at different levels of education
- Up gradation of standards and modernization at all stages of education with effective links with the world of work and with special emphasis on science and environment and on value orientation
- Provision of facilities for education of high quality and excellence in every district of the country

- Removal of obsolescence and modernization of technical education

The Plan also delineated effective decentralised planning and organization reforms, promotion of non-formal and open learning systems, adoption of low cost alternatives and optimum use of resources as strategies for achievement of the plan objectives.

The plan priorities for *elementary education* were:

- Paramount priority was to universalise elementary education, with a shift in emphasis from mere enrolment to retention of pupils in schools i.e. to prevent wastage and stagnation. Another aim was achievement of basic elements of learning by them.
- Formal and non-formal methods to effectively cover girls and children of weaker sections.
- Provision of in-service training for teachers and developing and strengthening teacher training institutions.
- Promotion of girl's education through the appointment of women teachers, attachment of pre-school centres, provision of free uniforms and other incentives.
- Specific funds to enhance the quality and efficiency of elementary education through school building and curricular materials.
- Also, the open school systems and distance learning techniques to meet the additional demand for secondary education arising out of expansion in primary education; expansion of facilities were linked with serving the needs of girls and other backward children.
- Free education for girls up to higher secondary stages.

At the *secondary stage* the priorities were as follows:

- Strengthening and universalising science education through upgrading the curricula, laboratory facilities and large scale in-service training programmes for teachers.
- Strengthening vocationalisation of education programmes of Socially Useful Productive work (SUPW).
- Vocationalisation for higher education through diversification to cover a large number of fields in agriculture, industry, trade, commerce and services. The introduction of the vocational courses was linked with emerging work opportunities, in a lithe manner.
- Extending computer literacy programme initiated during Sixth Plan and augmenting audio and video programmes at secondary stage
- In-service training of teachers for developing software and effective use of modern communication technologies and computers in education was to be promoted.
- Revision of textbooks and strengthening libraries for imparting value oriented education with a national perspective.

It should be noted that the strategy of the Seventh Plan underwent a change in the middle of the Plan period following the adoption of the National Policy on Education in 1986. As a result of this the following new thrust in education was taken up (i) universal enrolment and universal retention and (ii) substantial improvement in the quality of education. OB was launched as a part of implementation of the National Education Policy, 1986. The scheme of non-formal education was revised and a number of schemes for teacher education were also taken up.

Education in India

In India education is provided by the public sector as well as the private sector, and the control and funding comes from three levels:

- Central
- State
- Local

Education in India comes under the control of both the Union Government and the State Governments, with some responsibilities lying with the Union and the states having autonomy for others. The education is provided as a fundamental right by the various articles of the Indian Constitution. Most universities in India are controlled by the Union or the State Government.

India's education system in general is divided into different levels:

- Pre-primary level
- Primary level
- Elementary education
- Secondary education
- Undergraduate level
- Postgraduate level

The National Council of Educational Research and Training (NCERT) is the top most body that decides the formulation and implication of the curriculum related matters for school education in India. The National Council of Education Research and Training (NCERT) formulated the first Curriculum Framework in 1975 as a recommendation to the individual states. NCERT was accorded the responsibility of developing a binding National Curriculum Framework through the National Policy on Education (NPE) (1986). NCERT reviews the curriculum every five years on the basis of consultations within the whole school sector. The core areas of the curriculum are cornmon. Teaching of English is usually compulsory in classes VI-X in most of the states/UTs. NCERT published a New National Curriculum framework in 2005.

The New National Curriculum to be introduced in textbooks in three phases:

- Phase one, 2006-07: classes I, III, VI, IX and XI.
- Phase two, 2007-08: classes II, IV, VII, X and XII
- Phase three, 2008-09: classes V and VIII

NCERT has gradually been changing the curriculum from traditional information provision to be more learner-oriented and competence-based.

A number of schools in India are provided support and technical assistance by the NCERT and it oversees many aspects of enforcement of education policies.

The range of curriculum bodies leading and controlling school education system in India is:

- Main is the state government boards, in which the majority of Indian children get enrolled.
- The Central Board of Secondary Education (CBSE). This board conducts

two examinations, specifically, the All India Secondary School Examination, AISSE (Class/Grade 10) and the All India Senior School Certificate Examination, AISSCE (Class/Grade 12).

- The Council for the Indian School Certificate Examinations (CISCE). CISCE conducts three examinations, namely, the Indian Certificate of Secondary Education (ICSE - Class/ Grade 10); The Indian School Certificate (ISC - Class/ Grade 12) and the Certificate in Vocational Education (CVE - Class/ Grade 12).
- The National Institute of Open Schooling (NIOS) conducts two examinations, namely, Secondary Examination and Senior Secondary Examination (All India) and it also conducts some courses in Vocational Education.
- International schools affiliated to the International B accalaureate Programme and/or the Cambridge International Examinations.
- Islamic Madrasah schools, the boards of madrasahs are controlled by the local state governments, or they can be autonomous, or affiliated with Darul Uloom Deoband.

- There are many autonomous schools functioning in India like Woodstock School, The Sri Aurobindo International Centre of Education Puducherry, Auroville, Patha Bhavan and Ananda Marga Gurukula.

In addition to the above NUEPA (National University of Educational Planning and Administration) and NCTE (National Council for Teacher Education) are also accountable for the execution of the education system and teacher accreditation.

National standards give state and local committees a direction and focus as they take the responsibility of critically important task of curriculum design. Key concepts and principles, critical content knowledge, and major processes and skills necessary for the various disciplines are acknowledged from the national documents. The national standard documents, in most of the situation, provide a wealth of background knowledge and information to support educators in the field as they educate indispensable knowledge and skills. To reconceptualise both curriculum and instruction in reply to our speedily changing society, there is need for the teachers to develop in-depth conceptual and content knowledge across the disciplines. The national standards are a helpful and valuable resource for teachers as they practise a deeper understanding of their disciplines.

1. Curriculum of Primary Education in Modern India

The 10+2+3 pattern of education was declared in the National Education Policy, 1968 and the National Council of Educational Research and Training (NCERT) prepared a Core Curriculum for the first 10 years of education in 1975. In the meantime some provinces prepared their curriculum for first ten years of education on the basis of this core curriculum. The National Education Policy, 1986 emphasized the implementation of the 10+2+3 pattern of education compulsorily in the whole country. The National Council of Education Research and Training (NCERT) published a new framework of core curriculum for the first ten years of education in 1988. This Core Curriculum was yet to be implemented by the time in November 2000, NCERT presented another new framework of core curriculum for the first ten years of education. In the National Pohcy on Education, 1986 it was declared that the curriculum for any level of education would be revised after every five years. In accordance with NCERT presented a new framework of school curriculum in 2005 in which the curriculum for the first eight years of education is as folio ws-

*A. Class I **to** V*

- Mother-tongue (regional language)
- English
- Mathematics
- Environmental Studies
- Art and Craft
- Health and Physical Education
- Work Education

B. Class VI to VIII

- Mother-tongue (regional language)
- Modern Indian language
- English
- Science and Technology
- Mathematics
- Social Sciences (History, Geography, Civics, Economics)
- Art Education
- Health and Physical Education

The speciality of this curriculum framework is that besides what to teach, it has also been made clear in it, that why to teach, how to teach and what should be the result of teaching it. Though this curriculum has not been followed in most of the provinces in its true form yet the study of English has been made compulsory from class five in twenty-five provinces.

Advantages of the Primary Education Curriculum

Primary Education is the Foundation Stone of education: The medium of communication, language is taught to the children in primary education. They are trained in general human behaviour and reading skills and their power of visualization and comprehension is developed. These are the means to acquire education. Thus primary education acts as the foundation stone for secondary and higher education. If this foundation stone is laid properly, the secondary and higher education run smoothly.

Primary Education is the Basis of Personality Development: The psychologists have arrived at the conclusion that personality of a person is shaped mostly in childhood, three fourth of it is shaped at this stage. The future of a child depends on the type of foundation laid at this stage. The children step in primary schools carrying over the culture and traditions of their family. However, children are not so resistant that they cannot be moulded into a new environment. It is in the primary schools that the social, cultural, moral and character development of the children take place. They are trained in human behaviour and in this way their personality is shaped.

Primary Education is Mass Education: At present, primary is free and compulsory in every country. The word compulsory in this context means a minimum of this much (primary education) should be acquired by everyone. The education which is compulsory for everyone is generally termed as mass education. That is why, it is later on provided in the form of adult education to those adults who fail to acquire it

in their childhood. If this decree of compulsion is followed strictly, a will definitely change the form of adult education, it will take the form of continuing education in place of literacy mission

Primary Education is the Education of Common Life: When it is said that primary education is mass education, it is an education for all then it means that in primary education everyone is educated to live a general life. Higher education prepares us for the different fields of life. From this point of view also, primary education is important for any society.

Primary education is a complete education for 40 per cent people in India. In our country, primary education from class I to VIII is free and compulsory, it is observed that for about 40 per cent of the children this primary education is complete education from this point of view primary education becomes all the more important in India.

Problems or Shortcomings of primary education in India and their remedies

In 1947 the condition of primary education in our country was very pathetic and many problems existed in this field. Continuous efforts are being made to solve those problems and have succeeded to overcoming some of those problems.

1. Core curriculum for primary education has been developed, but still it has not been implemented in its full sense all over as yet.
2. The aims of primary education are being fixed and made clear in the curriculum but with the emergent need of the time some changes are bound to occur, therefore curriculum should be updated regularly.
3. With the change of time many good methods of teaching have been developed and teachers are being trained in them, but the irony is that the teachers use them rarely.
4. It has now been decided that primary education will be imparted through regional languages. Of course, scheduled tribe children whose mother-tongue and the regional languages are different, in the first two years they will be educated through their mother-tongue and in the third year onwards through the regional languages. At the same time the English medium primary schools will keep functioning. In this way, there is now no problem about the medium of education at the primary level .But it should have its practical implementation.
5. In the meantime, a large number of male and female teachers have been trained for primary schools. At present, these is no shortage of trained male and female teachers in the country, the only delay is in their appointment.

2. Curriculum of Secondary Education in Modern India

After the declaration of the National Education Policy, 1968 NCERT prepared the framework of core curriculum for the first ten years of education in 1975, and after the declaration of the National Education Policy, 1986 it presented its new framework in 1988. This core curriculum was yet to be implemented properly in the country that NCERT in 20000 prepared another framework of core curriculum for the first ten years of education along with the curriculum for +2 levels. In the National Policy on Education, 1986 it was declared that the curriculum of any level of education would be revised after every five years. In accordance to it, NCERT presented a new framework of school curriculum in 2005 in which the secondary level curriculum is as follows:

*Secondary level (Class IX **and** X)*

1. Mother tongue (regional language)
2. English
3. Sanskrit/Urdu/Otherlanguage
4. Mathematics
5. Science
6. Social Studies (History, Geography, Sociology, Civics, Economics)
7. Computer
8. Work Education
9. Peace Education
10. Art Education

In this curriculum, besides what to teach, it has also been made clear that why to teach, how to. tech and what should be the result of it. In this curriculum the study of three languages has been made compulsory. We find no logic behind it. In our opinion only the study of mother tongue should be compulsory and the study of any other language should be optional. Moreover the subjects like peace education should not be introduced at this stage.

Need and Importance of Secondary Education

There is a great difference in the psychology of infants, children, adolescents and adults. It is on the basis of their psychology that education is divided into different levels, namely - pre-primary (infant), primary (child), secondary (adolescent) and higher (adult). The aims and the curriculum for different levels of education are fixed differently. Secondary education is the education for adolescents; it is a formative education for them and herein lays its need and importance.

1. *Secondary Education is a complete unit in itself.* Although secondary education is a connecting link between the primary and the higher education, but in any country only a handful of students join higher education and it is for this reason that the education of the secondary level is developed as a complete unit. On its completion most of the youths enter the world of work and earn their livelihood by working in farmlands and different vocations. This is the reason that education up to secondary level is compulsory in all developed countries. At present, in our country, the goal is to make the education from class I'to VIE free and compulsory, but in the 10+2+3 education structure, the goal is to make the first ten years of education free and compulsory.
2. *Secondary Education is the basis for the development of Manpower of any nation:* At the primary level, only general information are provided to children and they are trained in social etiquettes and behaviour but at the secondary level they are made a complete man, their ability to think and judge and to do work is cultivated and in this way the manpower of a country is developed. Thereafter, through higher education, only the intelligent students are developed in the form of specialised human resources.
3. *Secondary Education is the constructive and citizenship education of children:* At the Secondary level adolescents study. This is a very crucial phase in human development. It is the time period which makes the growth of human being. If the feeling of responsibility for the society and country is developed among them at this age level, they may prove to be a good member of the society and good citizen of the country. To provide proper direction to restless adolescents and to help them proceed in proper direction is one of the most important tasks of secondary

education.

4. *Secondary Education is the basis for higher education:* Secondary education is the basis of higher education, after its completion the students enter into higher education and prepare themselves to work in different specialized fields of life. In case if their mental level is not developed through secondary education and the habit of study and hard work is not inculcated among them, they fail to achieve higher education.
5. *Secondary education for most people in India is complete education:* For a vast mass of population, in any country, secondary education is a complete education and only the intelligent and able students go for higher education. It is for this reason that secondary education in most countries of the world is developed as a complete unit, such that it may develop the personality of children and may make them proficient in some vocation and may prepare them as a common citizen.

The reform in secondary education in India began during the British rule. After achieving independence our Government appointed Secondary Education Commission (Mudaliar Commission) in 1952 to suggest measures to reform the Secondary Education. This commission carried out an in-depth study of the existing secondary education and found the following demerits in it.

- Aimless Secondary Education
- Improper Curriculum at Secondary level
- Lack of uniformity in education at the secondary level
- Improper training of the secondary school teachers
- Defective examination system at the secondary level
- The 10+2+3 pattern of education is now accepted all over the country. Now there is no problem of the uniformity of secondary education. The aims of secondary education have also been specified, now no problem of aimlessness seems to exist at this level, though it is a different thing that most of the teachers do not make effort to achieve these aims.
- The Core Curriculum for the first ten years of education has been prepared and the guideline framework for +2 has also been prepared. But its nature in different provinces is different.
- Many reforms have taken place in the text books of secondary level. Their standard has risen. But along with it Question-Answer -books are also being continued which causes confusion.
- Useful reforms have been introduced in the training programme of secondary teachers. Though it's a different thing that the trained diploma or degree holder teachers derive benefit from it to what extent. ,
- The use of new methods and techniques of teaching has begun, but again their use is confined to a few specific fields only.

In the meantime, much reform has taken place in the field of examination and evaluation system at the secondary level. As, reform is a continuous process it should be carried out regularly.

3. Curriculum of Higher Education in India

Higher education in India was started in Vedic period, but before the advent of Europeans its curriculum was limited to the teaching and learning of language, literature, religions, philosophy, logic, ayurvigyan and different arts and crafts. The inclusion of European knowledge and science in it was first of all declared in Wood despatch, 1854. Thereafter, the *Indian Education Commission* (1882) and the *Calcutta*

University Commission (1917) recommended to broaden it further. As a result, courses in Law, European medical system and engineering, etc. were started in the field of higher education in the country in every subject. The University Education Commission (1948-49) gave detailed suggestions in relation to the courses of higher education. Some of the major suggestions were:

- Graduate courses should be of three years
- Course of every subject at the graduation level should be widened
- At the graduation level, the national language Hindi, English, General Education and Religious Education should be made compulsory
- At the post graduate level intensive study of anyone subject only
- Courses of scientific, vocational and technical subjects should be widened and updated

Kothari Commission (1964-66) supported these suggestions and suggested to adopt an inter-disciplinary approach in the courses. The commission clarified that all knowledge is related to our life and it is a complete unit from this point of view. It further clarified that inspite of specialization there are many such facts which one finds in every subjects. Therefore, courses should be prepared in such a way that besides providing knowledge of any one subject (discipline) it should also clarify the facts of other subjects. This is termed as Interdisciplinary Approach in the field of education. On its suggestion, the University Grants Commission established 27 Curriculum Development Centres in the country, to restructure the curriculum of higher education. On the basis of the interdisciplinary approach the curriculums of humanities, social sciences and science subjects were prepared at these centres.

In the National Education Policy, 1986 it was declared that the present curriculum of higher education will be reformed, widened and updated. In the plan of Action of this policy, it was stated that the model curriculum prepared by the Curriculum Development Centres will be implemented and at the same time it was also stated that the curriculum of higher education will be reviewed every five years. In the meantime some universities have widened and updated their curricula, made them of international standard and at the same time have also made them activity oriented.

Currently Higher education is on the concurrent list in the Indian constitution, meaning that it is a shared responsibility between the Union or Central Government and the State Governments. The Department of Secondary and Higher Education is placed within the Ministry of Human Resource Development. There is also a Department of Education in each state. Higher education institutions are funded by the Central Government through the University Grants Commission (UGC), one of the statutory bodies, or by the State Governments. India, now proudly boats of the organisation of education of almost every subject developed in the world. But most of the universities have not adopted the model curriculum prepared by the Curriculum development Centres established by the UGC. A great explosion is taking place in the field of knowledge and science in the world, the universities therefore should keep changing their curriculum in accordance with it.

Importance and Need of Higher Education

1. *Achievement of Higher Knowledge, Search of New Knowledge and Identification of Truth:* In higher education youths are provided higher knowledge.
2. *Preparation of the Specialist:* Through higher education specialist are prepared for

different fields of life- religion, philosophy, engineering, medical, education, law.

3. *Development of Leadership Quality and Work efficiency:* Youths are prepared to skilfully perform any work of their interest which helps them to develop confidence and leadership qualities.
4. *All Round Development of the Nation:* Two resources are required for the development of any nation. Firstly, its natural resources and secondly its human resources. The higher education is aimed at preparing good quality human resources. The economic development depends upon industrialization which in turn depends upon engineers, administrators, and scientists etc which are prepared through higher education.

Problems in Higher Education

1. After independence higher education had expanded to a great extent. The government has planned to establish higher studies institution in every state so the problem is not of the quantity but quality.
2. Problem lies with the administration, finance and control - there are three types of universities Central, State and Deemed. Funding policies vary in these universities. Under the political pressure many universities have been established but problem has arisen of its finance, control and administration.
3. Unrestricted advancement of the higher institution has taken place therefore not sufficient admissions are taking place.

3.2.2 State Council of Educational Research and Training (SCERT)

An Introduction SCERT

The establishment of the State Councils of Educational Research and Training have their own history in our country. The National Council of Educational Research and Training was set up in New Delhi in 1961. In 1967, the Andhra Pradesh government established the State Council of Educational Research and Training on its model. In 1973, then the Union Education and Social Welfare Ministry recommended that the State Institutes of Education (SIEs) and other equivalent institutions in all states be converted into the State Councils of Educational Research and Training. As a result, State Councils of Educational Research and Training came to be set up in different states. The National Educational Policy, 1986 attached importance to giving more rights and expanding the working area of the State Councils of Educational Research and Training, it also spoke of giving them autonomy. As a result, their rights and working scope expanded. At present, their main functions are to decide the form, aims and curriculum of the school education, in accordance with the National Educational Policy and its Plan of Action, and the specific needs of the states. They also develop suitable methods of teaching, techniques for evaluation of educational achievements and conduct research work in all these fields. Besides, they undertake inspection of schools and formulate and undertake training programmes for pre-service and in-service teachers.

Aims and Functions of State Councils of Educational Research and Training

The aims and functions of all State Councils of Educational Research and Training are almost the same. They are-

- To bring about qualitative improvement in school education of all levels
- To conduct academic research, expansion and training in the field of school education in the state

- To assist/advise the state education department about implementation problems, its policies and programmes
- To provide academic assistance by reorientation of educational content and experiments, and to give leadership and advise and suggest in this fields
- To organize innovative programmes for expansion and propagation of new trends and approaches related to education
- To organise creative programmes for all-round development of students, such as science fairs, drama, science seminars, youth parliament, writing contests debate contests etc.
- To publish educational literature

Departments of State Councils of Educational Research and Training

For the realization of the above aims and functions, there are a number of departments in each State Council of Educational Research and Training. Generally, the following departments are found in them.

1. *Primary and Adult Education Department:* Its scope covers primary and adult education. It plans primary and adult education, creates literature for adult education and reviews it.
2. *Language Department:* Its scope is school education. It works for skill development in communication of students', and conducts review and editing of papers and periodicals. It resolves any problems pertaining to the establishment of language laboratories. It also organizes birthdays of great people and thinkers for improvement in language.
3. *Science Department:* Its scope is school education. It organizes training programmes for science teachers and laboratory assistants and science seminars and science fairs for students, and guidance programme for district science specialists.
4. *Textbook Department:* Its scope is school education as well as primary teacher education. It undertakes the duties of constructing curriculum and textbooks for primary classes, to review textbooks from classes 1 to 12 and preparing workbooks for them.
5. *Work Experience Department:* It works in the whole field of school education. It determines the area of work experience, discover methods for its arrangement, and trains in-service teachers in work experience.
6. *Educational Evaluation and Research Department:* Its scope is the entire school education. It trains the teachers in setting test papers and preparing blueprints, for them, holds workshops for continuous evaluation, conducts educational survey, constructs teacher handbooks, and establishes correlation with school education boards.
7. *Educational Technology Department:* This department organizes computer training programmes for teachers, and evaluates and records lessons of secondary and higher secondary levels under EDUS AT. It undertakes the duties of maintaining computer laboratories and studios, developing low cost teaching aids, and conducting research in educational technology.
8. *In-service Teacher Education and Extension Department:* Its scope is the whole of school education. It is responsible for preparing resource persons for training, organizing training programmes for DIETs and other equivalent

institutions, holding conferences and seminars, and conducting action research and research.

9. *Population Education Department:* This department organizes awareness programmes in population education for school heads, administrative people and NGOs, prepares teaching-learning material for population education, organizes lectures, and crates awareness for women empowerment, HIV and AIDS etc., cultivates skill in youth, and review textbooks in the context in the context of population of population education.

Contribution of State Councils of Educational Research and Training in the Field of School Education and Teacher Education

The State Councils of Educational Research and Training are playing a vital role in all states in the fields of school education, school teacher training and adult education. We shall discuss in brief the contribution of State Councils of Educational Research and Training in the fields of school education and school teacher training.

Contribution in the Field of School Education

The scope of these councils pervades the whole school education from pre-primary in secondary to secondary level. Their contribution in the field of school education is as follows-

- SCERTs are constructing model curriculum for school education.
- They are preparing model textbooks for school classes.
- They are encouraging innovations for children of school level.
- They are constructing teaching aids for schools.
- They are constructing science kits for schools.
- They are preparing software related to school education and are arranging for their broadcast.
- They are developing technique for evaluation of students' achievements at school level.
- They are conducting research work in the field of school education, and are effecting continuous modification in the field of school education.

Contribution in the Field of Teacher Education

The scope of these councils is the whole of school teacher education from pre-primary to secondary level. We shall discuss in brief their contribution in the field of school teacher education.

- They are constructing model training curriculum for school teachers.
- They are organizing in-service and pre-service teacher training at school level.
- They are organizing refresher courses for teachers.
- They keep control over all DIETs in their respective states, and render technical assistance in execution of their responsibility.
- The guide the DIETs.

3.2.3 District Institutes of Education and Training (DIET)

An Introduction to District Institutes of Education and Training

The National Educational Policy, 1986 announced several programmes for improvement in teacher education, one of which was the setting up of the District Institutes of Education and Training. Under it, the work of setting up of one such institute in each district was undertaken from 1987. By the year 2011,555 District Institutes of Education and Training have been set up in the country.

The District institutes of Education and Training are being set up in the two ways: by raising the level of the existing primary teacher education institutions, and by setting up of new institutes. When it is established a new, the land is made available by the State Governments, and the rest of the expenditure is borne by the Central Government. As per the norms prescribed by the Human Resource Development Ministry, there should be about 10 acre of land for the setting up of a new District Institute of Education and Training. And its infrastructure should include principal office, staff room accommodation for principal and other staff, hostel facility, psychology laboratory, provision for an institute clinic and a part-time doctor. A library for it should contain about 10,000 books. An established institute should have a principal, a vice principal, 43 lecturers in different departments, 15 support staff, such as technicians and administrative officers etc. The newly established District Institutes of Education and Training should have a principal, 7 senior lecturers and 17 lecturers besides 23 other workers, such as technicians, laboratory assistant and clerical staff etc.

Aims and Functions of District Institutes of Education and Training

The aims and functions of the District Institutes of Education and Training can be enumerated as follows -

- To provide pre-service teacher education for qualitative improvement in primary education.
- To provide in-service training for primary school teachers.
- To provide in-service training for guides of informal education and workers in adulteducation
- To arrange for refresh courses for principles of primary and upper primary schools and to construct innovate and micro-level projects.
- To conducts research work in the fields of primary, informal and adult education
- To run training programmes for community workers and other related people as per their needs.
- To establish evaluation centres for primary and upper primary schools and informal education and adult education centres.
- To organize extension services as resource centres and learning centres.
- To give educational advice and guidance to educational institutions, district education boards and school complexes.
- To arrange for decentralization of school administration and educational reforms.
- To construct educational plans at district level.
- To organize training programmes for resource persons working for universalization of primary education.
- To assist the district administration in running of primary, informal and adult education.

Departments of District Institutes of Education and Training

For the realization of the above aims and functions, different departments are set up in each District Institutes of Education and Training. In different District Institute of

Education and Training of the country, there are different departments, units and cells. We shall discuss different departments of these District Institutes of Education and Training in brief-

1. *Department of Pre-service Teacher Education (PSTE):* This department arranges for pre-service training for primary teachers. These programmes are run by different names in different states, such as BTC, STC etc.
2. *In-service programme, Field Interaction and Innovation Coordination (IFIC):* This department is responsible for running in-service teacher education programmes and refresher courses for innovation. Also, it assists the district education administration in formulating educational project in the district. It duties include to find solutions to academic problems and effective use of innovative teaching technique.
3. *District Resource Unit (DRU):* Its scope is adult and informal education. It coordinates adult and informal education programmes in the district and trains its supervisors.
4. *Planning and Management:* It trains principals of primary schools and block level education officers. Also, it assists in school mapping and micro-planning. Its duties include compilation of academic data and estimation of backward areas from academic viewpoint.
5. *Department of Curriculum Material Development and Evaluation (CMDE):* It develops primary teacher education curriculum. Also, it organizes workshops on evaluation techniques.
6. *Department of Work Experience:* It prepares teaching learning material. Also, it assists primary schools, upper primary schools, adult education centres and informal education centres in work experience activities. It also holds community service programmes.
7. *Department of Educational Technology:* This department creates low cost teaching aids. It also maintains, computer laboratory and audio-visual aids, and gathers audio-video cassettes and teachers how to use slides in teaching.

Contribution of District Institutes of Education and Training in the Field of Primary Education and Primary Teacher Education

The responsibility of District Institutes of Education and Training is limited to primary education and primary teacher education. We shall discus the contribution of District Institutes of Education and Training in the field of primary education and primary teacher education.

Contribution in the Field of Primary Education

- These institutes are deciding and maintaining the form of primary education in the districts.
- They are constructing teaching aids relating to primary education.
- They are preparing software relating to primary education.
- There are developing objective methods for evaluation of students' achievements.
- They are trying to understand the problems of primary education and are finding the solutions to them; it is another thing that this work cannot be

efficiently done in the absence of adequate human resources.

- They are conducting research work in the field of primary education; this is,. however, another thing that this work is being undertaken by only 50 per cent of them.

Contribution in the Field of Primary Teaching Education

- These institutes are organizing primary school teacher training
- They are running refresher courses for in-service primary teachers; this is another thing that about 50 per cent of the District Institutes of Education and Training are running these.
- They are undertaking research work in the field o primary teacher education; though about 50 per cent of the District Institutes of Education and Training are engaged in this task.
- They are trying to understand the problems of primary teacher education and are trying to find their remedies.
- They are guiding other equivalent institutions in the district, of course, not all District Institutes of Education and Training are doing it.

Teacher Training Institutes

Elementary teachers are trained in Teacher Training Institutes (TTI, they are also known as Junior Basic Training Institutes or Primary Teacher Colleges) attached to State and university departments of education. The course generally lasts for two years and leads to a Diploma in Teacher Education or a Primary Teacher Certificate, P.T.C.

It is requisite for secondary teachers to hold a Bachelor's degree in Education or in a few instances a Bachelor of Teaching. The B.ED or B.T requires one year of fulltime study which is followed by a Bachelor degree, normally in arts, science, or commerce. Teachers at the upper secondary level usually are required to hold a master's degree in their area of teaching specialization. Four Regional Colleges of Education offer a combined four-year integrated programme leading to a Bachelor's degree.

It is mandatory for Teachers at colleges of education to hold a M.Ed, and a Ph.D degree. Studies for these are undertaken at a number of universities. Instructors in technical and vocational schools are normally trained in Central Training Institutes (CTIs), which offer one-year courses giving training in skills development and principles of teaching. Graduates of these institutions are awarded an Instructor Training Certificate.

The National Council for Teacher Education (NCTE) is entrusted by The Central Government with all the matters regarding teacher education of India, including the quality check, content and evaluation.

In the modern curriculum those subjects should be emphasised that are related to the needs of the present society. Along with this it should also be helpful in preparing students in vocational aspects.

The old curriculum that was Subject-Centred in olden times has now been modified into Activity and Child-Centred. The following comparison can be made between them.

S.No	Traditional Curriculum	Progressive Child-Centred Curriculum
1	Focuses on the bookish knowledge	Child is the centre

2	It is Subject-Centred	Activity and Child-Centred
3	It is not so flexible	Flexible
4	Does not pay attention to the individual differences of the students	It does pay attention to the individual differences of the students
5	Not in the interest of the nation	It pays heed to (he nation's interest
6	No space for new technology	Gives importance to new technology

Since curriculum education is a developing process therefore it needs regular updating in reference to the technological advancements and needs. In this direction the suggestions given are as below:

1. In curriculum the research and experiments should be done by experts.
2. The books and other materials of aid should be developed keeping in mind the benefits of the students.
3. Teachers should be well updated with the new development thus In-service training should be organised.
4. The school and colleges should be given freedom to develop the curriculum as per their requirements.

Critical evaluation of the existing curriculum

- The present curriculum has a very narrow attitude it is only meant for getting admission into higher institution.
- It emphasises on bookish knowledge because most of the curriculum is theoretical and classical at all levels of education. It is related to micro and general ideas only.
- In every subject is laden with so many ideas and facts that they put unnecessary pressure on the learning capabilities of the students.
- The approval of the perspectives of the 'experts' in the curriculum has brought great to the structure of the curriculum drafted because the experts have tried loss to include their content more and more in the curriculum. They do not keep in mind the interest, needs psychology of the child etc and only.
- The existing curriculum is riot based on the concept of individual differences. In adolescent there are differences of opinion, attitude, aptitude etc. which does not seem to reflect in the existing curriculum.
- There is lack of establishment of proper Technical and Vocational courses.
- Too much pressure of tests and exams are there for the students and even the same for the parents.
- Much of the curriculum part is not related to the actual life therefore on completing the course students are not able to adjust to the environment.
- In the present curriculum there is too much inclusion of different subjects which may not have connection with each other. This results in the situation that teachers are not able to complete their courses on time and also no time is left for the activities.

Causes of the defects

In modern times there has been a lot of development in the cognitive aspect of the education and even the fundamental concepts have undergone restructuring in physical, biological and social aspects.

Due to the development and emergence of new concepts in the field of education there has increased the demand of extending the time period of the secondary education. Apart from this there is need of transforming education in accordance to the needs of nature.

CHECK YOUR PROGRESS

1. What do you understand by the word curriculum?
2. Write in short the three-pronged strategy for universalization of primary education by the Indian government.
3. Why was National Open School set up?
4. Name the levels in which Indian education system is divided.

3.3 PREPARATION AND EVALUATION OF A TEXTBOOK

Atextbook or course book is a manual of instruction in any branch of study. The ancient Greeks wrote *texts* intended for education. Early textbooks were used by tutors and teachers, who used the books as an instructional aide. Before the invention of Greek alphabet 2,500 years ago, knowledge and stories were recited aloud, much like the practice in early Vedic period in India. The Greek philosopher Socrates (469-399 B.C.) lamented the loss of knowledge because the media of transmission were changing. The new technology of writing meant stories no longer needed to be memorized; a development Socrates feared would weaken the Greeks' mental capacities for memorizing and retelling. Paradoxically this fact is known from the writings of his pupil Plato in his famous Dialogues. The next revolution for books came with the 15th century invention of printing with changeable type. The invention is attributed to German metal smith Johannes Gutenberg, who introduced printing to Europe. Gutenberg was the first European to use movable type printing, in around 1439. Among his many contributions to printing are: the invention of a process for mass-producing movable type; the use of oil-based ink; and the use of a wooden printing press similar to the agricultural screw presses of the period. His truly epochal invention was the combination of these elements into a practical system which allowed the mass production of printed books and was economically viable for printers and readers alike. Gutenberg's method for making type is traditionally considered to have included a type metal alloy and a hand mould for casting type.

Printed books began to spread widely over European trade routes during the next 50 years, and by the 16th century printed books had become more widely accessible and less costly. Compulsory Education and the subsequent growth of schooling in Europe led to the printing of many standardized texts for children. Textbooks have become the primary teaching instrument for most children from the 19th century.

Though we find evidence to the composition *of hymns* and *slokas* of high quality in the early Vedic period but there exists no direct evidence that the art of writing was developed. Certain proofs of the existence of manuscripts, or even only authentic reports on the writing down of texts do not exist. During this period the entire teaching was done orally. The pupils were asked to learn Vedic matras

by rote. In the absence of the printing press and paper, books were written with the hand on the leaves of the Tala and the Bhojas, hence they were difficult to be available to the masses. In course of time copper plates began to be used for the purpose.

After a few centuries one finds that certain books and treatises came into existence. During this period there existed a very primitive form of the concept of either curriculum or syllabus. It was during this later Vedic era that certain books that could be mentioned as textbooks were noticed.During this phase clear cut principles were also developed in textbook writing. However, even during this time, the textbook could not be produced on a large scale due to the non-existence of paper and the absence of printing technology. Thus, a textbook could not become the personal property of each individual student and definitely could not parallel the effective role that it plays in teaching-learning today.

The Buddhist period witnessed the increasing growth and usage of books. While these books were mostly meant for the usage of the teacher, they were also used by the students as reference books. During these periods the textbooks performed threefold task. The first was to conserve knowledge, the second to transmit it to the succeeding generations and the third to establish religion and to stabilize the society.

The books initially written in the medieval period served the purpose for the *madrasahs* and *maktabs.* The art of printing still did not exist, the books were generally hand written and could not be produced on a large scale. However, slowly as the printing technology penetrated a larger number of books came out in Persian language. The emphasis was on religious teaching and thus secular subjects were taught to the students but were done from a religious point of view. A study of the books during this period brings out the lacunae persistent in the books during that era. The organization content of the book left much to be desired. The content and the first chapter were often in the same page and a new chapter often started where an old one ended. It is but obvious that it is poorer also in printing, binding and paper. It portrays its own story of the poor techniques used in its preparation. A very important aspect that can be contributed to this period is the concept of copyright. This was the beginning of the landmark in which authors had copyright of their work and in case of a second entity desiring to publish- it sought due permission from the author.

The advent of British in India also saw the opening of schools for their children. As printing had already developed in Europe, textbooks were beginning to be published. The credit for establishing printing presses in India and bringing out printed books goes to the missionaries. In the initial textbook the physical aspects were of poor quality and left much to be desired but the content was generally conditioned by religious thinking. As the British in India acquired political and administrative power they felt the need to educate a class of Indians to suit their purpose. The British period in India saw three types of schools. The first were Sanskrit schools. The second were the Arabic schools and the third the elementary vernacular schools. They also established institutions for higher education. Their interest in education and the establishment of these educational institutions during the 18th and the 19th centuries gave a big fillip to the production of textbooks. This was added to the advantage that printing press in India during this phase also developed considerably. However, the initial period was not without hurdles. People did not want the reputation and the livelihood of

the calligraphist to diminish as the tradition was prevalent since the mughal period.

In the 19th century certain societies played a vital role in the promotion of textbooks. The names of the Calcutta school book society and the Bombay Native Education Society can be specifically mentioned in this regard. Once textbooks begun to be used freely in the newly established schools; they caught the imagination of pupils very soon and became popular with them. They also brought about radical changes in the methodology of teaching and also enlarged the scope of the subjects taught. With the introduction of school textbooks on a large scale, system of teaching by placing the people in different classes, with reference to similarity of ability or proficiencies also developed, thus the use of printed textbooks helped in evolving a system of education which proved useful in educating a large number of students in a short time. This helped in crystallizing the emergence of a formal system of education on a more sound footing in the country.

The British administrators were quick to identify the potential in textbooks for spreading knowledge in various disciplines. They also recognized that a textbook and a printing press could be advantageous in spreading some of their ideas and strengthening their political interest in India. Consequently in some subjects, especially in social science and English, some textbooks were written and prescribed for the whole country. These textbooks generally contained subject matters which induced new ideas of loyally towards the British regime. The Director of public administrations in each province kept strict control over the production and distribution of such textbooks. Secondly, some textbooks of the British Educational system, which could serve a similar purpose, were prescribed in India. History stands witness to the fact that textbook in the British period was used from time-to-time as an instrument for implementing foreign ideas in the Indian mind in order to strengthen British rule and weaken the Indian cultural tradition. While from 1854-1904 the subject matters in textbooks, especially in social science and English, had a definite slant in favour of all that was British it begun to present ideas of Indian culture and nationalism, quite positively, during the period between 1905-1947. This was mostly the result of the Swadeshi Movement of 1906, the non-cooperation movement of 1920-21 and the work of certain socio-religious organizations like the Arya Samaj. It will be interesting to point out that during the Non-Cooperation Movement even Mahatma Gandhi wrote a textbook for primary classes. During the same time, the development in agricultural and industrial fields, the changes in social and cultural ideas and the rise of the professional and middle classes also influenced a style and content of school textbooks considerably. Another interesting fact is that most of the textbooks prescribed earlier in the classrooms were British textbooks or their translated versions. However, during the years of 1905-1947 the textbooks used were written by the Indian authors writing from the Indian perspective.

The British period laid a concrete base for the selection, prescription and improvement of the textbook. The textbook committees were formed during this period. They performed certain functions related to textbook programme such as inviting manuscripts or books, evaluating them, approving or prescribing them and taking steps towards their further improvement. This period also witnessed the development of the proper procedure of textbook evaluation. Parallel can be drawn between the system prevalent then and now in the selection, prescription and evaluation of textbooks. The prevalent practice was that of the Education Department to prescribe a few textbooks in each subject for each class. This gave latitude to the teachers to exercise their choice on books that best served their

teaching-learning purpose. This also helped to evade monopoly that would otherwise develop on option of having a single text assigned to a particular class.

Nationalization of textbooks was resorted to spread mass education in the post-independent period. Each state adopted its own policy in matters regarding preparation, production and prescription of school textbooks. Most of the states initiated the process of nationalization of school textbooks in a phased manner. The nationalization of school textbooks was initiated by Uttar Pradesh in the year 1941-42. By the end of year 1978-79, all the states except Meghalaya and Manipur, had adopted the programme of nationalization of their textbooks. Some states had nationalized the textbooks of the entire school stage. The other states were at various stages of nationalization of their textbooks. Since Independence the number of nationalized textbooks was continuously increasing. The extent of state control differed from state to state. Some states exercised complete control on preparation of syllabus, preparation of manuscripts, evaluation, production, pricing and distribution of school textbooks.

The following concepts became well established. The clientele of the textbook, the mode of printing and the nature of artwork for illustration are also decided. Whether the textbook should be written by a single author, or a panel of authors is to be engaged for this purpose. The author decides in advance the important sources of information to be consulted. The course outline suggested in the syllabus is suitably broken up and planned in terms of selection and chapters. The content outlines are developed accordingly. The chapter outlines are discussed with a selected group of subject experts, pedagogics, psychologists and classroom teachers. These acted as criteria for the process of evaluation of textbooks and went a long way in the all round development of a textbook in the modem period.

Technological advances have changed the way people interact with textbooks. Online and digital materials are making it increasingly easy for students to access materials other than the traditional print textbook. Students now have access to electronic and PDF books, online tutoring systems and video lectures.

In the earlier paragraphs you have got acquainted with the origin and development of textbooks. You understand its need and how it has been instrumental in spreading education and mass literacy. As the quality of printing the textbooks increased the same could not be said about its content. As the first commission post independence: 'The University Education Commission' remarked, 'One of the evils of the present method of instruction is that it is focussed too much on textbooks. This evil is most pronounced in the study of the languages and therefore it has become almost a racket. A textbook is prepared with very little effort as it consists of a number of pieces selected from different authors, a few copyright pieces being included with permission to prevent the pirating of the selections, and then the publisher and author do their best to get the book prescribed by a university or a board.' It further states, 'In other subjects, too, the evils of the textbook system are manifest. In history for example, know that the questions in public examination will be set from the prescribed works and the teacher must make a point to summarise the books for the benefit of the students in great detail, while the student knows that the best prospect of success in the examination is through cramming up of the summaries, or better still, the book itself. This practice extends to mathematics and science subjects.'

The Secondary Education Commission (1952) pointed out that the then curriculum was 'narrow, bookish and theoretical' with an overloaded syllabus and unsuitable textbooks. It had suggested that the curriculum should not be divided into a number of watertight subjects, but that all subjects should be interrelated and should include relevant

and significant content so that it could touch the lives of students. It also recommended that a high powered committee be set up in every state for selecting textbooks and for laying down appropriate criteria, emphasising that 'No single textbook should be prescribed for any subject of study, but a reasonable number which satisfy the standards laid down, should be recommended, leaving the choice to the schools concerned.'

The subsequent Education commission (1964-66) continued to highlight the poor quality of school education and commented on the low quality of textbooks, owing to the lack of research related to their preparation and production, and the lack of interest of top ranking scholars in this area. It called for the definition of 'national standards' and recommended centralized books at the national level and also supporting establishment of bodies at the State level.

The commission in its report clearly stated that 'At present there is hardly any common book which all the students in India read and is one of the reasons why our educational system contributes so little to national integration.'As a solution it calls for the publication of textbooks at the national level for defining national standards where 'such books can indicate the expected standard of attainment far more precisely than any curricula or syllabi.'

We can say that the problematic role of the textbook continuing from colonial education system is at the root of these over emphasis on textbooks and the marginalization of the role of curriculum. As Yashpal Committee in its report 'Learning Without Burden' states, 'If "facts"; or "information" constitute the main burden of an examination, the same is true for textbooks. Barring exceptions, our textbooks appear to have been written primarily to convey information or ' facts', rather than to make children think and explore. Over the years some attempts have been made to incorporate a certain amount of reflective writing in textbooks. Such writing is so exceptional that its examples can be spotted and named without difficulty.'

The major challenges that need to be met are:

- Great demand for education and its rapid expansion, requiring a large number of textbooks.
- Deteriorating quality of secondary education.
- Problems of mass illiteracy, especially among the weaker section of the society.
- Caste and communal turmoil and decisive tendencies in the country.
- Problem of making education more purposeful and needful.

The challenges are being met by the following major responses:

- The publication of a single textbook by NCERT to be followed throughout the country.
- Deterioration of secondary education was taken care of by producing new textbooks for all classes under the new ten plus two pattern of education.
- NCERT has been doing commendable work in providing a lead in this direction.
- Number of programmes of non-formal education, especially for children of the weaker section of the community were organized to meet the challenge of mass illiteracy. These programmes mostly catered to the needs of the children belonging to the age group between 9-14.
- NCERT through various State level centres of non-formal education was also doing considerable work.
- The fourth challenge of caste and communal turmoil and decisive

tendencies in the country made partly by education through improvement of textbooks.

- NCERT organized programmes for evaluation of textbooks in various subjects from the point of view of national integration.
- Making education more purposeful and need based was being made by various central and state level programmes.
- The UNESCO and the UNICEF assisted programmes like science education programme, primary education and curriculum renewal, development of community education and participation.

Essentials of Good Textbooks

A good textbook can help to structure content and provide solid groundwork for further learning. For the inexperienced teacher especially, the textbook may provide information in a well-organized, coherent framework and could well save their precious time that might otherwise be used for research rather than for preparing ways of making the material interesting to students. Moreover, the instructor is responsible for structuring the presentation of the material in ways that appeal to students with all possible kinds of learning styles. Textbooks are often rife with inaccuracies, biases and outdated information. Whether presented as a book, interactive CD, or online, texts and instructional resources must be selected carefully and questioned critically. History texts in particular are biased with a Eurocentric view. As teachers select materials to reflect the cultures represented in their classroom, they must not neglect those that are not. Textbooks, in whatever form, can be very influential, and we must ensure that students understand how they are presented. Students should be taught to question the information in any text and to look further for additional information.

It is the time of Manu and Panini that the principles of textbooks were developed. The principles were as follows:

- Obj ective of the book: While writing the textbook author must keep in mind the objectives.
- Correctness of the content: The writer should use correct content for writing a textbook.
- Completeness of the content: The author should cover complete content in the textbook.
- Relevance of the content: The author should keep in mind the content given in the book is relevant to the theme of the book.
- Presentation of the content: content should be presented properly by dividing the contents into proper sections and subsections and their proper arrangement.
- Style of writing: The author should develop styles of writing. This means vivid expression, lucidity and dignity.

Although there are no such criteria which could be used for evaluating textbooks in the ancient period, the above mentioned principles could well be used as criteria for evaluating the books of those days.

In the later Vedic and Buddhist period merit was the main criteria of selection of a textbook. Authors used to write books not for monetary benefits but for fame and reputation. In the later Vedic period, considerable foresight and good techniques were used in preparing a textbook. The famous physician Charak while discussing, prescribes certain rules and procedures which an author should follow while writing a good textbook. Some of the rules are as follows:

- That is suited to understanding of three kinds of people.

- That is free from tautology and verbosity.
- That is well complied and rich in aphoristic wisdom.
- Giving commentaries and abstracts in due order.
- That treats the subject concern without deviating from it.
- That is free from slang and provincialism.
- That contains low obsolete or unfamiliar and unexplained terms.
- That is couched in words of general comprehension. That contains abundant example.

During the medieval period, textbooks were written generally by the school teachers, the teachers while writing the book considered psychology of the children and day-to-day problems in the classroom. While writing a textbook, during this period, the author used to select content on the basis of two principles, one was the mental maturity of the intended age group for whom the book was to be written. Second consideration related to certain demands and compulsions of religion. The main features in the books were:

- **Organization of content:** The subject matter of textbook was divided and organized into units or chapters. The chapter numbers were mentioned on each page in bold letters.
- **Presentation of content:** The titles given to the chapters were brief and meaningful. The content was generally presented in a creative and interesting manner to attract reader's interest.
- **Language:** The style of language in the popular books like *Gulistan and Bostan* appeared to be appropriate for effective communication. The sentences were simple, short and language was lucid.
- **Illustration:** In the medieval period, illustrations were few or no illustrations at all. Illustrations did not supplement the text on the whole.
- **Learning assignment:** In the medieval period, exercises were absent in the Urdu and Persian textbooks. The students were asked to memorize the books through repetition.

Throughout the British period and with the advent of modern technology in the post independent era the quality and quantity of the textbooks both increased many folds. Thus, it became important to have parameters for the essential characteristics of a good book. Important characteristics and qualities of textbooks which an author must keep in mind while preparing the layout of a book as well as while organizing the content for the book are listed below:

1. Text-books that are intended to be used should be useful for the students as well as teachers. They should be so designed that on one hand they may be written according to the psychological requirements of the students and on the other they should serve the purpose of the teacher who wishes to impart knowledge to the students in a successful and interesting manner. It should provide sufficient material to motivate the students to solve problems.
2. The language of the book should be simple, clear, lucid, scientific and precise. The English equivalents of the terms should be always given in brackets. Selected topic should be properly integrated from the preceding to the succeeding class or stage.
3. The exterior of the picture should be attractive. If the exterior is attractive, students would like to carry them and keep them. This is true of the books intended for primary classes.
4. They should serve the purpose of the subject matter as well as the aims and objects of teaching. They should be written after taking into account the aims and objects of teaching.

5. Subject matter should lead to inculcation of scientific attitudes, disciplinary and cultural values.
6. The textbooks should be accurately written. They should present the subject matter in such a manner that there is no fault in them. The subject matter, presented therein should be up to date.
7. Textbooks intended for the students of the primary classes should be written in a story form. In the textbooks meant for higher classes the author may use the regional method or some other method that is useful for the students of the stage.
8. The textbooks should contain all the necessary and relative material required for a particular stage of education. Examples in the textbook should be given from the local environment and from life experiences.
9. The textbooks of different stages should be complimentary to each other. Textbooks that are used in primary classes should have some bearing and connection with the textbooks that shall be used by the students in the Junior High School classes.
10. Textbooks should be free from prejudice. The presentation of the subject-matter should be unbiased. There should be no material which can injure the susceptibility of any class or category of people. They should contain objective description of the people and conditions of different countries.
11. The textbooks should contain charts, maps and diagrams as and where required. Without the charts, maps and diagrams the subject matter of geography cannot be taught properly. It is, therefore, necessary to give place to all these things in the textbooks. The illustration should be purposeful and appropriately placed in the textbook.
12. At the end of every chapter of the textbook there should be certain questions that may be used for the revision of the subject matter. Without these questions the textbooks shall not be useful. Each chapter should contain assignments at the end. These exercises should suit the special needs of the gifted as well as slow learners.
13. If required the textbooks may give a summary of the chapter at the end of each lesson. Such a provision will help the students to grasp the subject matter properly. The technical term should be used properly and suitably explained whenever necessary.
14. The problems should relate to the real life needs and physical and social environments of the learners.
15. The students should get adequate opportunity of learning through initiative and independent efforts.
16. It should promote the use of analytic, synthetic, inductive-deductive, problem-solving and heuristic approaches to teaching.
17. It should foster the right attitude towards self-study and self-reliance among pupils and it should be done by promoting project works, field works and laboratory works.

After the author has finished the task of preparing a book, now it is ready for the publishing house to take charge. The quality of a good book also depends upon the publishing house to a great extent. A well written and organized book may not serve its purpose unless it is printed properly. Therefore, the essential points that are to be kept in mind while printing the books are the following:

(a) The print and paper used and the binding of the textbook should be attractive. It should be hard and durable.
(b) The printing should be clear, legible and appropriately spaced.
(c) Headings and sub-headings are given in bold letters.

(d) Each textbook should contain detailed Table of Contents and an index.

(e) The size of the book should be handy. It should be possible for the students to carry them properly. They should not be bulky. This is especially true about books intended for the primary classes.

(f) Printing and presentation of the books should be interesting and attractive. The font size used should be such that the text is easily readable. On the other hand, they should be correctly and neatly printed.

(g) It should be free from mistakes.

(h) There should be diagrams and figures wherever needed.

(i) The left hand, right hand, top and bottom margin should be appropriate.

Spacing between lines and paragraphs should be appropriate. (j) The type size used for chapter title, subtitles, footnotes and exercises

should be suitable for the age group of students, (k) Index should be given wherever possible. Glossary should be given in proper language. (1) Bibliography should be given correctly and according to the uniform system, (m) The title page should give necessary information i.e. suitable title, author's name, publisher's name, place of publication and year of publication, (n) The quality of the paper should be in accordance with the cost of the book. Paper should be durable enough in accordance with the expected life of the book.

Besides these characteristics, the UNESCO Planning Mission has given some principles of writing textbooks in U.S.S.R. and other countries. The knowledge of these guidelines can be useful for the prospective authors who make them a powerful author. They are as follows:

(i) It should be first of all according to the requirements of the syllabus. It should also help in the improvement of the syllabus, (ii) The factsand concepts should be modern and within the comprehension of the pupils, (iii) The contents should contain not only the established facts but also the problems which are being researched and thereby, arousing curiosity in the pupils about these problems. (iv) It should help in linking up science with life and practice. The pupils should be equipped with 'know-how' utilizing knowledge in everyday life.

Selection of Textbooks

A book should be well evaluated before its selection. The British regime entrusted the selection of textbooks to its Education Department. There was considerable criticism regarding the quality of the textbooks and the procedure of their selection. As a result of this criticism a Textbook Committee was formed in Bengal. During this period certain criteria were fixed for selecting, prescribing, improving or even removing textbooks from the curriculum. Some comments of the head master and teachers can be seen on the book *Citizen of India.* On the basis of this comment and certain other material, it is said to conclude that during this period there not only existed a procedure of evaluation of textbooks but also a well said criteria of evaluation. The following were the criteria for evaluation:

Selection of content

- Adequacy of content
- Redundance of material
- Mental maturity of students
- Accuracy and authenticity of content.

Presentation of content

- Presentation of the matter in such a manner as to sustain the interest of learners.
- Adequate converge of terminology.
- Evaluation of topics with the help of examples from the local environment.

Language

- Appropriateness of vocabulary
- Appropriateness of style for effective communication.
- Proper use and explanation of technical terms.

After World War II, public opinion showed great enthusiasm in the field of International understanding. The UNESCO took up the matter with great zeal. Following criteria for evaluation of textbooks especially from the standpoint of international understanding were developed:

- How accurate is the information included?
- Is the interpretation of events and the generalizations about them adequately supported by the facts presented?
- Are important terms accurately and clearly defined?
- Are illustrations, charts, graphs and maps representative, accurate and up-to date?
- Are minority groups, other races, nations and nationality treated fairly and justly?
- Is due representation and recognition given to their contributions ?
- Are the same standards of scholarship, justice and morality applied to other nations and groups as to one's own?
- Are controversial issues presented objectively?
- Are words and phrases, misunderstanding and conflict avoided?
- Are the text, illustrations and exercises of worth and relevancy in the development of knowledge, attitudes and skills necessary to be effective living in the modern world?
- In terms of the subject and agegroup is there adequate information on world geography and history about the author's of other nations and on contemporary International relations and problems?
- Is the material presented well balanced in selection and in interpretation?
- Are the ideas of human freedom, dignity, equality and brotherhood given adequate emphasis and support?
- Is the need of a moral code of conduct and a sense of common responsibility for world conditions emphasized?
- Are the advancements of civilization emphasized?
- In a history textbook, is there adequate information on the history of a force to develop peaceful relations among nations?
- If appropriate to the subject is their adequate information on the United Nations And about the specialized Agencies?
- Is the need for international organization and corporation recognized?
- If appropriate to the subject, is the concept of a just, peace and international cooperation and law made clear?

NCERT developed detailed criteria for evaluating content in various school textbooks. It has done a commendable job by listing systematically the evaluation criteria that were based on the knowledge and experience of textbook authors, subject specialist, psychologist, educationist andpedagogists.

Criteria for academic aspects

1. Selection of the content

- The textbooks cover all the topics and subtopics given in the syllabus. It consists of instructional material which is based on the predetermined course of study i.e. prescribed syllabus.
- Selected copies are properly integrated with the text of the preceding class and the following class.
- The selected content is in respect of the duration of the course and the numbers of periods allotted to a particular subject.
- The textbook does not include any redundant material. However, it should be ensured that adequate material is provided for explaining various terms, concepts, principles and generalizations.
- Scope of the topics and selected content is as per the mental maturity of the intended age group of students.
- Content included covers the needs of the average and intelligent students.
- Content is accurate in respect of concepts, terms and facts and statistics.
- Information is culled from authentic sources and correct use of terms anc concepts is made.
- The sources of statistical and other information are preferably stated separately
- The information included in the book is up-to date.

2. Organization of content

- The subject matter or content is organized into suitable units and chapters.
- Chapters are properly paragraphed. This helps in the clear exposition of the subject matter.
- The sequence of chapters is logical. These ensure continuity of ideas.
- Length of different chapters is appropriate.
- There is not much variation in the length of chapters.
- The chapter headings are appropriate and convey the central idea of the whole chapter.

3. Language

- Language used in the textbook is simple correct, precise and comprehensible.
- The vocabulary used is appropriate keeping in view the age groups of the students.
- Structure of sentences is appropriate. It is simple, short and clear.
- The spellings are correct. There is also consistency in the spelling of a particular word throughout the book.
- Punctuation is correct.

4. Presentation of the content

- The pedagogic considerations should be considered.
- Simple to complex: The subject matter is presented in increasing order of complexity.
- Familiar to unfamiliar: The concept and subject matter of the topic are developed and explained on the basis of previous knowledge and experience of students with the help of common and familiar examples.
- Specific to general: The definitions and generalizations are logically deduced with the help of specific facts and concepts.
- Interest of the student is sustained throughout the book.
- Due weightage is given to the treatment of various topics.
- Adequate reinforcement of new items of learning is provided through replication and application.
- Adequate coverage of terminology relevant to the syllabus is provided. The terms are also effectively explained.
- Opportunities are given to the readers to enquire into problems, interpret data, draw inferences, and verify them thus arriving at rational decisions.
- Due place is given to the inter-disciplinary approach wherever possible and appropriate.
- It promotes the habit of independent study. It also gives reference to relevant reading material of other sources.
- It helps to inculcate desirable values and attitudes and acquire desirable skills.

5. Illustrations

- Illustrations are adequate enough to cover all significant aspects of the text which need to be illustrated. The illustrations supplement the text.
- A variety of illustrations, which might be necessary to illustrate various topics in the textbooks are used.
- The illustrations are useful in explaining the text and making it more meaningful. They are accurate in every respect and are clear and vivid.
- Illustrations are properly captioned.
- The illustrations are of suitable size.
- They are properly placed in the text.

6. Exercise and assignments

- The exercises help in testing pupils' knowledge including critical thinking and skills.
- The exercise is suited to the mental maturity of the students.
- The exercise helps the pupils in reviewing and recapitulating the main text.
- The language of the exercises is unambiguous.
- The exercises promote the spirit of enquiry.
- The exercises provide motivation for further study.
- There are a variety of exercises (essay type, objective type, short answer type and fill in the blanks.)
- Exercises are given at the end of each chapter, besides there are some exercises

given at the end of the book focussing on understanding of the concept and skills explained in the entire book.

- There are exercises that suggest activities to suit the needs of the gifted as well as slow learners.
- There are exercises that suggest activities which are likely to foster desirable habits and desirable patterns.

Further suggestions were also given on prelims, back pages, printing layout and getup, durability, size of the book and the price.

As you have read till now it is very difficult to choose the right textbook. It is not a straight forward or clear process. It takes into account tiny details of every aspect of a textbook. We may discuss it under three aspects:

Selecting it from the Teacher's point of view

The first question to ask when choosing a textbook is, what are you intending to do with it? And how does it fit with the way you teach? You may be a constructivist teacher and choose a slightly different textbook that will let students question their learning or fill in the gaps or it covers the course comprehensively. Thus, the textbook will cover the gaps that are left in classroom teaching by building basic concepts, introducing activities and providing supplementary information whenever necessary. While using a textbook as the guide to teach in the classroom calls for selecting it based on how content has been divided into selected content and comparatively small and manageable chunks that guide readers through a learning process, and provides opportunities for self-assessment.

Selecting from the Student's point of view

While selecting from the point of view of the student one should ask the question that why are students opting for this course? Whether they will pursue the subject further or whether your course is the last one that they will ever take on that subject? The answer should help guide your textbook selection. Matching textbooks with the requirement of students means whether the textbook is able to enhance the learning of the students or not. A 'difficult' text is one that leaves out some sections of the process of thought, assuming that the reader is intelligent enough to fill in the gaps. Hence, you should not select a textbook without first reading some portions of the narrative to find out whether it is the appropriate textbook for students to enhance their learning.

If a textbook is properly planned and utilized then it will be a useful tool for both the teacher and student. It can help in the following manner.

- It gives the meaning and purpose of the teaching- learning process.
- It keeps the teacher on guard against any haphazardness and unnecessary repetition and learning.
- It facilities and stabilizes student learning.
- It lays down examples of the manner to be learnt.
- It serves as memory tool for the pupils.
- It reinforces what the students have learnt orally.
- It prepares ground for writing.
- It helps for supplementing pupils' language experience.
- It serves as a guide to the teacher.

One may conclude that while selecting a textbook one should at least briefly consider the following:

1. Scope: Does the textbook provide an adequate overview of relevant topics? Compare the topics of the textbook to the objectives of the class. Will there be any requirement for additional textbooks?
2. **Content:** Does the book cover the relevant topics? The size and readability of the book provides the students enough time to meet course objectives.
3. **Organization.** Is the textbook well organized? Review the table of contents, chapters, appendices, glossary and index. Compare the chapters and major headings to your course objectives and the sequence of your course materials.
4. **Contemporary:** To provide students with the most current information available
5. **Supplemental Materials:** What supplemental publisher resources are available? Have supplemental websites, workbooks, study guides, videos and test banks been provided?
6. **Cost:** The costs of textbooks should be minimized. While a book may not cover all topics in an ideal manner, a reasonable goal is to select one that is as complete as possible.
7. **Student:** Consider the text in light of the students who will be using it. Is the reading level appropriate? Does it repeat information included in a different course? Will the student be able to comprehend easily what is given in the text?

3.4 CORE-CURRICULUM

Core Curriculum

In education, a core curriculum is a curriculum, or course of study that is deemed central and usually made mandatory for all students of a school or school system. But, this is not always the case. Like a school might mandate a music appreciation class, but students may opt out if they take a performing musical class, such as orchestra, band, chorus, etc. Core curricula are often instituted, at the primary and secondary levels, by school boards, Departments of Education or other administrative agencies charged with overseeing education.

Advantages

The advantages of core curriculum are as follows:

- Those students who take the ACT-recommended core curriculum in high school get better ACT scores than those who do not, irrespective of gender, family income and racial/ethnic background.
- Usually in all racial/ethnic groups, those students who take the core curriculum score between 1.6 and 2.8 points higher on the ACT composite than those who do not take the core.
- Taking upper-level courses beyond core improves the achievement of all students, irrespective of gender, family income and racial/ethnic background.

Disadvantages

The disadvantage of core curriculum, which consist Math, Science, Social Science and English, is that you take most of these courses in high school, but colleges go more in

depth with these subjects whereas high school gives only a gist. Let us imagine that you go to a University/four year college and are undecided. You have a lot of time to choose a major as the first two years of college is mostly completing core classes, but it can be very helpful to choose a major as each major has its own prerequisites (core curriculum), which relates to it solely. The reason for this is said to make a better-rounded student, knowledgeable in different areas and to refresh and reinforce the information learned in high school.

Curriculum development in India falls between the two extremes of centralization and decentralization. At regular intervals, the national government creates the national policy on education. This policy is inclusive of the various guidelines pertaining to content and process of education at different stages. The guidelines mentioned in the national policy of education are also elaborated by NCERT.

NCERThas launched two curriculum initiatives by using NPEs of 1968 and 1986 as its base:

(a) The Curriculum for the Ten-Year School-a framework (1975); and
(b) The National Curriculum for Elementary and Secondary Education-a framework (1988).

At the central level, the cumculum framework that is prepared provides a broad outlook of the school curriculum that includes the following:

- General objectives
- Subject-wise objectives
- Suggested scheme of studies
- Guidelines for the transaction of the curriculum
- Evaluation of pupil outcome

At the national level a detailed curricula, syllabi and instructional material is developed. The NCERT also develops syllabi and instructional materials that are used by schools run in central organizations.

However, it is the state's decision to decide whether they want to adopt or adapt NCERT syllabi and instructional materials. Therefore, curriculum framework put forward by NCERT is always considered to be a suggestion and is not enforceable by law in the states. It is usually readily accepted by the states due to NCERT's credibility and the participatory development approach it follows. (The NCERT curriculum framework is developed on a consensus basis; all the states and union territories are involved in the curriculum elaboration).

CHECK YOUR PROGRESS

5. Who was the first to print a book mechanically?
6. What were the means of writing in the early Indian education system?
7. Name two societies which played a vital role in the promotion of books in British India.
8. What were the main functions of books in the ancient and medieval period?
9. What are the major principles of developing a textbook during the age of ManuandPanini?

3.5 ACADEMIC TIME IN THE IMPLEMENTATION OF CURRICULUM

Since Education is on the concurrent list, the curriculum is being brought into force in a different way by different states and union territories. The weightage to diverse curricular areas varies across states/UTs.

1. Primary stage

Classes I to IV in seven states/ UTs. In remaining 28 States/UTs it has classes I to V.

- The total *school working days* in a year are minimum of 180 in Nagaland and Manipur and maximum of 253 in Bihar and Jharkhand. In more than sixty per cent of the states/ UTs, the working days are between 201 and 220.
- The *duration of school hours* is 2.30 hours in Assam. In a majority of States/ UTs, it is between 5.30 to 6.30 hours.
- The number of periods *per week* for teaching different subjects is between 19 in Madhya Pradesh to 48 in A&N Islands, Uttarakhand, Goa, Tripura, Himachal Pradesh and Uttar Pradesh.
- The *duration of a class period*is minimum of 35 minutes in 5 states and maximum 45 minutes in 13 states.
- The integrated approach is followed in the teaching of Environmental Studies in 29 States/UTs.
- 9 periods per week are allotted for teaching of science in Rajasthan
- 4 periods are fixed in Andhra Pradesh, Pondicherry and Uttar Pradesh.
- 6 periods are allotted in 16 of the States/UTs.
- The *social science* is named as 'Environmental Studies' in 29 States/UTs and social studies in 4 states.
- In 30 States/UTs, integrated approach is followed in the teaching of social sciences in class V. The periods per week for teaching of this subject vary from 4 to 9 in different states/UTs.
- The time allowed for annual examination is 2.0 hours and maximum 3.0 hours in different states/union territories. Maximum marks for annual examination are 100 in 24 States/UTs and minimum 50 in ten states.
- *Periods allotted per week for teaching of Mother Tongue* in Class V is a minimum of 3 Nagaland and a maximum of 13 in Maharashtra. The time approved for annual examination of this subject is minimum 2.0 hours and maximum 3.0 hours in all States/UTs.
- English is introduced in Class I in 26 states and union territories.
- The *periods allotted per week for teaching of English* in Class V are minimum 3 and maximum 8 in various states
- The time allowed for *annual examination* is minimum 1.30 hours in Sikkim and maximum 3.00 hours in 15 States/UTs.
- The maximum marks set for yearly examination are 100 in 22 States/UTs.
- *Periods allotted per week for teaching of Mathematics* in Class V is maximum 12 and minimum 5 allowed on for annual examination is 2.0 hours in about half the States/UTs and maximum of 3.0 hours in fifteen States/UTs. Maximum marks for annual examination are 100 in 25 States/UTs and 50 in nine states.
- In most of the States/UTs, *health and physical education* is a compulsory

subject,

- The time allowed for annual examination is 1.30 hours to 3.00 hours in all the States/UTs.
- Periods per week for teaching Class V ranging from minimum 1 to maximum 7.
- In a majority of States/UTs, Art *Education* is a compulsory subject with period ranging froml-6 in different states.
- The time given for exam is from 1.0 to 3.0 hours in all the States/UTs. Both marks and grades are used for evaluation purposes.
- The nomenclature of *Work Education* is 'Socially Useful Productive Work (SUPW) and Work Experience' in equal number of 12 States/UTs, and Work Education in 4 States/UTs. Life Oriented Education (LOE) is given in Tamil Nadu.
- Both marks and grades are awarded in the examination. The number of periods allotted per week for teaching of work education in Class V ranges from 1 to 7.
- *Periods allotted per week for the teaching of moral and value education* in class V is varied from 2-4. marks and grades both are used optionally for evaluation.

Upper Primary Stage

- The *upper primary stage* includes classes VI to VIII in 27 States/UTs, VI & VII in Andhra Pradesh, V to VII in six States/UTs and V to VIII in West Bengal.
- *The number of working days* ranges from 180 to 253 in different states
- The *duration of school hours* is from 5.00 hours to 7.00 hours in all the states.
- The *number of periods per week at upper primary stage* varies from 35 to 54.
- *Minimum 35 minutes to maximum45 minutes is duration of a period.*
- In a majority of States/UTs, there is only one *recess* period maximum up to 3 in some states with time duration varying from 15-80 minutes.
- *Science at the upper primary stage* is named as 'General Science' in 15 States/ UTs. 'Science'in 14 and Physics, Chemistry and Biology in West Bengal. The integrated approach is followed in the teaching of science in 21 States/UTs and disciplinary approach in 13 States/UTs. The periods allotted per week to science in class VIII vary from five to eight. The time authorized for annual examination of this subject varies from.2.0 hours to 3.0 hours. The marks given are from minimum 50 to maximum of 100
- The different *nomenclature of Social Sciences* is 'Social Studies' 'History, Geography & Civics'and'Social Sciences'
- *"Periods per week* for teaching of social sciences are two to maximum eight The *time allotted* is from 1.0 hours to 3.00 hours for *annual examination.*
- The *marks allotted*Tor annual examination vary from 50 to 200.
- The number of periods per week for *teaching of mother tongue* varies from 4 to 13.
- The *periods per week for teaching of English* in class VIII are from minimum five to maximum nine
- In annual examination time given is between 2.0 hours to 5.40 hours and the marks allotted are from 50 to 100
- *The, periods allotted per week for teaching of Mathematics* in class VIII are

minimum five *in Kerala, Meghalaya and Nagaland* and maximum 9 in Jammu and Kashmir. Examination time is 1.0 hour to 3.0 hours and the marks allotted for annual examination are 50 to 100

- *Health and Physical Education* is a compulsory subj ect in a maj ority of States/ UTs. The periods allotted in time table per week for teaching of *Health and Physical Education* in class VIII is minimum 1 to maximum 5
- *Art Education* is a compulsory subject in 29 States/UTs and optional in remaining five States/UTs. The periods allotted for teaching of Art Education in class VTfl is minimum one maximum six.
- *Work Education* is named as Socially Useful Productive Work (SUPW) in 13 States/UTs and Work Experience in 14 state/UTs. Only in Tamil Nadu Work Education is known as life orientation education.
- *Moral and Value Education* is taught at upper primary stage as a subject inl3 states. Periods per week are 3-5.
- In *evaluation,* marks and grade both are functional.

The continuous comprehensive evaluation (CCE) is implemented in 16 states only.

2. Secondary Stage

- *Secondary stage* consists of classes IX and X in 28 States/UTs whereas in remaining seven States/UTs, it consists of classes VIII to X.
- The *curriculum and syllabus ofNCERT* is followed in nine States/UTs with needed alterations as per requirement. The Boards of School Education/ Board of Secondary Education are accountable for constructing curriculum and syllabus in 16 states. The SIEs/SCERTs of eight states are also developing curriculum in some states.
- The number of *working days in a year at secondary stage* is a minimum of 160 maximum of 25 9.
- The *duration of a school day* is minimum 5.0 hours and maximum 6.30 hours
- The *number of periods allotted per week* for teaching various subjects is minimum 34 (Chhattisgarh) to maximum 54 (Arunachal Pradesh and Haryana).
- The *duration of a period* is minimum 35 minutes to maximum 45 minutes in different states.
- In a majority of twenty-four States/UTs, there is only 1 *recess periodbvX* there are 2 in five states and 3 in four states .Minimum 15 minutes time is allotted in Pondicherry and Goa and maximum 80 minutes in Kerala.
- The nomenclature of *Science* is 'General Science' 'Science', 'Physics, Chemistry and Biology' in different states. The integrated approach for teaching of science is used in 17 States/UTs and disciplinary approach is used in 17 States/UTs.
- Periods allotted are minimum five periods per week to maximum nine periods
- For twelve-monthly examination of science subject, minimum 2.30 hours in seven states and maximum 6.00 hours in most of states are observed. Marks for annual examination range from 100 to 200 in most of the states.
- The nomenclature of *Social Sciences* is 'Social Studies' 'SocialSciences' and 'History, Geography, Civics and Economics' in various States/UTs. The integrated approach is used for teaching of Social Sciences in 14states and disciplinary approach in twenty states.

- The *periods allotted per week* for teaching of social science are minimum 5 and maximum 9.
- The *time allowed for annual examination* is minimum 2.30 hours and maximum 6 hours
- The maximum *marks allotted ranges* from 100 to 200.
- For *teaching of Mother Tongue,* a minimum 4 periods per week are allotted in Lakshadweep and Mizoram and maximum 9 in West Bengal and Uttar Pradesh. 6 periods are allotted in 20 States/UTs.
- The time allowed for annual examination is 2.0hours to maximum of six hours The marks allotted for examination are 50 to 200.
- For *teaching of English,* minimum five periods per week are allotted in six States/UTs and maximum 10 in Sikkim.
- The *time allowed for annual examination* is minimum 2.0 hours in Jharkhand and maximum 3.0 hours in twenty- seven States/UTs.
- The *marks allotted* for examination are 80 to 200(Pondicherry).
- *Three-language formula* is followed in all the States/UTs except Nagaland, Tamil Nadu, Meghalaya, West Bengal, Mizoram, Tripura and Assam.
- *Periods allotted per week for teaching of Mathematics* is minimum 4 and maximum 9 in many states.
- The time allotted for examination is minimum 2.30 hours in 8 States/UTs and 3.0 hours in remaining 28 States/UTs.
- The marks allotted for examination are 80 in many states to maximum of 200(West Bengal only).
- *Health and Physical Education* is found to be a compulsory subject in most of States/UT sand annual examination is conducted in more than sixty per cent of States/UTs. Period allotted per week varies from 1 to 6 in different states.
- *Art Education* is an essential subject in 16 States/UTs whereas it is optional in 15 States/UTs. The annual examination is conducted in more than 50 per cent States/ UTs. Only one period is allotted for teaching per week in five states and maximum six in Madhya Pradesh, Uttar Pradesh* Haryana and Himachal Pradesh states.
- *Work Education* is named as, 'Socially Useful Productive Work' in 9 States/ UTs, Work Experience in 15 and 'Life Oriented Education' in Tamil Nadu.
- The annual examination is conducted in 13 States/UTs. The periods allotted for teaching per week are from minimum 1 to maximum 5.
- Teaching of *Moral and Value Education* a separate subject in done in many States/UTs. Period per week allotted is ranged from 1-6.
- Annual examination is conducted with maximum 100 marks in Haryana & M.P
- For *evaluation,* both marks and grade are in use.
- The continuous and comprehensive evaluation is followed in seventeen States/ UTs only.
- The curriculum and textbooks developed by NCERT in the reference to NCF-2005 in the 15 States/UTs whereas 14 States/UTs have adapted the NCERT curriculum, syllabus and textbooks. The remaining six States/UTs are in the procedure of revising their curriculum and textbooks.

CHECK YOUR PROGRESS

10. What are the total working days in a year in primary schools?
11. What is the number of periods per week for upper primary stage?
12. What importance has art been given in secondary level?

3.6 SUMMARY

- Curriculum can be defined as a wide-ranging plan for an educational/training programme/course to offer new/improved manpower to fulfil the rising needs of a vibrant society.
- There is a national organization that plays a key role in developing policies and programmes, called the National Council for Educational Research and Training (NCERT) that prepares a National Curriculum Framework.
- Each state has its counterpart called the State Council for Educational Research and Training (SCERT). These are the bodies that essentially propose educational strategies, curricula, pedagogical schemes and evaluation methodologies to the states' departments of education.
- The NPE 1986 contended that the role of education is essentially to transform a static society into a vibrant one with commitment and development and change.
- The NPE operationally defined concurrence as a meaningful partnership between the Centre and States and placed clear responsibility on the Union Government regarding the national and integrative character of education, quality and standards, manpower planning research and advanced study, culture, human resources development and the international aspects of education.
- An important milestone of the NPE 1986 is its commitment to laying down minimum levels of learning at each stage of education aimed to ensuring the quality of education and comparability across the nation.
- The National Open School was started in India by the Central Board of School Education in 1979. The objective of establishing this School was to provide alternative opportunity through distance education mode to a heterogeneous clientele comprising the rural people, urban poor, women, SC/STs, working adults and school dropouts who are unable to attend the formal school system.
- The Seventh Plan also delineated effective decentralised planning and organization reforms, promotion of non-formal and open learning systems, adoption of low cost alternatives and optimum use of resources as strategies for achievement of the plan objectives.
- The National Council of Educational Research and Training (NCERT) is the top most body that decides the formulation and implication of the curriculum related matters for school education in India.

- There is a great difference in the psychology of infants, children, adolescents and adults. It is on the basis of their psychology that education is divided into different levels, namely - pre-primary (infant), primary (child), secondary (adolescent) and higher (adult). An even the aims and the curriculum for different levels of education are fixed differently. Secondary education is the education of adolescents; it is a formative education for them and herein lays its need and importance.

- The scope of SCERT pervades the whole school education from pre-primary in secondary to secondary level.
- The National Educational Policy, 1986 announced several programmes for improvement in teacher education, one of which was the setting up of the District Institutes of Education and Training. Under it, the work of setting up of one such institute in each district was undertaken from 1987. By the year 2011, 555 District Institutes of Education and Training have been set up in the country.
- Elementary teachers are trained in Teacher Training Institutes (TTI, they are also known as Junior Basic Training Institutes or Primary Teacher Colleges) attached to State and university departments of education. The course generally lasts for two years and leads to a Diploma in Teacher Education or a Primary Teacher Certificate, P.T.C.
- A textbook or course book is a manual of instruction in any branch of study. The ancient Greeks wrote *texts* intended for education. Early textbooks were used by tutors and teachers, who used the books as an instructional aide.
- Gutenberg was the first European to use movable type printing, in around 1439. Among his many contributions to printing are: the invention of a process for mass-producing movable type; the use of oil-based ink; and the use of a wooden printing press similar to the agricultural screw presses of the period.
- Though we find evidence to the composition of *hymns* and *slokas* of high quality in the early Vedic period but there exists no direct evidence that the art of writing was developed. Certain proofs of the existence of manuscripts, or even only authentic reports on the writing down of texts do not exist.
- The books initially written in the medieval period served the purpose for the *madrasahs* and *maktabs.* The art of printing still did not exist, the books were generally hand written and could not be produced on a large scale.
- The advent of British in India also saw the opening of schools for their children. As printing had already developed in Europe, textbooks were beginning to be published.
- The British administrators were quick to identify the potential in textbooks for spreading knowledge in various disciplines. They also recognized that a textbook and a printing press could be advantageous in spreading some of their ideas and strengthening their political interest in India.
    - The British period laid a concrete base for the selection, prescription and improvement of the textbook. The textbook committees were formed during this period. They performed certain functions related to textbook programme such as inviting manuscripts or books, evaluating them, approving or prescribing them and taking steps towards their further improvement.
    - The following concepts became well established. The clientele of the textbook, the mode of printing and the nature of artwork for illustration are also decided. Whether the textbook should be written by a single author, or whether a panel of authors is to be engaged for this purpose.
    - A good textbook can help to structure content and provide solid groundwork for further learning. For the inexperienced teacher especially, the textbook may provide information in a well-organized, coherent framework and could well save their precious time that might otherwise be used for research rather than for preparing ways of making the material interesting to students.
    - Although there are no such criteria which could be used for evaluating textbooks in the ancient period, the above mentioned principles could well be used as criteria for evaluating the books of those days.
    - During the medieval period, textbooks were written generally by the school

teachers, the teachers while writing the book considered psychology of the children and day-to-day problems in the classroom.

- After the author has finished the task of preparing a book, now it is ready for the publishing house to take charge. The quality of a good book also depends upon the publishing house to a great extent. A well written and organized book may not serve its purpose unless it is printed properly.
- A book should be well evaluated before its selection. The British regime entrusted the selection of textbooks to its Education Department. There was considerable criticism regarding the quality of the textbooks and the procedure of their selection.
- After World War II, public opinion showed great enthusiasm in the field of International understanding. The UNESCO took up the matter with great zeal.
- NCERT developed detailed criteria for evaluating content in various school textbooks. It has done a commendable job by listing systematically the evaluation criteria that were based on the knowledge and experience of textbook authors, subject specialist, psychologist, educationist and pedagogists.

3.7 KEY TERMS

- **Curriculum:** It can be treated as the essence and or subject matter of educational experiences.
- **Textbook:** A textbook or *course book* is a manual of instruction in any branch of study.
- **Group processing:** Team members set group goals, periodically assess what they are doing well as a team, and identify changes they will make to function more effectively in the future.
- **Jigsaw:** In this activity, small groups consisting of students are created. Each group member is allotted some particular task to learn and then to teach to his group members.

3.8 ANSWERS TO 'CHECK YOUR PROGRESS'

1. On this basis, curriculum can be defined as a wide-ranging plan for an educational/ training programme/course to offer new/improved manpower to fulfil the rising needs of a vibrant society.
2. The Policy proposed a three-pronged strategy to realize the task of universalization of primary education:

    - Firstly, to provide a motivating school environment through child-centred and activity-based learning process at the primary stage.
    - Secondly, to improve the inputs for teaching-learning process by providing essential facilities in primary schools in terms of classrooms, teachers, and other teaching-learning equipments.
    - Thirdly alternative stream of systematic non-formal programme is to be designed to ensure the coverage of children who dropout from the habitation without schools, working children and girls who cannot attend regular schools to ensure universalization.

3. The National Open School was started in India by the Central B oard of School

Education in 1979. The objective of establishing this School was to provide alternative opportunity through distance education mode to a heterogeneous clientele comprising the rural people, urban poor, women, SC/STs, working adults and school dropouts who are unable to attend the formal school system. The unique features of these NOS are that it takes education to the doorsteps of motivated learners and does not impose limitations of time and place. Further, it makes provision for studying at one's pace and convenience.

4. India's education system in general is divided into the following levels

   - Pre-primary level
   - Primary level
   - Elementary education
   - Secondary education
   - Undergraduate level
   - Postgraduate level

5. German metal smith Johannes Gutenberg, who introduced printing to Europe.
6. Books were written with the hand on the leaves of the Tala and the Bhojas.
7. The names of Calcutta school book society and the Bombay Native Education Society can be specifically mentioned in this regard.
8. The first was to conserve knowledge, the second to transmit it to the succeeding generations and the third to establish the religion and to stabilize the society.
9. The major principles of developing a textbook during the age of Manu and Panini are: (i) Objective of the book (ii) correctness of the content (iii) completeness of the content (iv) relevance of the content (v) presentation of the content and (vi) style of writing.
10. The total school working days in a year are minimum of 180 in Nagaland and Manipur and maximum of 253 in Bihar and Jharkhand. In more than sixty per cent of the states/ UTs, the working days are between 201 and 220.
11. The number of periods per week at upper primary stage varies from 35 to 54 periods.
11. *Art Education* is an essential subject in 16 States/UTs whereas it is optional in 15 States/UTs. The annual examination is conducted in more than 50 per cent States/ UTs. Only one period is allotted for teaching per week in five states and maximum six in Madhya Pradesh, Uttar Pradesh, Haryana and Himachal Pradesh states.

3.9 QUESTIONS AND EXERCISES

Short-Answer Questions

1. State any five flaws in the higher education system of India.
2. In which manner books for children should be written?
3. How should exercises in the book be?
4. Write three printing qualities of a good book.
5. Write any two points to show that a textbook can be useful for both teachers and students.

6. Why should a contemporary textbook be selected?
7. How should textbooks be selected?
8. What is the role of SCERT?

Long-Answer Questions

1. Explain the essentials of a good textbook.
2. Compare the style of medieval period books with the contemporary style.
3. Explain the detailed procedure of selecting a textbook.
4. How do textbooks help teaching-learning process?
5. Explain Core curriculum.
6. Differentiate between traditional curriculum and progressive child-centred curriculum.
7. State the functions of Institutes of Education and Training.

3.10 FURTHER READING

Ornstein, Allan C, Francis P. Hunkins. (2004). *Curriculum—Foundations, Principles, and Issues.* Boston, United States: Allyn and Bacon.

Taba, Hilda. (1962). *Curriculum Development: Theory and Practice.* San Diego, California: Harcourt, Brace & World.

Bhatt, B. D., Sita Ram Sharma. (1992). *Principles of Curriculum Construction* New Delhi: Kanishka Publishing House.

Bobbitt, John Franklin. (2013). *The Curriculum.* Memphis, Tennessee: General Books LLC.

Bobbitt, John Franklin. (1924). *How to Make a Curriculum.* Boston, Massachusetts: Houghton Mifflin Company.

Chauhan, S. S. (2009). *Innovations in Teaching Learning Process, IE.* New Delhi: Vikas Publishing House Pvt. Ltd.

Dewey, John. (2010). *The Child and the Curriculum: Including the School and Society.* New York, United States: Cosimo, Inc.

UNIT 4 RESEARCH IN CURRICULUM

Structure

4.0 INTRODUCTION

Ever since formalized education has come into existence, research has been key in enhancing education and also suggests how education functions in different situations. With the help of numerous research methods, educationists aim to seek answers regarding the issues and problems faced by the educational system. Knowledge of curriculum research is an important component of professional preparation for all educators. In order to promote creative and innovative techniques to provide solutions to educational issues and problems, it is essential that an educationist is aware about the different research methods.

In this unit you will learn the areas and aims of curriculum research and the different approaches to research in education.

4.1 UNIT OBJECTIVES

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

- Discuss the importance of curriculum research
- Describe the different types of research in curriculum
- Explain the constructivist approach to research

4.2 CONCEPT, AIM AND AREAS OF CURRICULUM RESEARCH

Educationist have broadly defined as appliance of those systematic methods and techniques that aid the researchers and others who practice it in understanding and

improving teaching and learning procedure. Like in any other field of research, education also has two ways or mode of educational research.

1. **Inductive Reasoning**

Inductive reasoning is generally referred as a 'bottom-up' approach of knowing. In this type of approach, researchers use individual observation to build an abstraction or to portray a picture of the happening that is under study.

The conclusions derived from generalities and from statements of presupposed authorities by deductive reasoning are true only if they are based upon true premises. To find out whether the premises are true, Francis Bacon stressed the need for basing general conclusions upon specific facts gathered through direct observations. This is what is known as inductive reasoning— going from the particular to the general. Rather than accepting premises laid down by authorities as absolute truths, Bacon advised man to observe nature closely, to experiment, tabulate all the facts, to study these facts in order to reach minor generalizations, and then to proceed from minor generalizations to greater ones. He, however, cautioned against formulating any hypothesis or any probable solution to a problem until all the facts had been gathered.

Inductive reasoning generally leads to inductive methods of data compilation where the researcher performs the following functions:

- Systematic observation of the phenomena that is being investigated
- Tries to find new patterns or themes during observation
- Establishes a generalization from the analysis of the of the themes

So the researcher proceeds from specific observations to general statements. This type of research can be called a type of discovery approach to knowing.

2. Deductive Reasoning

In comparison to inductive reasoning, deductive reason uses a top-down approach to knowing.

A noteworthy contribution towards the development of a systematic technique for obtaining reliable knowledge was made by the ancient Greek philosophers like Aristotle and his followers. Aristotle developed the syllogism, which can be described as a thinking process in which one moves from general to specific statements by deductive reasoning. It provides a means of testing the validity of any given conclusion or idea by proceeding from the known to unknown. The syllogistic reasoning consists of:

- A major premise based on a self-evident truth or previously established fact or relationship.
- A minor premise concerning a particular case to which the truth, facto, or relationship invariably applies.
- A conclusion if the major and minor premises can be shown to be true, the conclusion arrived at is necessarily true.

This can be illustrated through a simple example as given below:

All animals are mortal;

Dog is an animal;

Therefore, dog will die.

The conclusion of a syllogism is always derived from the content of premises. Therefore, if the premises are unrelated or if one of the premises is erroneous, the conclusion arrived at will not be valid.

Another serious restriction of the deductive reasoning is its dependence upon verbal symbolism.

Deductive reasoning can systematize what is already known and can identify new relationships as one proceeds from known to unknown, but it cannot be relied upon as a self-sufficient method for securing reliable knowledge.

This type of research is also referred as Hypothetic Deductive method, which originates by formulating a hypothesis which means a tentative explanation that can be tested by collecting data.

For example, one hypothesis can be generated as small classes that would probably result in a better amount of student learning as compared to that of large classes. This hypothesis would have its foundation based on a theory or a knowledge base composed of the results of previous research studies.

A powerfully built explanation of how some aspects of the world functions using a structure of concepts, principles, and other hypotheses is known as Theory. For example, a humanistic theory of education is a theory which may lay stress upon a healthy and well built relationship between teacher-student as part of effective learning.

Prior research studies have proved that relationships of this type are more evident in small classes. Thus, on the basis of recent studies and the humanistic theory, the researcher in our example may suggest that small class sizes will lead to improved student learning. The next step of hypothetic deductive approach involves the compiling of data, where the researcher might make a comparative analysis of student learning in a batch of 15 or fewer students with a batch of 25 or more students. If the students who are a part of the smaller batch show an increased amount of learning, the hypothesis will be validated. However, if the learning—as by deductive reason— the hypothesis is false. The following points summarize the researcher's method:

(i) The researcher begins with a theory and knowledge base and uses them to formal hypothesis, (ii) The researcher gathers data (iii) The researcher makes a decision based on the available data. He may either accept the hypothesis or reject it.

The two approaches to knowing i.e. inductive and hypothetic-deductive signify two general means to acquire knowledge that is used in curriculum research. Inductive reasoning is most intimately connected with the approaches to research that are qualitative in nature. The collection and summarising of data is generally done using primarily narrative or verbal methods: observations, interviews, and documents analysis. Qualitative researchers are often said to take inductive approaches to data collection because they formulate hypotheses only after they begin to make observation interview people, and analyse documents. The hypotheses thus formed are thoroughly examined and adapted by additional data collection rather than accepting or rejecting it out

rightly. The qualitative researchers consider that complete understanding of any phenomena is dependent relative on the context, and so only after data collection they use theories primarily to help them understand the patterns that are observed. Still, eventually qualitative researchers make an attempt to make claims about the truth on the basis of hypotheses.

The hypothetic-deductive method has its close connection with the quantitative approaches, which sum up data by means of numbers. Hypotheses and methods of data collection in quantitative research are created before the research begins. Next step that is followed is that of testing of hypotheses or theories. These hypotheses or theories are characteristically well thought-out to be capable of being generalisable i.e. it is appropriate for a wide range of similar situations and populations. Quantitative researchers may also use inductive reasoning as they gaze for parallel experiences and results from novel ideas, concepts or theories.

The exclusive use of Bacon's inductive method resulted in the accumulation of isolated bits of information, and therefore, it made little contribution to the advancement of human knowledge. Moreover, many problems could not be solved by inductive reasoning alone. In view of these limitations, it was superseded by the inductive-deductive method or the scientific method. This method, attributed to Charles Darwin, integrates the most important aspects of the inductive and deductive methods. The scientific method, therefore, is a back-and-forth movement of thought in which man first operates inductively from partially known or sometimes confused information learned from experience, previous knowledge, reflective thinking, observation and so on, towards a meaningful whole or hypothesis, and then deductively from suggested whole or hypothesis to the particular parts in order to connect these with one another in a meaningful pattern to find valid relationships.

Although, in practice, scientific method involves a double movement of reasoning from induction to deduction, in its simplest form, it consists of working inductively from observations to hypotheses and then deductively from the hypotheses to the logical implications of the hypotheses in relation to what is already known.

Theoretical frameworks for curriculum research

Currently curriculum research has begun to move away from a. rigid and rapid distinction amid qualitative and quantitative research methods. Nowadays researches can have its basis of classification based on philosophical frameworks as follows:

- Identified in stipulations of the assumptions they make about the nature of the reality studies.
- Claims about what we can and cannot know, and the ways in which they utilize theories and findings.
- Each framework also makes assumptions about whether qualitative or quantitative methods are most appropriate for extending our knowledge about education.

For a beginner in the field of research it is important that he/she should take into consideration the approach that fits best into the assumptions about how the world works.

Scientific Realism

Scientific realism is an expression referred to the frame used by the majority of researchers who take up wholly quantitative approach to research. This type of

research is characterized by a craving to answer research questions by producing numerical data that represent various constructs and variables.

A construct is a hypothetical concept that is characteristically developed from an academic framework. Even though constructs are names for things that cannot seek (e.g., intelligence, motivation, self-esteem), they are supposed to be factual description that influence educational outcomes. When we measure constructs in curriculum research, they are known as variables. Like the constructs they represent, variables are made distinct as attributes, qualities, and characteristics of persons, groups, settings, or institutions, such as gender, societal skills, socioeconomic status, refinement, or achievement. Scientific realists strive to establish cause and effect relationships where possible, using data collection methods, such as questionnaires, tests, and observational checklists to produce quantitative data.

The rational underpinnings of the scientific realism approach can be originated in the positivist opinion developed principally to explain information generation in the physical sciences. The first assumption made by scientific realists is that there is existence of a real social and psychological world that can be precisely captured all the way through research. In simple words it can be said that there is an objective reality that research aims to describe. Scientific realists additionally presuppose that the social and psychological world can be studied in to a large extent the same way as the natural world by breaking compound phenomena and problems into smaller parts. The chief job of the researcher is to recognize the most important parts or variables and precisely illustrate how these are associated to each other in the real world.

Scientific realists consider knowledge as hypothetical and believe that it is therefore subjective to feasible amendment. Testing of all hypotheses is done using statistical tests that sets up the point of confidence that one can have in the results that are obtained. Scientific realists are well aware of the fact that because one of the main aims of education is to study human behaviours and characteristics, they fear the fact that research may be influenced by the investigator. For an investigator to uphold apparent neutrality, he or she must play a disconnected job, where there is little chance for communication with the participants under study. Scientific realists believe strives to eliminate any personal bias can reliably determine findings. Although they borrow rigorous scientific techniques from the natural sciences, the scientific experiments are not always possible. Scientific realists concede that different persons might have different perceptions of reality; however, they assume that experiences overlap to a large degree and that a good researcher can take these different perceptions into account in providing the best possible explanation ofreality.

Social Constructivism

Traditionally pure quantitative research is often done by a person who holds a framework referred to as interpretive, constructive or naturalist. Social Constructivists challenges the scientific realist assumption that reality can be reduced to its component parts. Instead they give the argument that the phenomena should be understood as complex 'wholes' that are inextricably bound up with the historical, socioeconomic and cultural context in which they are rooted. Therefore, the social constructivist tries to understand the phenomena from a context- specific perspective. Social constructivist views scientific inquiry as value based and not value-free.

Pragmatism

This is the framework most developed by the American Philosophers. Unlike the other frameworks, pragmatists are not concerned with whether research is describing either a real or socially constructed world. Instead Pragmatists consider that the research simply helps to identify what works in practical sense. They are likely to reply that knowledge arises from examining problems and determining what works in a particular situation or condition.

4.2.1 Approaches used in Curriculum Research

The scientific approaches used in curriculum research can be classified into:

- The extent to which the findings are applicable to the educational settings (e.g., Basic vs. applied Research)
- The methods used to design the study and to collect data (e.g., Qualitative vs. Quantitative Research)
- How the information is shared (e.g., the dissemination of the findings)

4.2.2 Types of Curriculum Research Studies

There are number of ways in which Curriculum Research Studies can be classified. According to the kinds of information provided they are classified as:

- *Historical research:* Generates descriptions, sometimes attempt explanations of conditions, situations and events that have occurred in the past.
- *Descriptive research:* Provides information about the conditions, situations and events that have occurred in the present.
- *Co-relational research:* involves the search for relationship between variables through the use of various measures of statistical associations.
- *Causal research:* This kind of research aims to propose underlying linkages between variables by observing the current phenomena and then probing back through available data in order to attempt to identify probable causal connection.
- *Experimental research:* Provides for much control and therefore, establishes a systematic and logical association between manipulated factors and observed effects. The researcher defines a problem and proposes a tentative answer to it also called hypothesis. The researcher then tests this presupposed hypothesis and accepts or rejects it in the light of the controlled variable relationship that he/ she has observed.

- *Case study research:* Usually refers to two separate research approaches. First
  kind of case study is an intensive investigation of a social unit like a particular
  classroom, school, family, a group of delinquents and students with the intention
  of analysis of the factors and their interrelationship which help the researcher to construct a comprehensive picture of the unit.

  The second approach is associated with the applying of the quantitative research methods to non-probability samples which give us result that are not necessarily intended to be generalised to the wider populations

- *Ethnographic research:* Describes the kind of events that happen in the life of a
  cluster with scrupulous mention of the interaction of the individuals in the perspective of the socio-cultural norms, rituals and viewpoint shared by the group.

- *Research and Development research:* This kind of research differs from the above types of research in the sense that instead of bringing new information or
  knowledge into light it focuses on the interface between research and the construction and assessment of a new product. This type of research can be formative.

4.2.3 Stages in the Research Process

General and Specific Research Questions: In this process, general questions are asked for e.g., 'All other conditions being equal do the students with one kind of textbook accomplish better than those students with Textbook of another kind?' In order to precede the research in a more focused and systematic manner such kind of questions must be developed to form more precise research questions that specify the target population in which variable or factors should be incorporated in the research study.

Literature Review: This stage besides allowing the researcher to acquaint with the current knowledge in the field or area in which the researcher is going to conduct research serves the purpose to define the limits of his/her field. It also helps the researcher to update on the work that others have done and to avoid the unintentional duplication of the well established findings An effective research literature review is not just a synopsis of research studies and their findings rather it represents an embodiment of the indispensable issues inter-relationship associated with the knowledge, arguments and themes that have already been explored in that area.

Research Design: After the precise research question has been posed, a judgment must be taken on which research design must be adopted like whether to adopt experimental or survey method. If the choice stands for the Survey method then further decision has to be taken regarding the choice of type of Survey design i.e. longitudinal design in which data is collected at diverse points or cross-sectional design in which data is collected at a single point of time.

Instrumentation: We can make out from the specific research questions established in the first step of a research study the type of indicators and variables required in the research. It is possible to determine the general characteristics of questionnaire and/ or test items, etc. that are required to form these. Decisions must then be taken on the medium by which data has to be collected.

After all the decisions in relation to the research have been taken the construction of the instrument begins. This normally comprises of the writing of test items, attitude items, and questionnaire items. The items should be reviewed by able-bodied experts in order to make sure that they are clear-cut, and they facilitate in drawing out the requisite information.

Pilot Testing: In the stage of pilot testing the instruments decided and constructed for the purpose are administered to those individuals who are bonafide for the conduction of research and will respond in the final data collection.

For example, the target population may be the school principals and or teachers or students in a small number of schools. If the target population has been specified as, for example, Grade 5 in primary school, knowledge should exist in the Ministry, or in the inspectorate, about the schools that are good, average, and poor in terms of curriculum achievement levels or in general conditions of school buildings and facilities. A 'judgement sample' of five or eight schools can then be drawn in order to represent a range of achievement levels and school conditions. It is in these schools that the pilot testing should be undertaken.

The two main purposes of most pilot studies are:

- To assess whether a questionnaire has been designed in a manner that will elicii the required information from the respondents. This process allows weaknesses in the questionnaire to be detected so that they can be removed before the final form is prepared.

  Typical weaknesses that are found in questionnaires include:

  o Ambiguities in the construction of questions

  o Unnecessary complexity in the language that has been used

  o Unsuitable response categories for some questions

  o Redundant questions

- To assess whether test items can be understood by the students, that the items are pitched at the appropriate level of complexity, provide a stable measure of student ability, and it guides to the production of total test scores that are significant in terms of the student ability being examined.

Assessment of the effectiveness of the data collection procedures is also very important.

Data Collection: After the selection of the probability sample and the instruments, the next assignment is to arrange the logistics of the data collection. Data collection is essentially an important part of the research processes that the inferences, hypotheses or generalizations tentatively held may be identified as valid, verified as correct, or rejected as untenable. In order to collect the requisite data for any research problem, the researcher has to sample the population concerned as it is not possible to encompass the entire population. Devise appropriate tools for measuring the attributes concerned and administer these tools.

The managing of this investigation stage will rely on the existing infrastructure for data collection. It is also important for the curriculum planners to take control of the selection of the student to be tested.

After the data has been entered, cleaned, and amalgamated, the step which often requires the students, teacher, and school files of a particular school to be attached into one record after which the next step can begin i.e. data analysis can begin.

Data Analysis: Analysis of data means studying the organized material in order to discover the inherent facts. The data is studied from as many angles as possible to explore the new facts. Analysis requires an alert, flexible and an open mind. It is worthwhile to prepare a plan for analysis before the actual collection of data. Four helpful modes to get started on analysing the gathered data are:

1. To think in the terms of the significant tables that the data permit
2. To exam in carefully the statement of the problem and the earlier analysis and to study the original records of the data.
3. To get away from the data and to think about the problem in lay-man's terms or to actually discuss the problems with the others.
4. To attack the data by making various statistical calculations.

Descriptive: Characteristically, the first step in the data analysis is to produce descriptive statistics independently for each variable. These statistics are often called invariants.

Correlation: In this step of data analysis the correlation techniques of the type, product, moment, correlations or cross tabulations can be calculated. There are various statistical tests which can help to determine whether the association that is reflected is more than what could occur by chance. When the association between two variables is examined, this is known as 'bivariate' analysis.

Casual: If we apply experimental design, then tests can be applied to observe if the performance of the experimental group is better than the control group. However, there are various statistical techniques for determining this. This approach's use depends on the application of randomization in order to ensure that the two groups are'equivalent'in all other respects.

Research Report: There are three major types of research reports. The first is the Technical report written in great detail and showing all the research details. This typically is read by other researchers. It is this report that provides evidence that the research was conducted soundly. It is usually the report which is written first. The second report is for the senior policy makers in the ministry of education. It is in the form of an Executive Summary of about 5 or 6 pages. It reports the major finding succinctly and explains, in simple terms, the implications of the findings for future action and/ or policy. The third General Report is usually in the form of a 50 to 100 page booklet and is written for interested members of the public, teachers, and university people. This report presents the results in an easily understood and digestible form.

4.2.4 Scientific Enquiry and Research

Science and technology is of great significance to mankind. The changes brought forth by science and technology take place at an accelerated pace. These scientific and technological advances have enhanced human life to a great extent but at the same time have raised serious ethical, legal and social questions. If society wants to reap the benefits of these changes, it needs to minimize the negative effects that come with it. It is very essential that people have the ability to make informed, objective decisions with regards to the application of science and technology. This can only be possible if the public is educated about scientific enquiry and research and its relevance in curriculum development.

The objectives of scientific enquiry and research in curriculum are as follows:

(i) Students are able to understand the basic aspects of scientific enquiry. Science proceeds by a continuous, incremental process that involves generating hypotheses, collecting evidence, testing hypotheses, and reaching evidence-based conclusions. Scientific enquiry on the other hand is flexible and is not limited to involving one particular method. One particular question may have several types of investigation methods and there may be a possibility of having more than one answer. Usually student figure science to be a subject of experimentation. However, science also uses different techniques like observations, surveys and non-experimental approaches.

(ii) Scientific enquiry and research also give students a chance to enhance their reasoning and critical-thinking skills. These skills are not just relevant for scientific research but for making decisions in daily life. Due to these constant changes taking place, it is very important that today's youth be lifelong learners. They should be able to evaluate information from a number of sources to understand its usefulness. A student should be able to establish causal relationships and be able to differentiate them from mere associations.

(iii) Students should be able to identify the purpose of scientific research. Ongoing research affects how we understand the world around us and provides a foundation for improving our choices about personal health and the health of our community.

What's in it for the Teacher?

The process of scientific enquiry and research meets many of the criteria by which teachers and their programmes are assessed. This evaluates the standards that are described, i.e., what students should know and be able to do with respect to scientific enquiry. In addition, scientific enquiry and research provides a means for professional development. Teachers can now engage in new and different teaching practices such as those described in this module without completely overhauling their entire programme. In *Designing Professional Development for Teachers of Science and Mathematics,* Loucks-Horsely **et** al. write that supplements such as this one 'offer a window through which teachers get a glimpse of what new teaching strategies look like in action.' By experiencing a short-term unit, teachers can' change how they think about teaching and embrace new approaches that stimulate students to problem-solve, reason, investigate, and construct their own meaning for the content.' The use of this kind of supplemental unit can encourage reflection and discussion and stimulate teachers to improve their practices by focusing on student learning through enquiry.

CHECK YOUR PROGRESS

1. What is inductive reasoning?
2. What does syllogistic reasoning consists of?
3. What do you understand by scientific realism?
4. Fill in the blanks.

(a) aims to propose underlying linkages between variables

by observing the current phenomena and then probing back through available data in order to attempt to identify probable causal connection.

(b)In process, general questions are asked.

(c) After the selection of the probability sample and the instruments, the next assignment is to arrange the logistics of the_

4.3 RESEARCH IN CONTENT ANALYSIS

In 1931, Alfred R. Lindesmith developed a methodology to disprove the existing hypotheses, which came to be known as Content Analysis technique. It gained recognition and fame in the 1960s, when Glaser referred to it as 'The Constant Comparative Method of Qualitative Analysis'. Glaser and Strauss afterwards modified it to invent a new concept of Grounded Theory.

Content analysis or textual analysis is a method adopted in the social sciences for studying the content of communication. Some of its prominent definitions are:

> *Earl Babbie - 'The study of recorded human communications, such as books, websites, paintings and laws.'*
>
> *Dr. Farooq Joubish - 'Content analysis is considered a scholarly methodology in the humanities by which texts are studied as to authorship, authenticity, or meaning.'*
>
> *Harold Lasswell— 'Formulated the centre questions related to content analysis i.e. who says what, to whom, why, to what extent and with what effect?'*
>
> *Ole Holsti- 'Offers a broad definition of content analysis as any technique for making inferences by objectively and systematically identifying specified characteristics of messages.'*

Thus content analysis is a summarizing, quantitative analysis of messages that relies on the scientific method (counting as well as the attention to objectivity, inter-subjectivity, priori design, reliability, validity, generalisability, replicability, and hypothesis testing) and is not limited to the types of variables that may be measured or the context in which the messages are created or presented.

4.3.1 Ten Steps of Content Analysis

The ten step of content analysis are:

1. Copying and reading through the transcript. Brief notes in the margin have to be made when interesting or relevant information is found.
2. Go through the notes prepared in the margins and register the diverse types of information set up.
3. After going through the list one should categorise each item in a way that offers an explanation of what the list is about.
4. Identify whether or not the categories can be linked any way and list them as major categories (or themes) and/or minor categories (or themes).
5. Compare and contrast the various major and minor categories.
6. If there is more than one transcript, repeat the first five stages again for each transcript.

7. When you have done the above with all of the transcripts, collect all the categories or themes and examine each in detail and consider if it fits and its relevance.
8. Once all the transcript data is categorised into minor and major categories/ themes, review in order to ensure that the information is categorised as it should be.
9. Review all of the categories and ascertain whether some categories can be merged or if some need to be sub-categorised
10. Return to the original transcripts and ensure that all the information that needs to be categorised has been so.

The process of content analysis is lengthy and may require the researcher to go over and over the data to ensure they have done a thorough job of analysis

4.3.2 Curriculum Research Framework

Separating curriculum development and educational research destroys its legal validity; the two remain distinctive. The objective of scientific research is to create new kind of knowledge whereas the aim of curriculum development is the creation of instructional resources. This distinction between the curriculum research and educational research may be one of the reasons that curriculum development does not reliably improve.

Curriculum development can be referred to be as a design science having two goals. First the goal of building a learning process and second the budding local theories. As a science, knowledge created during curriculum should have its developmental base both at generation and placement level within a scientific research corpus, has to be peer reviewed, and published. The self-regulating norms of a scientific community over time are the means of achieving scientific advances. The goal cannot be to develop a single ideal curriculum but rather dynamic problem solving, progress, and advancement beyond present limits of competence.

In curriculum framework it is important that the curricula are created after a thorough research. Research is socio-political in nature and therefore includes socio-historical movements, values, controversies, politics, competition status hierarchies and egotism. Curriculum research is influenced by these factors, so therefore checks and balances of scientific research are significant to support full exposure as well as progress.

It is also important that curriculum research is not limited to research-to-practict strategies. The goals and strategies are absorbed in the proposed framework. Since they comprise one way translations of research results, the model restricted to research-to-practice strategies is imperfect with respect to its presumptions, insensitive to changing goals in the content area, and unable to contribute to a revision of the theory and knowledge. Hence, a valid scientific curriculum development programme should fulfil] two basic issues, i.e., effect and conditions in three domains—practice, policy and theory. In order to attain these goals scientifically, developers must fulfill ihe following:

- Draw from existing research so previously-acquired knowledge can be applied to the curriculum.
- Structure and revise the curriculum content in a method that is feasible to children's thinking and learning in a domain.
- Add evaluations through the formative and summative approach in a series of progressively expanding social contexts.

It is not easy to evaluate the relation between curricula and research as many developers claim that the curricula prepared by them is based on research however they do not validate their claims. In the absence of an established framework to evaluate these claims, the concerned officials use other criteria to develop and select curricula, and the

potential for curriculum development and evaluation to build a coherent scientific knowledge base is unrealized.

The Curricular Research Framework includes several phases of the curriculum development research.

- *Identifying the subject matter:* Building of educational goals involves numerous considerations that go beyond science. The main objective of the research phase is to identify the content which is in line with the discipline and it proves to be substantial to the development of students. This means that the concepts and process of the domain should be key in subject matter domain and incorporate from students' past experiences and ensure future development of students. Research should also involve the harmonizing of competency components like problem solving, metacognition and a positive disposition towards learning and availing the subject-matter content. /
- *Establishing General Goals:* Review of various theories, philosophy discussion and empirical results on teaching and general curriculum issues. For instance, the developers may initially begin from an Ausubelian or constructivist point of view and proceed in direction. Also, research and curriculum theory provide a perspective on students' and teachers' experience with the curricula as well as on school and society that will eventually help in establishing general goals and directions.
- *Making of Pedagogical Strategies:* Empirical finding on making specific types of activities educationally effective, motivating and efficacious are reviewed to create general guidelines for the generation of activities. Pedagogical strategies and curriculum structure are not determined fully by this line of reasoning, or course, intituion, and the art of teaching play roles. A science only lays down lines within which the rules of the art must fall, laws which the follower of the art must not transgress.

- ***Structuring Research on the basis of learning models:*** Performances are planned in accordance with field specific models of learning. This might involve two interrelated aspects.

1. First activities may be designed to be dependable with empirically-based models of children's thinking and learning in the targeted subject-matter domain, which can considerably affect curriculum design by focusing it on teaching and learning. As an example, based on research that indicates that young children has the capability of their own solutions to simple arithmetic problems and yield from doing so more than from being taught authoritarian procedures, such curricula have been crafted that present problems in the forms of activities and games and ask children to shape out how to solve the problems and explain their solution strategies, often with the help of scaffolding techniques to direct their inventions.
2. Second sets of activities may be sequenced according to learning trajectories through the concepts and skills. This strategy helps learning to be more effective and efficient and can help avoid the breakups that are common in textbooks, in which the numbers of short strands are up to ten times the possible number of topics.

The complete learning course includes an explication of the mental constructions and patterns of thinking that constitute children's thinking at each level, how they are integrated in each succeeding level, and task allied to each level. Such clarification allows the researcher to test the theory by testing the curriculum, usually with teaching and design experiments.

Market Research

Market research is consumer-oriented research related to the needs and requirements of the customer. It is perhaps the most widespread type of research in commercial curriculum development. On considering market research as usually conducted, this as a rule involves a close look at state standards, guidelines, and curricula, and standardised tests. Apublisher usually creates sample material that is then distributed to pre-decided focus groups in a particular geographical location. To keep the identity of the publisher hidden, these focus groups are conducted by a separate facility. A general questionnaire is used by the facility officials. This questionnaire centres on the curriculum. With the help of interviews, a large number of teachers and administrators are also surveyed. These interviews help to provide general information about desired topics, assessment and various other features related to the curriculum. These strategies along with sales force meetings of the company help participants to describe what customers are requesting for.

In India, research which does not include the concerns of publishers, teachers and marketability will not achieve wide adoption. Developers need to form early and sustained relations with publishers to conduct scientific market research so that the needs of research and marketability can be met. This would include inquiry that is completely aware of the students' experiences, is conducted in public view and is consciously documented. This would connect the scientific curriculum research with the different types of information that publishers are more familiar with, thus reducing the gap between developers and publishers, which is a common occurrence for innovative materials.

Formative Research

Pilot testing with individuals or small groups of students is conducted on workings or on parts of the curriculum. Early interpretive work evaluates components using a blend of model (or hypothesis) testing and model generation strategies, including design experiments, as well as grounded theory, microgenetic, microethnographic, and phenomenological approaches.

The goal is to comprehend the sense that students give to the curriculum objects and tasks. Evaluating sections of the curriculum focuses on consonance between the actions of the students and the learning model or trajectory. If there are differences found, either the model, or the way in which this model is instantiated in the curriculum should be transformed.

Using the cognitive model and learning trajectories as guides, and the task as catalysts, the developer creates more sophisticated models of the thinking of particular groups of students at the same time, the developer describes what basics of the teaching and learning environment, such as specific scaffolding strategies are observed as model may involve is symmetry, modelling, communal processes, training, and combinations of these and many other processes.

The main aim is to join these processes with explicit ecological description and teaching strategies and student learning, and thus describes knowledge and abilities that are expected of the teacher. As in all phases, fairness must be considered.

As there are research and development processes happening, and with so many possibilities, widespread documentation of it is necessarily required. Documentation allows researchers to communicate finding to particular mechanism and character of the curriculum. Field notes, and often audiotapes and videotapes, are attached together. Computers can also be used as a medium to store data documenting students' ongoing activity. Solution-path recording is chiefly a useful modus operandi. Solution paths can be re-executed and examined by the teacher, student, or researcher; and even there is a chance of their modification.

Single classroom

Teachers are ideally supposed to be involved in all phases (in many projects, teachers are a central component of the research-and-development team). A special weightage here is the process of curricular performance. For example, a goal of the curriculum may be to help teachers interpret student's thinking about the task and the content they are intended to teach; help the teachers 'learning of that content, particularly any topics that are new to teachers; and provide guidance regarding the external representations of content that the materials use.

Thus there are two research thrusts.

- First, classroom-based teaching experiments are used to track and evaluate student learning, with the goal of making sense of the curricular activities as they are experienced by individual students. Extensive field notes and often videotapes are required so that students' performances can be examined repeatedly for evidence of their inter presentations and learning, for reasons similar to that of the previous phase.

- Second and simultaneously, the entire class is observed for information concerning the usability and effectiveness of the curricula, as well as for its character. Ethnographic participant observation is used heavily to examine the teacher and students as they construct new types of classroom cultures and interactions together. This is critical, because events and properties emerge in such interactions that cannot be predicted or understood solely in terms of analyses of their components, but must be understood as a complex system. Thus, the focus is on how the materials are used, how the teacher guides students through the activities, what characteristics emerge in various instantiations of the curriculum. And, generally, how these processes are connected to both intended and unintended student outcomes. This phase may involve teachers working closely with the developers.

Multiple classrooms

Several classrooms are observed for information about the effectiveness and usability of the curriculum, with an emphasis on the usability and decision-making by such teachers and the conditions under which the curriculum is more or less effective, and how it might be altered or complemented to better serve the latter conditions. Innovative materials often provide less support for teachers than the traditional materials with which they are familiar, so such ecological research is especially important for reform curricula.

Summative Research

Small Scale

In this stage, researchers assess what can really be achieved with archetypal teachers under realistic circumstances. Again in multiple classrooms, pre- and post-test

randomised experimental designs using measures of learning are used. The main issues in this phase are:

- First, standardised instruments must have been chosen or developed as valid measures of the curriculum goals.
- Second, the plan requires that the intervention is fully and explicitly described and able to be implemented with fidelity.
- Third, in a similar stratum, the curriculum used in the comparison classrooms also should be fully and openly described, and preferably selected on a righteous basis.
- Fourth, the quantity and quality of instruction must be measured in all participating classrooms (e.g. via classroom observation instrument that measures components such as the classroom culture, including the environment and the personal attributes of the teacher, and specific lessons, including focus, organisation and teaching approaches, teaching and learning interactions, assessment and instructional adjustment.
- Sixth and finally, if quasi-experiment designs only are possible, careful consideration of bias must be conducted to ensure comparability. Experiments are conducted in conjunction with, and to implement methodologies previously described.

Surveys of teacher participants also may be used to compare data collected before and after they have used the curriculum, as well as to collect such data teacher's background, professional development, and resources. The combined interpretive and survey data also address whether supports are viewed as helpful by teachers and other caretaker sand whether their teaching practices have been influenced.

A theoretical framework is essential; comparison of scores outside of such a framework, permitted in traditional curriculum evaluation, is inadequate. A related point is that the comparison curriculum must be selected deliberately, to focus on specific research issues. Further, connecting the curriculum objects and activities and the processes of curricular enactment, including all components of the implementation, to the outcomes is important for theoretical, development, and practical reasons. Also connected to outcomes are variables from the broader data collected. Similar connections should be made across experimental and comparison classrooms. Without such connections, there is an inadequate basis for contributing to theories of learning and teaching in complex settings, guiding future curriculum development, and implementing the curriculum in various contexts. Finally, statistical analyses performed on the appropriate units of analysis, often the classroom or school, should allow making those connections and provide estimates.

Large Scale

Commonly known is the 'deep, systemic incapacity of schools, and the practitioners who work in them, to develop, incorporate, and extend new ideas about teaching and learning in anything but a small fraction of schools and classrooms.' Thus with any curriculum, but especially one that differs from tradition, evaluations must be conducted on a large scale. Such research should use a broad set of instruments to assess the impact of the implementation on participating children, teachers, program administrators, and the parents as, well as document

the fidelity of the implementation and effects of the curriculum across diverse contexts.

A related goal is to measure and analyse the critical variables, including contextual variables e.g., setting such as urban/suburban/rural; type of program; class size; teacher characteristics; student/family characteristics) and implementation variables (e.g., engagement in professional development opportunities; fidelity of implementation; leadership, such as principal leadership, as well as support and availability of resources, funds and time; peer relations at the school; 'convergent perspectives' of the developers, school administrators; and teachers in a cohort; and incentives used.

Two criteria need to be fulfilled for a summative evaluation to be complete, which are as follows:

- Curriculum needs to be evaluated at different sites for a time period that may extend more than two years. During evaluation, the complete documentation of the contextual and implementation variables including practical requirements, procedures and costs should be done.
- Researchers, who are not related to developers of the curriculum, need to confirm evaluations giving specific attention to adoption and diffusion issues of the curriculum.

The large expense and effort involved in meeting these criteria is another reason that previous evaluation phases should be employed first; only effective curricula should be scaled up. A final approach is non-scientific and often contrived, but may be frequent in practice, and thus is mentioned for completeness. It is not a component of the Curriculum Research Framework.

Once the curriculum has been created, the results which are consistent with the curriculum are consequently stated. Thus, such justifications would include accurate descriptions of different phases or foundations that were consistently used in curriculum creation, however were never documented. Therefore, these justifications can be defined as the documentation of descriptions that were previously not recorded. In order to complete a proper research process, all phases of the curriculum need to be recorded and shared with the concerned people.

Source: http://gse.buffalo.edu/org/buildmgblocks/writings/Curriculum_Research.pdf

4.4 CONSTRUCTIVIST APPROACH

Constructivism - A learning theory

According to the Constructive approach 'Learning is an active process and Knowledge is constructed from (and shaped by) experience, It states further that learning is a personal interpretation of the world. In simple words it can said that fundamentally, constructivism implies that people constnict their own understanding and knowledge of the world through experiencing things and reflecting on those experiences.

Constructivism is a process in which the instructor/teacher has to:

- Customise curriculum to address students' suppositions
- Help negotiate goals and objectives with learners
- Pose problems of emerging relevance to students
- Emphasize handson, realworld experiences

- Seek and value students' points of view
- Social context of content should be taken into consideration

Constructivism is a process in which the student is:

- Member of community of learners
- Collaborate among fellow students
- Learn in a social experience i.e. appreciate different perspectives
- Take ownership and voice in learning process

Curriculum developers approach towards their task of developing curriculum comes from an adult perspective. They use adult logic to set objectives, identify skills, define task, and measure success. To be effectual, teaching must be guided by the logic of children at diverse stages of development. Adults must value and seek to be aware of the child's point of view, which reflects his/her cognitive structures at a given point of time.

Piaget has been the major figure in promulgating the constructivist perspective. Nevertheless, Piaget viewed constructivism not as a theory of learning, but as a theory of development. He stated that human beings develop through predictable and convectional stages, each of which is typified by the emergence of new cognitive structures that increase the complexity of our thinking. He concluded that learning cannot account for development, but vice-versa i.e. development accounts for learning. 'Teaching children those concepts that they have not attained in their unplanned development is completely hopeless.'

Constructivism can be defined as a psychologically based notion of development we come to know our world by interacting with it and using our operative cognitive structure to 'explain' what we have perceived. Constructivism is also a model of learning since construction of knowledge is often accompanied by the emergence of new cognitive structures. Eventually our second graders will recognize that the pie is the whole and each slice cannot also be the whole, at this point they will have gained a different, more complex, understanding of part/whole relationships.

4.4.1 Curriculum from a Constructivist Perspective

In the process of budding curriculum, teachers are trained how to weigh up the cognitive abilities of their students and the cognitive demands of the concepts they teach, and how to create an enhanced, or more developmentally appropriate, match between the student and the curriculum.

There exists a fine, increasingly indistinguishable line between curriculum development and curriculum implementation or instruction. Many State Education Departments have developed syllabuses for almost all curriculum areas, mandating or guiding what is to be taught and giving permission only for local discretion in how to teach it.

The Role of the Teacher

Curriculum development and delivery from a constructivist perspective is a highly compound, idiosyncratic attempt or unlike competency based teaching models, in which teacher reflection is often secondary to written curriculum, the success of constructivist approaches to curriculum development and delivery is contingent on the thoughtful mediation of the teacher. Although written curriculums are valued as general guides denoting what students should learn, the cognitive abilities of students often for teachers to shift direction. This requires teachers to think on their feet and reflect on their practice. Competency based models view teachers largely as implementers of

curriculum developed elsewhere in the local, state, or national hierarchy. Constructivist models view teachers as developers and deliverers of curriculum. If students are not constructing knowledge as anticipated by the teacher, the teacher must quickly analyse the reasons and alter the curriculum or develop a new curriculum.

This is not a revolutionary notion Good teachers have always been able to read the class, shift gears, and adapt. Constructivism gives teachers another lens through which to read the class, an important one that has been largely ignored in our endless search for sample answers to complex problems. Models that attempt to be teacher proof miss an essential point that we are all constructors, students and teacher alike. Effective teachers are constantly constructing knowledge about the abilities of their students. They resist being tied to fixed, static curriculum sequences and seek opportunities to develop curriculum consistent with their expanding knowledge of students.

Constructivism, however, explains best how human beings come to know their world. Constructivist approaches to curriculum development and delivery value and encourage student and teacher thinking, the very sort of thinking we claim to want of our students but stifle with the managerial busy work of competency based curriculum models.

CHECK YOUR PROGRESS

5. Define content analysis.
6. What is the objective of scientific research?
7. What are the two goals of curriculum development?
8. Fill in the blanks.
   (a) The first step of curriculum development research is

   (b) _____is consumer-oriented research related to the needs and

   requirements of the customer.

   (c) Classroom-based teaching experiments are used to ___ and

   _____ student learning

4.5 SUMMARY

- Educationist have broadly defined as appliance of those systematic methods and techniques that aid the researchers and others who practice it in understanding and improving teaching and learning procedure.
- Inductive reasoning is generally referred as a 'bottom-up' approach of knowing. In this type of approach, researchers use individual observation to build an abstraction or to portray a picture of the happening that is under study.
- Inductive reasoning generally leads to inductive methods of data compilation where the researcher performs the following functions:
  - Systematically observes the phenomena under investigation
  - Searches for patterns or themes in the observations
  - Develops a generalization from the analysis of the themes
- In comparison to inductive reasoning, deductive reason uses a top-down

approach to knowing.

- Deductive reasoning can systematize what is already known and can identify new relationships as one proceeds from known to unknown, but it cannot be relied upon as a. self-sufficient method for securing reliable knowledge.
- The two approaches to knowing i.e. inductive and hypothetic-deductive signify two general means to acquire knowledge that is used in curriculum research. Inductive reasoning is most intimately connected with the approaches to research that are qualitative in nature.
- The hypothetic-deductive method has its close connection with the quantitative approaches, which sum up data by means of numbers. Hypotheses and methods of data collection in quantitative research are created before the research begins.

- Scientific realism is an expression referred to the frame used by the majority of researchers who take up wholly quantitative approach to research. This type of research is characterized by a craving to answer research questions by producing numerical data that represent various constructs and variables.
- Scientific realists consider knowledge as hypothetical and believe that it is therefore subjective to feasible amendment. Testing of all hypotheses is done using statistical tests that sets up the point of confidence that one can have in the results that are obtained.
- Social Constructivists challenges the scientific realist assumption that reality can be reduced to its component parts.
- An effective research literature review is not just a synopsis of research studies and their findings rather it represents a embodiment of the indispensable issues inter-relationship associated with the knowledge, arguments and themes that have already been explored in that area.
- After the precise research question has been posed, a judgment must be taken on which research design must be adopted like whether to adopt experimental or survey method.

  Typical weaknesses that are found in questionnaires include:

  o Ambiguities in the construction of questions

  o Unnecessary complexity in the language that has been used

  o Unsuitable response categories for some questions

  o Redundant questions

- After the data has been entered, cleaned, and amalgamated, the step which often requires the students, teacher, and school files of a particular school to be attached into one record after which the next step can begin i.e. data analysis can begin.
- Content analysis or textual analysis is a method adopted in the social sciences for studying the content of communication.
- Thus content analysis is a summarizing, quantitative analysis of messages that relies on the scientific method (counting as well as the attention to objectivity, inter-subjectivity, priori design, reliability, validity, generalisability, replicability, and hypothesis testing) and is not limited to the types of variables that may be measured or the context in which the messages are created or presented.
- The self-regulating norms of a scientific community over time are the means of achieving scientific advances. The goal cannot be to develop a single ideal curriculum but rather dynamic problem solving, progress, and advancement beyond

present limits of competence.

- Market research is consumer-oriented research related to the needs and requirements of the customer. It is perhaps the most widespread type of research in commercial curriculum development.
    - To meet the needs of research and marketability, developers could form early and sustained relationships with publishers to use finding from or conduct, scientific market research; that is inquiry that is fully grounded in the disciples, is in the public view, and is consciously documented or fully reported.
- Using the cognitive model and learning trajectories as guides, and the task as catalysts, the developer creates more sophisticated models of the thinking of particular groups of students at the same time, the developer describes what basics of the teaching and learning environment, such as specific scaffolding strategies are observed as model may involve is symmetry, modelling, communal processes, training, and combinations of these and many other processes.
- Several classrooms are observed for information about the effectiveness and usability of the curriculum, with an emphasis on the usability and decisionmaking by such teachers and the conditions under which the curriculum is more or less effective, and how it might be altered or complemented to better serve the latter conditions.
- A related goal is to measure and analyse the critical variables, including contextual variables e.g., setting such as urban/suburban/rural; type of program; class size; teacher characteristics; student/family characteristics) and implementation variables (e.g., engagement in professional development opportunities; fidelity of implementation; leadership, such as principal leadership, as well as support and availability of resources, funds and time; peer relations at the school; 'convergent perspectives' of the developers, school administrators; and teachers in a cohort; and incentives used.
- According to the Constructive approach 'Learning is an active process and Knowledge is constructed from (and shaped by) experience, It states further that learning is a personal interpretation of the world. In simple words it can said that fundamentally, constructivism implies that people construct their own understanding and knowledge of the world through experiencing things and reflecting on those experiences.
- Constructivism is a process in which the student is: Member of

  community of learners Collaborate among fellow students

  Learn in a social experience i.e. appreciate different perspectives Take

  ownership and voice in learning process

- Constructivism can be defined as a psychologically based notion of development we come to know our world by interacting with it and using our operative cognitive structure to 'explain' what we have perceived.
- Constructivism is also a model of learning since construction of knowledge is often accompanied by the emergence of new cognitive structures.

KEY TERMS

- **Constructivism:** *As* a perspective in education, explains how knowledge is constructed in the human being.
    - **Syllogistic:** A form of deductive *reasoning* consisting of a major premise, a minor premise, and a conclusion.

- **Inductive reasoning:** Reasoning from experience, sense perceptions, and observations to form a conclusion.
- Trajectories: An object moving under the action of given forces.
- **Deductive Reasoning:** Is the process of reasoning from one or more general statements.
- **Qualitative research:** A method of inquiry employed in many different academic disciplines, traditionally in the social sciences, but also in market research.
- **Scientific realism:** The most general level, the view that the world described by science is the real world.

4.7 ANSWERS TO 'CHECK YOUR PROGRESS'

1. Inductive reasoning is generally referred as a 'bottom-up' approach of knowing. In this type of approach, researchers use individual observation to build an abstraction or to portray a picture of the happening that is under study
2. The syllogistic reasoning consists of:

    - A major premise based on a self-evident truth or previously established fact or relationship.
    - A minor premise concerning a particular case to which the truth, facto, or relationship invariably applies.
    - A conclusion if the major and minor premises can be shown to be true, the conclusion arrived at is necessarily true.

3. Scientific realism is an expression referred to the frame used by the majority of researchers who take up wholly quantitative approach to research.
4. Fill in the blanks.
    (d) Causal research
    (e) General and Specific Research Questions
    (f) data collection

5. Content analysis or textual analysis is a method adopted in the social sciences for studying the content of communication.
6. The objective of scientific research is to create new kind of knowledge whereas the aim of curriculum development is the creation of instructional resources.
7. Curriculum development can be referred to be as a design science having two goals. First the goal of building a learning process and second the budding local theories.
8. Fill in the blanks.

    (a) Identifying the subject matter
    (b) Market research

(c) track and evaluate

4.8 QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write a short note on inductive reasoning and deductive reasoning.
2. What happens in case study research?
3. What is pilot-testing?
4. Name the four modes that help in data analysis.
5. State the different phases of Curricular Research Framework.
6. How is market research helpful?

Long-Answer Questions

1. Write a short note on different types of research.
2. What are the ten steps of Content Analysis?
3. Discuss die different approaches used in curriculum research.
4. Discuss the different phases of curriculum development research.
5. Describe the different steps in hypothetic-deductive method of research.
6. Discuss in detail the two modes of research in education

4.9 FURTHER READING

Ornstein,Allan C, Francis R Hunkins. (2004). *Curriculum—Foundations, Principles, and Issues.* Boston, United States: Allyn and Bacon.

Taba, Hilda. (1962). *Curriculum Development: Theory and Practice.* San Diego, California: Harcourt, Brace & World.

Bhatt, B. D., Sita Ram Sharma. (1992). *Principles of Curriculum Construction* New Delhi: Kanishka Publishing House.

Bobbitt, John Franklin. (2013). *The Curriculum.* Memphis, Tennessee: General Books LLC.

Bobbitt, John Franklin. (1924). *How to Make a Curriculum.* Boston, Massachusetts: Houghton Mifflin Company.

Chauhan, S. S. (2009). *Innovations in Teaching Learning Process, IE.* New Delhi: Vikas Publishing House Pvt. Ltd.

Dewey, John. (2010). *The Child and the Curriculum: Including the School and Society.* New York, United States: Cosimo, Inc.

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