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ASSIGNMENT No.2

Q.1 What is meant by curriculum design? What are the desirable criteria and also identify the problems faced by the curriculum designer in the process?

Curriculum design is a term used to describe the purposeful, deliberate, and systematic organization of curriculum (instructional blocks) within a class or course. In other words, it is a way for teachers to plan instruction. When teachers design curriculum, they identify what will be done, who will do it, and what schedule to follow.

Purpose of Curriculum Design

Teachers design each curriculum with a specific educational purpose in mind. The ultimate goal is to improve student learning, but there are other reasons to employ curriculum design as well. For example, designing a curriculum for middle school students with both elementary and high school curricula in mind helps to make sure that learning goals are aligned and complement each other from one stage to the next. If a middle school curriculum is designed without taking prior knowledge from elementary school or future learning in high school into account it can create real problems for the students.

Types of Curriculum Design

There are three basic types of curriculum design:

- Subject-centered design
- Learner-centered design
- Problem-centered design

Subject-Centered Curriculum Design

Subject-centered curriculum design revolves around a particular subject matter or discipline. For example, a subject-centered curriculum may focus on math or biology. This type of curriculum design tends to focus on the subject rather than the individual. It is the most common type of curriculum used in K-12 public schools in states and local districts in the United States.

Subject-centered curriculum design describes what needs to be studied and how it should be studied. Core curriculum is an example of a subject-centered design that can be standardized across schools, states, and the country as a whole. In standardized core curricula, teachers are provided a pre-determined list of things that they need to teach their students, along with specific examples of how these things should be taught. You can also find subject-centered designs in large college classes in which teachers focus on a particular subject or discipline.

The primary drawback of subject-centered curriculum design is that it is not student-centered. In particular, this form of curriculum design is constructed without taking into account the specific learning styles of the students. This can cause problems with student engagement and motivation and may even cause students to fall behind in class.

Learner-Centered Curriculum Design

In contrast, learner-centered curriculum design takes each individual's needs, interests, and goals into consideration. In other words, it acknowledges that students are not uniform and adjust to those student needs. Learner-centered curriculum design is meant to empower learners and allow them to shape their education through choices.

Instructional plans in a learner-centered curriculum are differentiated, giving students the opportunity to choose assignments, learning experiences or activities. This can motivate students and help them stay engaged in the material that they are learning.

The drawback to this form of curriculum design is that it is labor-intensive. Developing differentiated instruction puts pressure on the teacher to create instruction and/or find materials that are conducive to each student's learning needs. Teachers may not have the time or may lack the experience or skills to create such a plan. Learner-centered curriculum design also requires that teachers balance student wants and interests with student needs and required outcomes, which is not an easy balance to obtain.

Problem-Centered Curriculum Design

Like learner-centered curriculum design, problem-centered curriculum design is also a form of student-centered design. Problem-centered curricula focus on teaching students how to look at a problem and come up with a solution to the problem. Students are thus exposed to real-life issues, which helps them develop skills that are transferable to the real world.

Problem-centered curriculum design increases the relevance of the curriculum and allows students to be creative and innovate as they are learning. The drawback to this form of curriculum design is that it does not always take learning styles into consideration.

Curriculum Design Tips

The following curriculum design tips can help educators manage each stage of the curriculum design process.

- **Identify the needs of stakeholders** (i.e., students) early on in the curriculum design process. This can be done through needs analysis, which involves the collection and analysis of data related to the learner. This data might include what learners already know and what they need to know to be proficient in a particular area or skill. It may also include information about learner perceptions, strengths, and weaknesses.
- **Create a clear list of learning goals and outcomes.** This will help you to focus on the intended purpose of the curriculum and allow you to plan instruction that can achieve the desired results. Learning goals are the things teachers want students to achieve in the course. Learning outcomes are the measurable knowledge, skills, and attitudes that students should have achieved in the course.
- **Identify constraints** that will impact your curriculum design. For example, time is a common constraint that must be considered. There are only so many hours, days, weeks or months in the term. If there isn't enough time to deliver all of the instruction that has been planned, it will impact learning outcomes.

- **Consider creating a curriculum map** (also known as a curriculum matrix) so that you can properly evaluate the sequence and coherence of instruction. Curriculum mapping provides visual diagrams or indexes of a curriculum. Analyzing a visual representation of the curriculum is a good way to quickly and easily identify potential gaps, redundancies or alignment issues in the sequencing of instruction. Curriculum maps can be created on paper or with software programs or online services designed specifically for this purpose.
- **Identify the instructional methods** that will be used throughout the course and consider how they will work with student learning styles. If the instructional methods are not conducive to the curriculum, the instructional design or the curriculum design will need to be altered accordingly.
- **Establish evaluation methods** that will be used at the end and during the school year to assess learners, instructors, and the curriculum. Evaluation will help you determine if the curriculum design is working or if it is failing. Examples of things that should be evaluated include the strengths and weaknesses of the curriculum and achievement rates related to learning outcomes. The most effective evaluation is ongoing and summative.
- **Remember that curriculum design is not a one-step process**; continuous improvement is a necessity. The design of the curriculum should be assessed periodically and refined based on assessment data. This may involve making alterations to the design partway through the course to ensure that learning outcomes or a certain level of proficiency will be achieved at the end of the course.

Q.2 Why situational analysis is important, how is it carried out? Highlight the three domains of educational objectives.

- Curriculum objectives describe the goals toward which the education process is directed—the learning that is to result from instruction. When drawn up by an education authority or professional organization, objectives are usually called standards. Taxonomies are classification systems based on an organizational scheme. In this instance, a set of carefully defined terms, organized from simple to complex and from concrete to abstract, provide a framework of categories into which one may classify educational goals. Such schemes can: Provide a common language about educational goals that can bridge subject matter and grade levels
- Serve as a touchstone for specifying the meaning of broad educational goals for the classroom
- Help to determine the congruence of goals, classroom activities and assessments
- Provide a panorama of the range of possible educational goals against which the limited breadth and depth of any particular educational curriculum may be contrasted

The idea of creating a taxonomy of Curriculum objectives was conceived by Benjamin Bloom in the 1950s, the assistant director of the University of Chicago's Board of Examinations. Bloom sought to reduce the extensive labor of test development by exchanging test items among universities. He believed this could be facilitated by developing a carefully defined framework into which items measuring the same objective could be classified.

Examiners and testing specialists from across the country were assembled into a working group that met periodically over a number of years. The result was a framework with six major categories and many subcategories for the most common objectives of classroom instruction—those dealing with the cognitive domain. To facilitate test development, the framework provided extensive examples of test items (largely multiple choice) for each major category. Here is an overview of the categories that make up the framework:

- 1.0. Knowledge
 - 1.1. Knowledge of specifics
 - 1.1.1. Knowledge of terminology
 - 1.1.2. Knowledge of specific facts
 - 1.2. Knowledge of ways and means of dealing with specifics
 - 1.2.1. Knowledge of conventions
 - 1.2.2. Knowledge of trends and sequences
 - 1.2.3. Knowledge of classifications and categories
 - 1.2.4. Knowledge of criteria
 - 1.2.5. Knowledge of methodology
 - 1.3. Knowledge of universals and abstractions in a field
 - 1.3.1. Knowledge of principles and generalizations
 - 1.3.2. Knowledge of theories and structures
- 2.0. Comprehension
 - 2.1. Translation
 - 2.2. Interpretation
 - 2.3. Extrapolation
- 3.0. Application
- 4.0. Analysis
 - 4.1. Analysis of elements
 - 4.2. Analysis of relationships
 - 4.3. Analysis of organizational principles
- 5.0. Synthesis
 - 5.1. Production of a unique communication
 - 5.2. Production of a plan, or proposed set of operations
 - 5.3. Derivation of a set of abstract relations
- 6.0. Evaluation
 - 6.1. Evaluation in terms of internal evidence
 - 6.2. Judgments in terms of external criteria

The categories were designed to range from simple to complex and from concrete to abstract. Further, it was assumed that the taxonomy represented a cumulative hierarchy, so that mastery of each simpler category was prerequisite to mastery of the next, more complex one. A meta-analysis of the scanty empirical evidence available, which is described in the Lorin Anderson and David Krathwohl taxonomy revision noted below, supports this assumption for Comprehension through Analysis. The data were ambiguous, however, with respect to the location of Knowledge in the hierarchy and for the order of Evaluation and Synthesis.

The taxonomy has been used for the analysis of a course's objectives, an entire curriculum, or a test in order to determine the relative emphasis on each major category. The unceasing growth of knowledge exerts constant pressure on educators to pack more and more into each course. Thus, these analyses repeatedly show a marked overemphasis on Knowledge objectives. Because memory for most knowledge is short, in contrast to learning in the other categories, such findings raise important questions about learning priorities.

Along these same lines is the taxonomy's use to assure that objectives, instructional activities, and assessment are congruent (aligned) with one another. Even when instruction emphasizes objectives in the more complex categories, the difficulty of constructing test items to measure such achievement often results in tests that emphasize knowledge measurement instead. Alignment analyses highlight this inconsistency.

The taxonomy has also commonly been used in developing a test's blueprint, providing the detail for guiding item development to assure adequate, and appropriate curriculum coverage. Some standardized tests show how their test items are distributed across taxonomy categories.

The Affective Domain

In addition to devising the cognitive taxonomy, the Bloom group later grappled with a taxonomy of the affective domain—objectives concerned with interests, attitudes, adjustment, appreciation, and values. This taxonomy consisted of five categories arranged in order of increased internalization. Like the cognitive taxonomy, it assumed that learning at the lower category was prerequisite to the attainment of the next higher one. Here is an overview of the categories:

- 1.0. Receiving (Attending)
 - 1.1. Awareness
 - 1.2. Willingness to receive
 - 1.3. Controlled or selected attention
- 2.0. Responding
 - 2.1. Acquiescence in responding
 - 2.2. Willingness to respond
 - 2.3. Satisfaction in response
- 3.0. Valuing
 - 3.1. Acceptance of a value
 - 3.2. Preference for a value

- 3.3. Commitment
- 4.0. Organization
- 4.1. Conceptualization of a value
- 4.2. Organization of a value system
- 5.0. Characterization by a value or value complex
- 5.1. Generalized set
- 5.2. Characterization

In addition, Elizabeth Simpson, Ravindrakumar Dave, and Anita Harrow developed taxonomies of the psychomotor domain.

Revision of the Taxonomy

A forty-year retrospective of the impact of the Cognitive Taxonomy by Lorin Anderson and Lauren Sosniak in 1994 (dating back to its preliminary edition in 1954) resulted in renewed consideration of a revision, prior efforts having failed to come to fruition. In 1995, Anderson and Krathwohl co-chaired a group to explore this possibility, and the group agreed on guidelines for attempting a revision. Like the original group, they met twice yearly, and in 2001 they produced A Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's Taxonomy of Curriculum objectives, hereinafter referred to as the revision. Whereas the original was unidimensional, the revision had two dimensions, based on the two parts of objectives: (1) nouns describing the content (knowledge) to be learned, and (2) verbs describing what students will learn to do with that content; that is, the processes they use in producing or working with knowledge.

The Knowledge dimension. The Knowledge category of the original cognitive taxonomy included both a content aspect and the action aspect of remembering. These were separated in the revision, so that the content aspect (the nouns) became its own dimension with four categories:

- A. Factual Knowledge (the basic elements students must know to be acquainted with a discipline or solve problems in it)
 - a. Knowledge of terminology
 - b. Knowledge of specific details and elements
- B. Conceptual Knowledge (the interrelationships among the basic elements within a larger structure that enable them to function together)
 - a. Knowledge of classifications and categories
 - b. Knowledge of principles and generalizations
 - c. Knowledge of theories, models, and structures
- C. Procedural Knowledge (how to do something, including methods of inquiry and criteria for using skills, algorithms, techniques, and methods)
 - a. Knowledge of subject-specific skills and algorithms
 - b. Knowledge of subject-specific techniques and methods

- c. Knowledge of criteria for determining when to use appropriate procedures
- D. Metacognitive Knowledge (knowledge of cognition in general, as well as awareness and knowledge of one's own cognition)
- a. Strategic knowledge
- b. Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge
- c. Self-knowledge

The Process dimension. In the revision, the concepts of the six original categories were retained but changed to verbs for the second (process) dimension. The action aspect of Knowledge was retitled as Remember. Comprehension became Understand. Synthesis, replaced by Create, became the top category. Subcategories, all new, consisted of verbs in gerund form. In overview, the dimension's categories are:

- 1.0. Remember (retrieving relevant knowledge from long-term memory)
- 1.1. Recognizing
- 1.2. Recalling
- 2.0. Understand (determining the meaning of instructional messages, including oral, written, and graphic communication)
- 2.1. Interpreting
- 2.2. Exemplifying
- 2.3. Classifying
- 2.4. Summarizing
- 2.5. Inferring
- 2.6. Comparing
- 2.7. Explaining
- 3.0. Apply (carrying out or using a procedure in a given situation)
- 3.1. Executing
- 3.2. Implementing
- 4.0. Analyze (breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose)
- 4.1. Differentiating
- 4.2. Organizing
- 4.3. Attributing
- 5.0. Evaluate (making judgments based on criteria and standards)
- 5.1. Checking
- 5.2. Critiquing
- 6.0. Create (putting elements together to form a novel, coherent whole or make an original product)
- 6.1. Generating

- 6.2. Planning
- 6.3. Producing

FIGURE 1

The Taxonomy Table

With these two dimensions one can construct a taxonomy table in which one can locate the junction of the classifications of an objective's verb and noun. Consider the objective: "The student should be able to recognize the facts and/or assumptions that are essential to an argument." The opening phrase, "The student should be able to," is common to objectives—it is the unique part of the objective that we classify. The verb is "recognize" and the noun is really a noun clause: "the facts and assumptions that are essential to an argument."

First, it is determined what is meant by "recognize." Initially, the term appears to belong to the category Remember because recognizing is Remember's first subcategory. But recognizing, the subcategory, refers to something learned before, which is not its meaning here. Here, it means that, on analyzing the logic of the argument, the student teases out the facts and assumptions on which the argument depends. The correct classification is Analyze.

The noun clause, "the facts or assumptions that are essential to an argument," appears to include two kinds of knowledge. "The facts" is clearly Factual Knowledge, and "the assumptions"—as in assuming an argument's facts are true—may also be Factual Knowledge. But assuming a principle or concept as part of an argument (e.g. evolution) would be classified as Conceptual Knowledge. So this objective would fall into two cells of the taxonomy table—the junction of Analyze with Factual Knowledge and with Conceptual Knowledge, as shown by the X's in Figure 1.

Just as objectives can be classified in a table, so can classroom activities used to attain them. Likewise, one can construct a table for assessment tasks and test items. If goals, activities, and assessments are aligned, the X's should fall in identical cells in all three tables. To the extent that they do not, the goals may be only partially attained and/or measured, and steps can be taken to restore alignment.

Comments inserted into classroom vignettes in the revision explain the classification of objectives, activities, and assessments as they lead to three completed taxonomy tables. The three tables are then compared to show the alignment, or lack of it, in each vignette. The six vignettes include different subject matters in elementary and secondary education.

Alternative Classification Frameworks

Since the publication of the original framework, numerous alternatives have appeared—intended to supplement, improve upon, or replace it. Chapter 15 of the revision analyzes nineteen such frameworks in relation to the original and revised Taxonomies. Eleven are unidimensional, while eight include two or more dimensions. Some use entirely new terms, and a few include the affective domain.

For example, in 1981 Robert Stahl and Gary Murphy provided these new headings: Preparation, Observation, Reception, Transformation, Information Acquisition, Retention, Transfession, Incorporation, Organization, and

Generation. The Organization heading bridges to the affective domain. David Merrill, in 1994, devised a framework similar to the revised taxonomy, using two dimensions, each with four categories, to form a Performance-Content matrix with a student performance dimension (Remember-Instance, Remember-Generality, Use, and Find) and a subject matter dimension (Fact, Concept, Procedure, and Principle). The 1977 framework of Larry Hannah and John Michaelis is even more similar. Alfred DeBlock (1972) and others have developed frameworks with more than two dimensions, while Dean Hauenstein's 1998 framework provided taxonomies for all three domains. Marzano's taxonomy (2001) proposes a combination of three kinds of knowledge—Information (often called declarative knowledge), Mental Procedures (procedural knowledge), and Psychomotor Procedures. Marzano also develops a processing model of actions that successively flow through three hierarchically related systems of thinking: first the Self System, then the Metacognitive system, and finally the Cognitive system (which includes Retrieval, Comprehension, Analysis, and Knowledge Utilization).

Q.3 How would you select and organize content? What teaching strategies can be used for teaching the content?

1. Self-sufficiency

To help learners attain maximum self-sufficiency in the most economical manner is the main guiding principle of subject matter or content selection (Scheffler, 1970) as cited by Bilbao et al. (2008). Although the economy of learning implies less teaching effort and less use of educational resources, students gain more results. They can cope up with the learning outcomes effectively.

This criterion means that students should be given a chance to experiment, observe, and do field study. This system allows them to learn independently.

With this principle in mind, I suggest that for a high school curriculum or preparatory year, there should be a one-day independent learning activity each week. However, this should be carefully planned by the teacher. When the students return, they should present outputs from the activity.

2. Significance

The subject matter or content is significant if it is selected and organized for the development of learning activities, skills, processes, and attitude. It also develops the three domains of learning namely the cognitive, affective and psychomotor skills and considers the cultural aspects of the learners. Particularly, if your students come from different cultural backgrounds and races, the subject matter must be culture-sensitive.

In short, select content or subject matter that can achieve the overall aim of the curriculum.

3. Validity

Validity refers to the authenticity of the subject matter or content you selected. Make sure that the topics are not obsolete.

For example, do not include typewriting as a skill to be learned by college students. It should be about the computer or Information Technology (IT).

Thus, there is a need to check regularly the subject matter or contents of the curriculum, and replace it if necessary. Do not wait for another 5 years to change it.

Modern curriculum experts are after current trends, relevance and authenticity of the curriculum; otherwise, the school or the country becomes obsolete.

4. Interest

This criterion is true to the learner-centered curriculum. Students learn best if the subject matter is meaningful to them. It becomes meaningful if they are interested in it. However, if the curriculum is subject-centered, teachers have no choice but to finish the pacing schedule religiously and only teach what is in the book. This approach explains why many fail in the subject.

5. Utility

Another criterion is the usefulness of the content or subject matter. Students think that a subject matter or some subjects are not important to them. They view it useless. As a result, they do not study.

Here are the questions that students often ask: Will I need the subject in my job? Will it give meaning to my life? Will it develop my potentials? Will it solve my problem? Will it be part of the test? Will I have a passing mark if I learn it?

Students only value the subject matter or content if it is useful to them.

6. Learnability

The subject matter or content must be within the schema of the learners. It should be within their experiences. Teachers should apply theories in the psychology of learning to know how subjects are presented, sequenced, and organized to maximize the learning capacity of the students.

7. Feasibility

Feasibility means full implementation of the subject matter. It should consider the real situation of the school, the government, and the society, in general. Students must learn within the allowable time and the use of resources available. Do not give them a topic that is impossible to finish.

For example, you have only one week left to finish the unit but then, the activities may take a month for the students to complete. Thus, this requirement is not feasible.

Do not offer a computer subject if there is no even electricity in the area, or there are no computers at all.

Further, feasibility means that there should be teachers who are experts in that area. For example, do not offer English for Business Communication if there is no teacher to handle it.

Also, there is a need to consider the nature of the learners. The organization and design of the subject matter or content must be appropriate to the nature of students.

So, it would be better if students in a subject-centered curriculum (with pacing schedule that must be religiously implemented every week) shall be grouped homogeneously; otherwise, many will flunk in that subject.

In conclusion, teachers in elementary and high school are not directly involved in the selection of subject-matter because there are already lesson plans made by the Department of Education. All they have to do is to follow it. However, they can also customize the lessons if their department heads or principals allows them.

As regards macro curriculum, the Commission on Higher Education sets guidelines and policies on what subjects to offer as minimum requirements for the course. Then, the Curriculum Development Committee will take charge of the selection, organization and implementation of the curriculum with the approval of the Academic Council.

The Curriculum Development Committee headed by the Director of Curriculum Development sees to it that the selection of the subject-matter and the subjects for a curricular program be examined and scrutinized using the 7 criteria mentioned above.

But, this is not the end of the process yet! The selection of the subject matter or content of the micro and macro curriculum is only one of the considerations in designing the curriculum.

Q.4 Design strategies for the evaluation of specific educational Programmes and suggest means for their improvement

The technique of outcomes assessment as a means of measuring student learning and the use of that information to improve teaching are considered first. Additional strategies and methods for formative evaluation follow. The chapter concludes with a series of suggestions for improving summative evaluation of faculty. The committee emphasizes that the approaches described in this chapter are but a sampling of the techniques that appear in the research literature on improving the evaluation of teaching and student learning. They are

Assessment Is More Than Grades

To many, the word “assessment” simply means the process by which we assign students grades. Assessment is much more than this, however. Assessment is a mechanism for providing instructors with data for improving their teaching methods and for guiding and motivating students to be actively involved in their own learning. As such, assessment provides important feedback to both instructors and students.

Assessment Is Feedback for Both Instructors and Students

Assessment gives us essential information about what our students are learning and about the extent to which we are meeting our teaching goals. But the true power of assessment comes in also using it to give feedback to our students. Improving the quality of learning in our courses involves not just determining to what extent students have mastered course content at the end of the course; improving the quality of learning also involves determining to what extent students are mastering content throughout the course.

One approach to improving student learning is outcome assessment—the process of providing credible evidence that an instructor’s objectives have been obtained. Outcome assessment enables faculty to determine what students know and can do as a result of instruction in a course module, an entire course, or a sequence of courses. This information can be used to indicate to students how successfully they have mastered the course

content they are expected to assimilate. It can also be used to provide faculty and academic departments with guidance for improving instruction, course content, and curricular structure. Moreover, faculty and institutions can use secondary analysis of individual outcome assessments to demonstrate to prospective students, parents, college administrators, employers, accreditation bodies, and legislators that a program of study produces competent graduates (Banta, 2000).

Outcome Assessment Activities

Faculty members, both individually and as colleagues examining their department's education programs, have found the following activities helpful when undertaking outcome assessment:

- Developing expected student learning outcomes for an individual course of study, including laboratory skills.
- Determining the point in a student's education (e.g., courses, laboratories, and internships) at which he/she should develop the specified knowledge and skills.
- Incorporating the specified learning outcomes in statements of objectives for the appropriate courses and experiences.
- Selecting or developing appropriate assessment strategies to test student learning of the specified knowledge and skills.
- Using the results from assessment to provide formative feedback to individual students and to improve curriculum and instruction.
- Adjusting expected learning outcomes if appropriate and assessing learning again. Such a process can lead to continual improvement of curriculum and instruction.

Student responses in each of the following formats can first be studied for the information they provide about individual student learning and performance, and then compared across students and classes for clues about the strengths and weaknesses of curriculum and instruction:

- Classroom quizzes and exams
- Projects
- Poster presentations of library or laboratory research
- Cooperative experiences
- Portfolios (collections of work)
- Standardized tests both within and across disciplines
- Student journals
- Questionnaires
- Interviews
- Focus groups
- Increasingly, primary trait analysis (Lloyd-Jones, 1977) is being used as a scoring mechanism in outcome assessment (Walvoord and Anderson, 1998). Primary trait analysis is a technique whereby

faculty members consider an assignment or test and decide what traits or characteristics of student performance are most important in the exercise. They then develop a scoring rubric (Freedman, 1994) for these traits and use it to score each student's performance.

For example, Emert and Parish (1996) developed multiple-choice and short-answer tests for undergraduate students enrolled in courses in algebra, discrete mathematics, and statistics. Students were asked to submit supporting work to provide additional insight into their thought processes and the extent to which they had developed an understanding of mathematical concepts. Emert and Parish developed the following scoring rubric to assess performance on each item their students. It can be difficult and time-consuming for faculty to redesign course objectives to focus on student learning outcomes, to agree with colleagues on comprehensive learning outcomes for the entire curriculum, and to select or develop appropriate assessment tools. It can be equally or more difficult for faculty to adopt a routine of systematically collecting and studying assessment data and then making improvements based on that feedback. However, some examples of positive, multidimensional change have been documented from departments that have taken assessment seriously. These departments update curricula continuously. They develop new courses and phase out others as needs change. And they can document improvement in student learning (Wergin, 1995; Wergin and Swingen, 2000).

Other changes that have been prompted by outcome assessment include faculty employing more active learning strategies that enable students to practice the concepts they are learning in class. Alumni and employers are being asked to comment on curriculum and instruction even to serve as evaluators of teaching and learning. For example, at Virginia Polytechnic Institute and State University, the Department of Civil Engineering created an alumni advisory board and asked its members to debrief a group of juniors and seniors regarding the department's curriculum. The students discussed such issues as overcrowding due to space limitations. In response, the soil mechanics laboratory was expanded through privately sponsored renovation. In addition, students' concerns about opportunities to learn to use the latest software led to the development of a new computer laboratory. And a perceived need for improved communication skills encouraged faculty to develop new writing-intensive courses and introduce them into the civil engineering curriculum.

Q.5 What are the dynamics of curriculum change? Elaborate the process of curriculum change.

The teacher can plan the learning targets that make up the modules in the following four basic steps:

(1) Specifying Learning Targets in

A very important part of curriculum implementation is that the teacher should consider carefully the order in which learning targets should be learnt. It is logical to put learning targets requiring lower level skills before those requiring higher level skills, for example, teaching the children to draw lines before teaching them to write. In some cases, the targets themselves may form a definite sequence or hierarchy when the skills actually come in a continuous or chained sequence, for example, putting on a shirt and buttoning it up. Some higher level targets can be learnt more quickly after the pre-requisite skills have been mastered. For example, learning

to write will become easier when eye-hand co-ordination skill has been acquired. It follows that unrelated targets can be learnt in any order.

(3) Specifying

This is the specification of the procedures to identify the current skill level or the pre-requisite skills of the children. The assessment enables the teacher to know whether or not the children have acquired the pre-requisite skills required for learning the target.

(4) Procedures for Writing Programmes to Teach Target Skills

With the pre-requisite skills of the children known, the teacher can then design learning materials to help them achieve the target skills. The learning materials should be designed in small steps and in order of difficulty. The teacher should choose the appropriate step for the children according to their pre-requisite skills, so as to bridge the gap between their pre-requisite skills and the target skills.

To teach target skills effectively, the following teaching approaches are suggested :

Modelling

Children learn by imitating other people's behaviour. Modelling therefore underlies most of the learning activities. The teacher can either demonstrate the behaviour to be learnt or point out the target behaviour performed by other children and encourage the children to imitate it.

Task Analysis

Task analysis is a way to break down target skills into smaller steps according to the children's abilities and learning needs. The teacher can then teach the steps in a planned sequence. Task analysis should be used with flexibility to help the children with further difficulties in learning the planned steps. The technique can also be applied to a blocking step to further break down the planned steps into even smaller steps for easier learning.

Once the difficulty is overcome, the original teaching steps can be resumed until the target skill is achieved.

Chaining

This means breaking down a target skill into a series of steps to describe the action to be performed in sequence. The sequence can be written in a forward or backward order, depending on the nature of the target skill to be learnt. For example, most dressing and undressing skills can be taught by chaining. The more effective approach to teach dressing skills is backward chaining because this would ensure that the children will be able to complete the task. Forward chaining would be more appropriate in teaching target skills such as operating a washing machine or writing one's own name.

Discrimination Learning

When the target skill to be learnt involves choosing the right answer, discrimination learning is a more effective approach. For example, a child is given several choices (including some distractors) from which to pick out the correct answer. In this approach, it is necessary to control both the characteristics and the number of the distractors used. At the initial stage, the difference between the distractors and the target choice should be as

great as possible and the number of distractors used should be as small as possible. That means the strength of the distractors should be low (e.g. a circle and a big square, then a circle and a square, and finally a circle and an eclipse). As the child begins to master the initial step, the number of distractors used can be increased gradually.

Information Gathering

Children may sometimes lack the information required to analyse the problems they encounter. The teacher should teach them to gather relevant information from various sources, e.g. teachers, parents, newspapers or the library and help them develop a more objective and systematic way to deal with problems. Activities, such as organizing a birthday party or a picnic, would help the children understand the procedures of information gathering and its importance.

Induction

This is an approach to help the children form a holistic concept from the characteristics of different things. The children are thus trained to observe the various characteristics of things --their similarities, differences as well as relationships and then exercise induction.

The following are ways to teach target skills :

Prompting

This skill can be used at any stage of the programme. There are various kinds of prompts : physical guidance, physical prompts, gestures, verbal prompts, eye pointing, etc. Prompts should only be used when required and should be faded out as soon as the children demonstrate certain degree of mastery.

Shaping

This refers to the increase in precision in the behaviour to be performed. It involves successive approximation of the target behaviour. Another aspect of shaping which is not so obvious is the shaping of the target behaviour by manipulating the materials used. An example of this is teaching the children to thread a needle with a big eye using thick thread and then gradually increasing the precision by using an ordinary needle and sewing thread.

Fading

This means gradual removal of the various prompts as the children begin to master the target behaviour. At the initial stage, the teacher can use prompts with more help . Then at a later stage , he can use prompts with less help. One common example is the gradual removal of the strokes of a word when teaching the children to write.

Generalization

When the children know how to apply the knowledge or skills they have acquired to new situations, they have achieved generalization. The ultimate purpose of generalization is to reinforce the children's social adjustment. For example, when a child applies the table manners he has learnt at school to the environment of his home or a

restaurant , generalization is achieved. The following are important considerations in formulating teaching approaches for MH children :

- (1) Observing the children's behaviour, planning goals and targets appropriate to their ages, levels of development and interests and building on their areas of strength;
- (2) Using situations familiar to the children and those which they can experience in their everyday life;
- (3) Using activities which are as practical as possible;
- (4) Making the children feel secure and willing to express themselves and giving them opportunities to learn by doing;
- (5) Breaking down a task into simple steps to facilitate learning;
- (6) Providing the children with opportunities for direct sensory contact, for manipulating real objects or relating learning experiences to real life situations;
- (7) Using various media extensively and varying the teaching approaches and techniques according to individual learning needs;
- (8) Using encouragement and reward to reinforce the children's motivation to learn.

Quite often, the teacher is faced with a class of mixed abilities or with different behaviour problems. He will have to teach them in groups or individually. The following are some suggested forms of grouping :

(1) Small Group Teaching

Small group teaching means splitting the class into different ability groups and teaching the children with different approaches. This would help the children learn by imitating and helping each other and apply what they have learnt to other situations. Small group teaching also helps to reinforce the children's ability to communicate and co-operate with each other. Take the teaching of colour concept for instance. The teacher can set the children's baselines according to assessment results and split the class into three groups as follows:

(2) Individual Teaching

This allows learning materials to be tailored to meet the specific needs of individual children. The teacher can focus his attention exclusively on individual children and likewise the children only need to attend to one teacher and one set of learning materials during this period. A comprehensive curriculum design should include ongoing assessment and a clear record of progress. This will ensure that teaching procedures will be consistent

and continuous. This consistency and continuity will in turn ensure that the planned programmes will match the actual progress of the children.

