

Introduction

In the earlier two units, the processes of curriculum planning and curriculum development were covered in depth. Transaction of the curricular content, after its development, is the most crucial issue in the entire **process** of curriculum management. Contemporary view of curriculum transaction process is that it is a systematic process in which every component, **i.e.**, teacher, students, material and the learning environment is crucial in bringing about the desired goal. The implementation or the action plan is the next focus.

An action plan addresses the following:

- What are we **as** teachers going to teach?
- How much matter should we include in a particular course?
- How are the topics and sub-topics going to be arranged?
- Are we going to follow a definite rule, procedure while transacting these topics?
- Have we allotted sufficient and definite time for each of these topics **and** sub topics?
- What methodology **and** media **are** we going to use?
- **What will** be the impact?
- How will the progress be monitored periodically?
- What evaluation procedure will we evolve to assess the success of this programme?
- Are there any alternative strategies for presenting these topics?

In this unit, we will focus on the process of curriculum **transaction**.

Learning outcomes

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

- **analyse** curricular contents prescribed to you **as** the teacher at the higher education level;
- design lesson **plans** / units for teaching in a real classroom situation;
- use various modes of presentation to transact assigned curricular contents;
- evolve the appropriate instructional strategy;

- understand the interaction between inputs, instructional strategies (**processes**) and the evaluation procedures (outputs), and
- get a feel of your role as a classroom practitioner in the overall curriculum transaction process.

Organising curricular contents

Course organisation: In Indian universities, teachers **are** usually given different courses to teach and this leads to a situation **where** integration of the courses is not ensured. When more than one teacher takes up the responsibility and a single course is distributed amongst them, it requires efforts towards integration of the topics **dealt by** different teachers.

Establishing the objectives of the course guides this process. The first step in analyzing **content** is to establish the objectives that **you** want to achieve through the course. For example, 'instructional objectives' for the course 'educational technology' is that **students will become** skillful in using appropriate technology (like OHP, radio, TV, **Computers** in their teaching-learning activities, or administration activities in the field of education.

Self-assessment

- I. *Establish the course objectives of one of the courses that you teach presently.*

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Organising a course also requires identification of the main concepts in the course and **arrangement** in a suitable sequence. In a well-structured and sequenced course, the learner is in a better position to recognize the order behind the plan, determine how the various parts fit into a whole; and how each part is related to the other parts. In course contents, there are three meaningful and logical parts – **facts, concepts** and **generalizations**.

Facts

Paul de **Eggen**, a specialist in information processing models of instruction defines **facts** as types of content that are singular in occurrence, have occurred in the past or exist in the present, have no predictive value and gathered through the process of observation.

Concepts

Concepts are abstract ideas formed **after** observing; for **e.g.**, a child forms the concept of a dog **first** as a moving **thing** on four legs. As she is introduced to more facts about a dog vis-a-vis a 'cat' or a 'cow' or a 'donkey', she **refines** her concept of a dog. Hence, to form concepts, learners pay attention to likenesses, ignore differences, and place similar objects in the same category.

A concept **has** some essential attributes. For instance, 'a dog' is a four – legged animal, which is usually kept as a pet and it barks at strangers. 'A cat' is also a four-legged pet animal but it 'meows'. So 'a cat' is not 'a dog' even though it is also a pet because it does not bark at strangers.

The **highest-level concept** is a mental construct that is **timeless, universal** and **abstract**. Though the examples of a concept may vary in content, the general descriptors of the **concept** will be the **same**. **Symmetry**, as a concept, has many different **examples** that vary in content, but the descriptors of **symmetry** can be found across disciplines, as in art, nature or music (Erickson. 1995:66).

Generalisations

Statements, that generally link two or more concepts, are known as **generalizations**. Generalisations are formed when a certain fact is observed as taking place in a **certain** manner. For example, 'a spherical object rolls when pushed', this generalization is formed when the fact is observed many times that a ball-shaped object, no matter what its size is, rolls when pushed. So, a generalization has predictive power and can be proved by making factual observations.

To organize content of **instruction** in the most effective manner, the **teacher must** ask **himself/herself** the following questions:

- What are the objectives of this course?
- Which of the assimilated facts **seem** the most relevant and accurate?
- **Which** of these concepts are the students familiar with and **which** of them need to be explained to help the students understand the concept?
- How do students learn to infer and predict through generalisations?
- How do **they** learn to test the reliability of **the data they** acquire?

Once the analysis of content is over, a teacher takes a decision on the presentation of content. David Ausubel, a learning psychologist proposed a good and useful **system** of presenting content. He points out, firstly, that new learning is built on prior learning, and secondly, that any stage of learning and understanding is built **on** previous, more general levels. Therefore, presentation always moves from '**known** to unknown' and every concept should be presented with its sub-concepts, which **are** [inter - related]. He also spoke about presenting the students a framework of the lesson before it begins called the 'advance-organiser' so that students can peg their ideas **on** it as the lesson proceeds.

Self-assessment

2. *From any course you teach identify a fact.*

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3. *From any course you teach, identify a concept and write down its essential attributes.*

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4. *From any course you teach, identify a concept of generalization.*

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Aspects of designing units

In a particular course, we often find that the whole course has been organized into meaningful and manageable parts that span an **instructional** period of several weeks. These parts are called **units of study**. Again, each unit is **further divided** into certain topics and **this** is generally centred round a broad concept, or a cluster of related concepts, facts and generalizations. There are three aspects to design a unit for presentation – **scope, focus** and **sequence**.

Scope

Briefly, scope is the breadth and range of contents

Since all the conceivable content and information related to a course cannot be covered within the specified units or time available, choices must be made as to the actual breadth and depth of each unit to be covered in a specified course.

The choice has to be made on two considerations. Firstly, the relative importance of facts, concepts and generalizations that should be taught in terms of the continuum of the overall curriculum. Secondly, the relative importance of the content that must be taught in respect of the needs of society, age, interests, abilities of learners. Hence one should always teach content that is needed to make more complex concepts meaningful and relevant to other courses in the overall curriculum.

Self-assessment

5. In one of the courses that you teach, select a unit of study and write its scope based on two dimensions discussed in the section.

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Focus

Focus determines what will be emphasized in the content. The focus should be decided right at the curriculum planning stage itself.

For example, a Statistics teacher who teaches at the postgraduate level gives the title "Diagrammatic Representation" to a course. After that, he/she lists out the major concepts that might go into this course such as Bar Diagrams, Two Dimensional Diagrams, Pictures, Statistical Maps, Cartograms, etc. Each of these major concepts could potentially form the basis of, or serve as a major part of, the unit of study within the course. Thus, the teacher who, decides to explain how the statistical data can be interpreted through various diagrams, can put the components of the unit into a framework that will accommodate general and the specific contents.

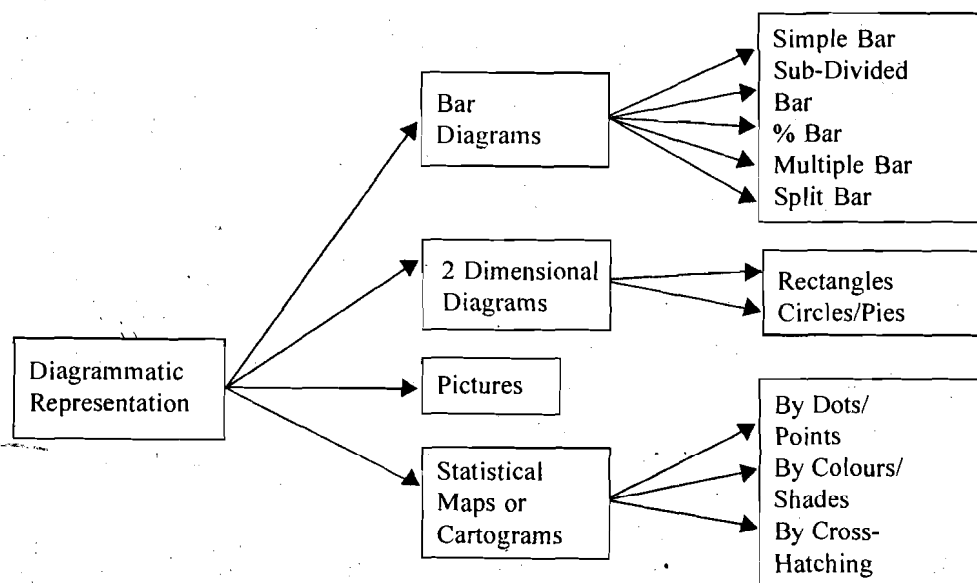


Figure 1 Organizing of the course 'Diagrammatic Representation' (Statistics)

The above scheme can be used to plan what each unit can serve and also as an excellent organizer for students. Hence, this scheme should be put up on the board at the commencement of the unit of study, as this will help the teacher and the students track the progress through concepts and activities on which the unit is built. Thus, 'Focus' is an essential part of the unit design.

Self-assessment

6. *Make a diagrammatic representation of the 'Focus' of one of the subjects you are or will be teaching.*

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Sequence

Sequence generally specifies the order in which the contents will be arranged. There needs to be logic concerning the order. Subjects can be arranged thematically or chronologically.

The fundamentals in sequencing content are:

- Learning takes place serially, i.e., from **simple to complex**.
- New learning should be **based on previous learning**. Start with the familiar first. Even while **doing** this, it is important to provide the connections **between what** the student already knows and the new parts to be learned. **The** logical order between the two should be clearly established.
- The teacher must explore the potential of introducing an interdisciplinary approach – **integration of subject matter** to different fields of studies. Expert studies have revealed that an interdisciplinary approach has more educative value and the student learns that the same facts and principles from many fields hold good. For example, the theme 'political beliefs' of a society determine its 'sociological profile' and this can be explored **while** sequencing units in both Political Science and Sociology courses.

In correlating subject matter, the curriculum planner has to identify the related subject matters of two different disciplines and fuse them into a harmonious theme.

Self-assessment

7. *Examine any of the courses that you teach to identify a theme that could link it with other courses that students study.*

Concept-based instructional design

Another method of organizing content is a concept-based instructional design. Learning is the making of meaning, meaning is making connections and the connections are the concepts. As we move into a knowledge economy, the information base for any curriculum will continually and rapidly change. How will teachers and trainers manage and organize this information so it makes sense to learners, and ensure that they are not overwhelmed by a plethora of unconnected and fragmented facts? We have been investigating a **concept-based approach** as the organizer for curriculum design and delivery.



In the following figure, Erickson, (1995:73), compares the value of concepts and topics as curricular organizers.

Topical organizers	Conceptual organiser
<ul style="list-style-type: none"> ● Frame a set of isolated facts ● Maintain lower level of thinking ● Hold learning to the fact or activity level ● Have short-term use to cover an event, or set of facts ● Increase the overload curriculum 	<ul style="list-style-type: none"> ● Provide a mental schema for categorizing common examples ● Lead to higher levels of thinking ● Aid in the development of higher order generalizations ● Reduce the overload curriculum by framing the most salient, or critical example of the concepts

Figure 2 Concepts and topics as curricular organisers

The following examples of a concept-based approach come from a project which investigated the teaching and Learning of key competencies in vocational education and training. A key purpose for this approach was to facilitate the transfer of learning by creating conceptual organizers that act as a cognitive bridge from one context to another. The purpose was to foster both elevated (high road) and direct (low road) transfer.

Example 1

The first diagram is a graphical representation of a selection of concepts from the *Orientation to Learning* curriculum in **Women's Education**. Women's Education is within the Vocational Preparation Program.

It shows that the main concept is *Lifelong Learning* and the *two* sub-concepts are *Flexibility* and *Construction*. Topics in the curriculum were arranged under these sub-concepts. Lesson plans for the topics were then organized with the concepts as the central theme.

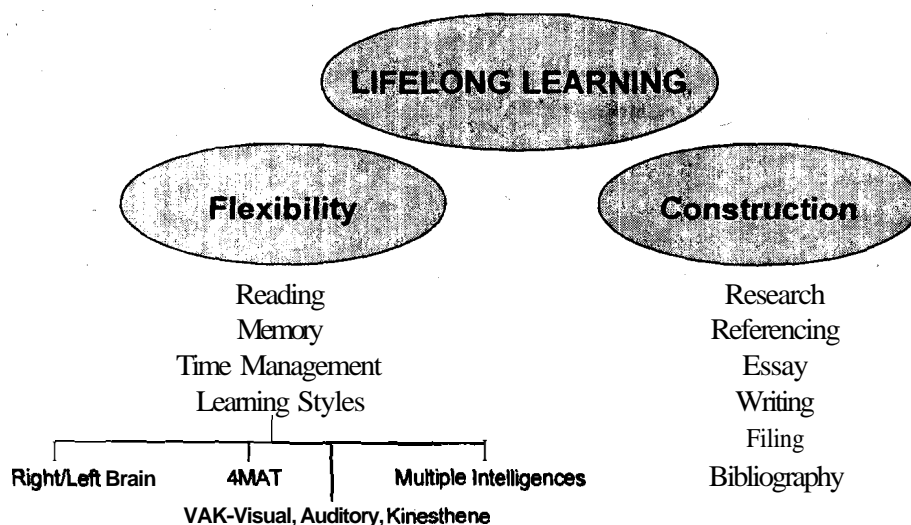


Figure 2 Concept-based Curriculum Design: Women's Education

The starting point

The curriculum content was not altered, but **rearranged**, by identifying the main concepts. Content was then organized to connect with the most appropriate concept.

The teachers who designed this course, explain the difference between concepts and topics. Concepts are like the edge pieces of a jigsaw puzzle. Without them the puzzle doesn't hold together. Topics connected to a concept are like individual puzzle pieces and unless they fit into the bigger framework, they can seem like meaningless segments.

Detailed teaching plans developed around the main concepts

When concepts are used as part of design, we are creating a framework into which the puzzle pieces fit, making common sense to the learner. This promote connections between the personal experience of learners and the new information being introduced – learning happens at deeper levels, connections are made with real life and transfer is more likely to happen.

Example 2

This is another diagrammatic representation of a concept-based design, this time for a Management Development module in Community Services and Health. The diagram below is an example of a session plan design around the sub-concept of *learning as a management competency*.

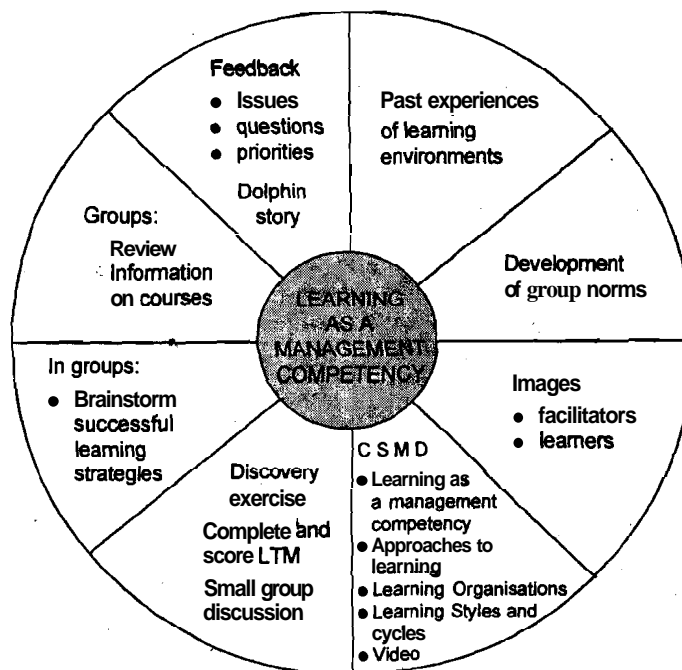


Figure 3

This session plan is structured using concept-based model. The session begins with personal experience, moves to information dissemination, then to practical application and finally to feedback and integration.

Concepts as the core – the design process

Step 1: We take the existing curriculum document and without altering the content, extract **from** the document what we believe are the main concepts – the big ideas / main themes.

Step 2: The content topics in the curriculum are then organized to connect with the most appropriate concept.

Step 3: Detailed teaching plans are then developed around the main concepts.

A concept-based framework provides a consistent and **systematic** linkage between the curriculum document, the instructional design process and the **delivery**.(Erickson, 1995).

Case Study

Orientation to learning

This case study describes an application of the concept-based model. The lecturers who designed it negotiated with a lecturer in Women's Education to redesign a subject called 'Orientation to learning'. The most **fulfilling** aspect of applying the model – say the lecturers, are the student responses. One student response follows.

Hello everyone. I'm going to share with you my experience of learning **using** the concept-based instructional design. In my school years I was taught in an environment where I was sat at the same desk for the entire year. My teachers sat at their desk in **front** of the class seemingly watching my every move. I was told what to do and exactly how to do it – the teacher's way. If I couldn't do it the teacher's way – it was wrong. Discovering this method of learning has made me aware of the lack of recognition of each individual's approach to learning – the fact that everyone has different needs when it comes to learning and problem solving. Essay writing was forever a mystery to me. At school I was told – an **essay** has a beginning, middle and an end. To me the beginning was the first word – the middle was the rest of the words – and the end was the **full** stop. One day the lecturers broke the class into small groups, gave each group a packet of plastic drinking straws and told us to build a tower as high as we could. We were given an amount of time to plan this amazing feat. Now in just one lesson – I learnt that in essay writing – the heart of the essay – and the end is – tying it all together. I also learnt that if you don't plan your tower well it would never get off the ground. I have discovered that my learning strengths are seeing how some things work – hands on experience. I have **difficulty** with learning through-discussion and lecture – so these are areas that I can work on and develop. If at school I could have learnt in a way that best suited me – I would not have rebelled because I was always wrong – I would not have become bored and disrupted the class – I would not have hated school – and skipped more **days** that I attended. I really wanted to learn – but I couldn't learn – the teachers' way -the only way.

To summarize, analysis, organization, design and presentation of content based on the objective of the course determines the component of the Input in the instruction system. The **other** components of this system are Process and Output.

Input

For a teaching-learning situation to be effective, it must be focused on a particular topic, theme, issue or problem. The central idea of these needs must be clarified and arrived at to build the components of curriculum around them. For example, if the central theme is "Preservation of Environment", questions such as what knowledge, skills, attitudes or behaviour do students need to acquire to preserve the environment will be key and tactical considerations. **Then** it will be what facts, principles, ideas and understandings are related to the theme. Finally, it will be a focus on the activities that will promote the acquisition of knowledge and skills related to preservation of environment and the availability of information resources for the students.

Answers or considerations to all these questions are primarily linked to instructional objectives. Specific and immediate outcome of a teaching-learning situation is linked to instructional objectives. Therefore, planning of inputs for a course or programme is completely based on the requirements and understanding of the instructional objectives and subject matter. **Instructional** objectives have three major purposes. Firstly, they clarify to teacher and student, what is to be accomplished. Secondly, they serve as the guide for design of suitable and relevant contents, activities and resources. Thirdly, **they** also provide guidance in student evaluation.

Identification of curricular input involves several issues, such as

- Determine the objective of the course.
- Make sure that the content is relevant to learning objective and the knowledge is relevant and complete.
- Inclusion of those contents that are considered necessary to accomplish objectives.
- Checking contents to make sure they are up to date and commensurate with the latest accepted thinking in the subject or field concerned.
- Content must relate to the lives, environment, mental development and experiences of the learners.

It is essential to present the structure of the content in an organised, balanced and sequential manner. Taking into account **difficulty** levels is the best way to ensure this.

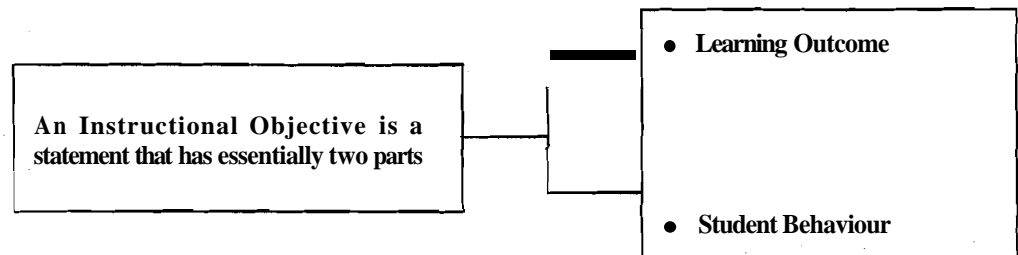
Instructional strategy

In the area of curriculum strategy, we have till now looked at the area of content organization. **The** next area is that of selecting the **methodology/** strategy of curriculum transaction. The components that determine the strategy are:

- Instructional objectives
- Methodology of teaching

Criteria for selection of inputs for instructional strategies

Instructional objectives are the ability of the teacher to keep most teaching actions directly relevant to the specific objective most of the time.



In selecting the specific targets (objectives) for a lesson ensure that learning outcome is

- clearly stated and
- the student behavior is described in concrete terms. For example, students will learn to compare and contrast advantages and disadvantages of Bar diagrams vs Pie Charts by specifying the rationale for their use in different situations. In this example, the learning outcome is 'comparing and contrasting and the student behavior is 'specifying rationale for their use in different situations'.

Activity

Write **an** instructional objective containing its two essential components.

Methodology of teaching: Nature and structure of subject matter decides the inputs to be selected – inquiry **approach** or imparting of information. The decision is dependent on (i) what is being taught and (ii) how it is to be taught. The question of what is being taught has been dealt in the previous section. The question of 'how' is **determined by:**

(a) Students

An important consideration for selecting instructional strategy is their suitability to students. Some essential beliefs about students that are crucial for effective teaching-learning activities are:

- **The student is the focus** and everything teachers do in the classroom is with **his/her** specialized knowledge of the way a student learns and helps **him/her** forward. We need to believe we are teaching humans not subjects.
- Self-esteem is critical to successful learning. Teachers who underestimate the ability of their students and talk down to them or others who overestimate them and talk over their heads will never get the desired results.
- Students learn from each other as much, if not more, **than** they learn **from** their teachers. The synergy of group work provides demonstrably better solutions.
- Teacher expectations play a large part in student learning outcomes. If teachers expect students to perform well, they generally do.
- Experiential learning lasts longer. An old Chinese saying is "I hear and I forget, I see and I remember, I do and I understand". A learning experience that involves all **the** five senses deepens understanding and potential for recall. Training the mind to reflect on experience, providing opportunity to contextualise and internalize the learning further strengthens the learning.

There appear to be seven **types** of **intelligences** in students. **Howard** Gardner has identified seven:

1. Linguistic intelligence – **operates** through language as for example in **poets** and writers.
2. **Logical/mathematical** intelligence – the ability to think deductively based on logical assumptions.
3. Spatial intelligence – the ability to form a mental model of a spatial world and to **be** able to manoeuvre and operate using that model. Sailors, engineers, surgeons, sculptors are examples of highly developed spatial intelligence in use.
4. Kinaesthetic intelligence – is the ability to solve problems or fashion products using one's whole body or parts of the body. Dancers, athletes, surgeons and crafts people all exhibit highly developed kinaesthetic intelligence.
5. Musical intelligence – is best manifest in musicians such as A.R. Rehman, Mozart, Kumar Gandharva, M.S. Subhalaxmi and countless others.
6. Emotional intelligence – the ability to know **oneself** and to use that knowledge to operate effectively in life. This is the ability to motivate oneself and persist in the face of frustration, to delay gratification, to control impulses and to keep distress from swamping the ability to think.
7. Inter-personal intelligence – is the ability to understand other people: what motivates them, how they work and how to work co-operatively with them.
8. Naturalistic intelligence – Naturalistic intelligence is the ability to understand, relate to, categorize, classify, comprehend, and explain the things encountered in the world of nature. People such as farmers, ranchers, hunters, gardeners, and animal handlers may exhibit developed naturalistic intelligence.

Knowing the students helps the teacher to determine various ways of presenting the **content** and corresponding activities to teach and test understanding, which are differentiated to **meet** different needs.

(b) Community

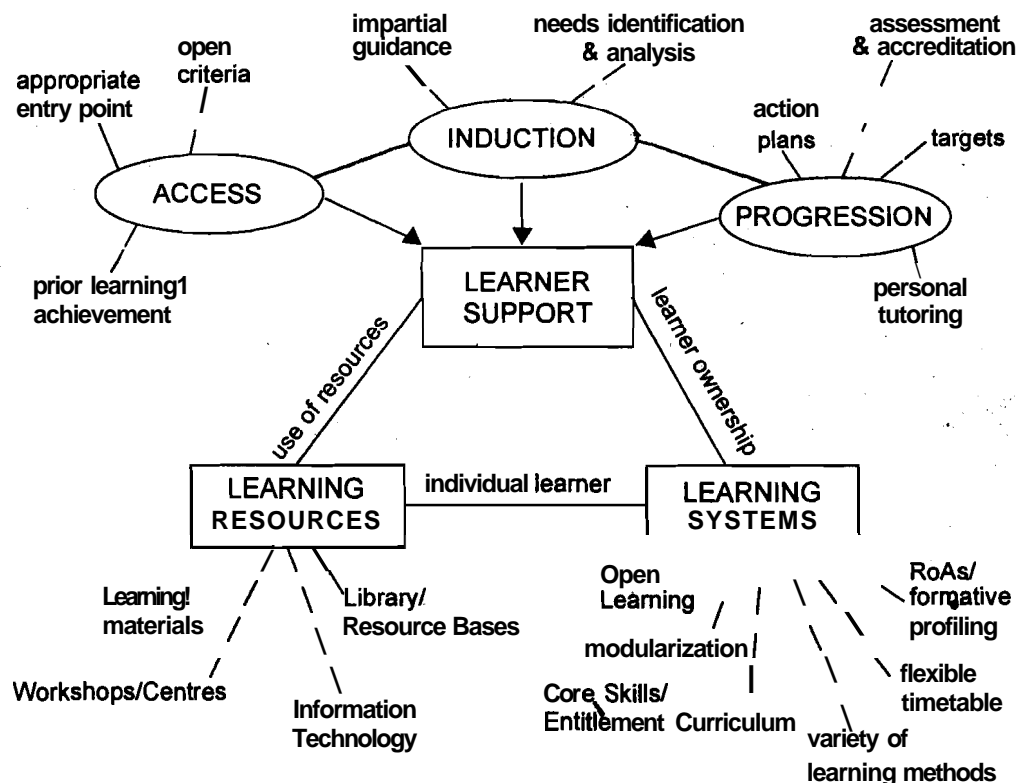
The role of the community in curriculum development has been adequately discussed in the **first** unit of this Block. Knowledge of community needs, beliefs, values and more can help us **teachers** in classroom inputs.

(c) Teacher

Instructional strategy adopted in a classroom is highly dependent on two factors: (a) the teacher's personal style of teaching, and (b) the model of teaching the teacher adopts. For example, if a teacher follows an inductive style of teaching, he/she may not like to follow the deductive style. The Inductive teaching style uses specific observations to draw general conclusions. The Deductive style is the process of using general statements to come to conclusions about specific information or situations. Hence, a teacher should analyse the particular style of teaching and the model that he/she finds most suitable for his/her particular style. A teacher should be much more open-minded and expand his/her efficiency by developing more than a single model of teaching.

To conclude, Oliva (1988), has suggested some guidelines for evolving the teaching-learning strategies as follows:

- A strategy must be right for the learners. It must meet their needs and interests.
- A strategy must be right for the teacher and suited to his/her capacity.
- A strategy must be right for the subject matter.
- A strategy must be right for the time available.
- Reference material must be available if students are required to carry out research projects.
- A strategy must be right for the facilities available. (For example, dividing a class into small groups for a discussion may be impractical, if the room is too small).
- A strategy must be right for the objectives. It should be chosen in such a way that it fulfills the instructional objectives.



Source: Nash, et. al. (1991).

+Figure 3 Key features of flexible learning in post-16 institutions

Activity

Two different teaching-learning situations are presented in this section:

Situation A: Mrs Sharma teaches Economics to the 1st year students in the undergraduate course. Her students are always complaining that they find it difficult

to comprehend **what** she teaches. They are bored **and** resort to noisy **disruptive** behavior. Her classes do not generate interest and the students are unable to concentrate because of **the** monotony. There is no sequencing in her teaching from one period to the next. She rarely makes an effort to enhance the attention of her students.

Situation B: Dr. Chandrakant also teaches Economics at the undergraduate level. His students pay a lot of attention to what he teaches. They are always involved in interesting assignments he has devised for them to work on. His concern about his students is visible as he spends considerable time assessing their motivational levels. He pays heed to the sitting arrangements of the class before he commences a topic. He gives his students a list of activities that keep them engrossed. He encourages queries and listens to them with concentration and patience before replying to them.

Q. It appears that the teacher in Situation B is more **successful** in his teaching. Identify the different components in his class that has contributed to its success in comparison to Situation A.

Models of teaching

As a teacher, you **must follow** a set of **teaching** strategies that help to get the best out of your students and makes the class more lively and effective. A model of teaching is a generalized set of behavior that emphasizes a particular instructional input or a set of inputs.

Bruce Joyce and Marsha Weil (1980) have defined it as “ A model for teaching is a plan or pattern that can be used to shape curriculum (long-term course of studies), to design instructional materials, and to guide instruction to the classroom and other settings”. Olive, another famous curriculum analyst says "Each model consists of a rationale, a series of steps (actions, behaviors) to be taken by the teacher and the learner, a description of necessary support systems, and a method for evaluating the learner's progress. Some models are designed to help students grow self-awareness or creativity, some foster **the** development of self-discipline or responsible participation in a group; some **models** stimulate inductive reasoning or theory–building; and **other** provide for **mastery** of subject matter”.

In **day-to-day** teaching experiences we come across a number of teaching models such as exposition teaching, group discussion, role-playing, demonstration, stimulation, discovery, **learning** laboratories, programmed instruction, tutoring, problem solving and **mediated instruction**. Joyce and Weil (1986) identified twenty models of teaching and have grouped these **under** four broad categories: (i) information–processing models (ii) personal models (iii) social models and (iv) behavioral models. Details on **these** models have already been covered in **MES-103** (Unit 9 and 10 of Block 3) of this programme.

A pertinent question is, therefore, is it essential on one's part to know a variety of modeling for successful teaching? The answer is, perhaps, yes. All models may not be equally effective for all types of instructional situations and purposes, and hence it is important to **know** the potential and attributes of several models for selection and use so that the most effective one can be chosen, as per the need of the context.

Selecting media

Media can **make the** teaching-learning process much easier and more effective. Slides, tapes, television shows, films, CD Roms and other wide variety of training devices are most commonly used depending on the resources available. The decision on what **type** of **media** is to be used **depends** on the **kind** of **learning activities**. For example, some media are more effective for verbal **information** than for psychomotor skills. Slides are more suitable for information whereas movies are for teaching psychomotor skills. There are more details on media in **MES-102/Block 2, Unit 9**.

To **summarise**, once the input has been determined, selecting the “Process” is determined by

- **Identifying** the instructional objective of the lesson.
- Selecting **the** appropriate methodology based on content, characteristics of **learners**, needs of the community and teaching style.
- Selecting the appropriate media.

The last component of curricular strategy is understanding the outcome of teaching and learning. This component is the **output** of the Input and the Process.

Output

The output of a teaching learning process is determining whether learning has taken place. This area of curriculum strategy is known as 'assessment' – a scientific way of measuring learning outcome. While identifying measuring devices for specific teaching-learning situations, we must keep two things in our mind – (i) the measuring devices we select must be appropriate for the objectives that they are intended for and (ii) a wide variety of measuring devices can be used in the process.

As a teacher, while assessing the students' performance or the learning outcome, we need to concentrate on cognitive, affective and psychomotor domains. For this, numerous types of tests are available or, if necessary, we can develop new tests in the form of actual performances (essay, or one or more objective tests, **viz.**, multiple choice, alternate response, completion, matching or re-arrangement etc). Each test has its own advantages and disadvantages. However, if properly planned, these can form good ways of measuring performance. We will now discuss, in a nutshell, the three domains mentioned above.

i) **Cognitive Domain:** The cognitive domain contains six levels: knowledge, comprehension, application, analysis, synthesis and evaluation. This was suggested by **B.S.Bloom** and is known as Bloom's taxonomy of cognitive behaviour.

LEVEL 1: KNOWLEDGE

Knowledge is defined as the ability to recall. It is the lowest rung of the hierarchical ladder. **All** that is required of the learner is information.

LEVEL 2: COMPREHENSION

Comprehension is the lowest level of understanding. The learner can make use of the information he acquires on the first level by interpreting in his own words, by translation from one form of symbolism to another (verbal to mathematical).

LEVEL 3: APPLICATION

The ability to apply an abstract concept, whether a hypothesis, a principle or a law to a new situation calls for a higher level of understanding of the information.

LEVEL 4: ANALYSIS

Requires the ability to break down information into its separate parts so as to understand the relation the parts. Analysis is a higher level of understanding than comprehension because it is concerned with content and **form** while the latter is concerned with content alone.

LEVEL 5: SYNTHESIS

Synthesis is the bringing together of many parts of knowledge to form a unique whole. Synthesis in many ways **is a form** of creativity. Its value lies in the unique production offered by the learner.

LEVEL 6: EVALUATION

Evaluation is the ability to **make** judgements on the basis of **given** criteria.

A Teacher uses this taxonomy when

- Selecting Objectives
- Asking Questions
- Planning Activities
- Giving Tests

Tabular summary of cognitive domain with examples

<p>Knowledge: Recall of data, without necessarily understanding, using or changing it</p>	<p>Examples: Recite a poem, Quote prices from memory to a customer. Knows the safety rules.</p> <p>Keywords: defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, select, states.</p>
<p>Comprehension: Understand the meaning, translation, interpolation</p>	<p>Examples: Rewrites the story in your own words. Explain in one's own words the steps for refining the iron ore. Translates an equation into a computer spreadsheet.</p> <p>Keywords: comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.</p>
<p>Application: Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the workplace.</p>	<p>Examples: Use the log tables to do a trigonometry problem. Use a manual to calculate an employee's vacation time.</p> <p>Keywords: applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves. uses.</p>
<p>Analysis: Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.</p>	<p>Examples: Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training.</p> <p>Keywords: analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates.</p>
<p>Synthesis: Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.</p>	<p>Examples: Write a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revise and process to improve the outcome.</p> <p>Keywords: categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganize, revises, rewrites, summarizes, tells, writes.</p>

Evaluation: Enables to make judgements on the basis of given criteria. The ability to judge the value of material (statement, novel, poem, research report) for a given purpose. The judgements are to be based on definite criteria. These may be internal criteria (organization) or external criteria (relevance to the purpose) and the student may determine the criteria to be given them.

Example: literary criticism of a poem or a novel.

Keywords appraise, ascertain, choose, compare, conclude, contrast, criticize, decide, defend, describe, discriminate, explain, interpret, justify, relate, resolve, summarize, support, validate, write (a review)

Activity

Practice labeling each of the sentences below at the correct level of Bloom's Taxonomy of the Cognitive Domain:

1. Using a questionnaire, survey the awareness level on HIV-AIDS in the college campus
2. Using copies of the constitutions of America and India, compare the two documents.
3. What could be a different ending to the story of the Thirty Crow?
4. Write a question for each level of the taxonomy.
5. Why is it important for children to learn tables? Justify your answer.
6. Develop a proposal clearly stating the hypothesis and research method you will select to proceed.

ii) Affective Domain: Assessment of a student's affective domain is not easy because it is associated with his/her attitudes, values and feelings that cannot be gauged easily. Personal feelings and beliefs of the student can remain undisclosed. Achievement of Instructional Objectives in the affective domain is difficult to measure compared to the Cognitive and Psychomotor domains. Bloom's Taxonomy of affective domain contains five levels: receiving, responding, valuing, organization and characterisation by value.

LEVEL 1: RECEIVING: is the willingness to receive or to attend to particular phenomena or stimuli in the domain of feelings or emotions. Receiving has been actively attending. Responding indicates the desire that a student has become sufficiently divided into three subcategories: awareness, willingness to receive, and controlled or selected attention.

LEVEL 2: RESPONDING: refers to active participation on the part of the student. The student is sufficiently motivated not to just be willing to attend, but is involved in or committed to a subject, activity, emotion etc., so as to seek it out and gain satisfaction from working with it or engaging in it.

LEVEL 3: VALUING is when the student sees worth or value in the subject, activity, assignment, etc. An important element of behavior characterized by valuing is that it is motivated, not by the desire to comply or obey, but by the individual's commitment to the underlying value guiding the behavior. Learning outcomes in this area are concerned with behavior that is consistent and stable enough to make the value clearly identifiable.

LEVEL 4: ORGANISATION is the bringing together a complex combination of values, possible disparate values, resolving conflicts between them, and beginning to build an internally consistent value system. The individual sees how the value relates to those already held or to new ones that are coming to be held. The integration of values is less

than harmonious; it is a kind of dynamic equilibrium that is dependent upon salient events at a specific point in time.

LEVEL 5: CHARACTERISATION BY VALUE: Internalization of values has a place in the individual's value hierarchy. The Values have controlled one's behavior for a sufficiently long period of time to develop a characteristic "life style." The behavior is pervasive, consistent, and predictable.

iii) **Psychomotor Domain:** The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution.

The best way to evaluate this domain is a student's actual performance in the classroom. As teachers, certain evaluative or judgemental skills must be used when students are asked to demonstrate certain perceptual motor skills. These skills may be associated with factors like speed, originality and quality. Criteria for judgement must be communicated to the students in advance. There are seven major categories listed in the Psychomotor Domain.

Tabular summary of Psychomotor Domain with examples

<p>Perception: The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.</p>	<p>Examples: Detects non-verbal communication cues. Estimate where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjusts heat to stove to correct temperature by smell and taste of food. Adjusts the speed of the car by sensing the traffic flow on the road.</p> <p>Keywords: chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects.</p>
<p>Set: Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).</p>	<p>Examples: Knows and acts upon a sequence of steps in a manufacturing process. Recognise one's abilities and limitations. Shows desire to learn a new process (motivation). NOTE: This subdivision of Psychomotor is closely related with the "Responding to phenomena" subdivision of the Affective domain.</p> <p>Keywords: begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers.</p>
<p>Guided response: The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.</p>	<p>Examples: Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds hand-signals of traffic police while driving.</p> <p>Keywords: copies, traces, follows, react, reproduce, responds.</p>
<p>Mechanism: This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.</p>	<p>Examples: Use a personal computer. Repair a leaking faucet. Drive a car.</p> <p>Keywords: assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.</p>
<p>Complex overt response: The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing</p>	<p>Examples: Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano.</p> <p>Keywords: assembles, builds, calibrates, constructs, dismantles, displays, fastens, fixes,</p>

<p>without hesitation, and automatic performance. For example, players are often utter sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of the act what the result will produce.</p> <p>Adaptation: Skills are well developed and the individual can modify movement patterns to fit special requirements.</p> <p>Origination: Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.</p>	<p>grinds, heats, manipulates, measures, mends, mixes, organizes, sketches. NOTE: The key words are the same as Mechanism, but will have adverbs or adjectives that indicate that the performance is quicker, better, more accurate, etc.</p> <p>Examples: Responds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners</p> <p>Keywords: adapts, alters, changes, rearranges, reorganizes, revises, varies.</p> <p>Examples: Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine.</p> <p>Keywords: arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates.</p>
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Teacher as a curriculum practitioner

Teaching is like cooking in a way. It is a deliberative activity in the sense that, through conscious deliberation or reflection, we **can** always improve the process. There is no single **formula** to become a "good teacher". A good teacher is never satisfied with only the teaching; rather **he/she** is always concerned about its appropriateness and success. The quality of **teaching** depends partly on your own judgement, your students' **changing needs** and the process or instructional strategies employed by you. Certain **generalisations** on teacher performance can **be** made under the following headings:

Management efficiency

Teachers are in charge of the classroom and managerial skills are necessary to keep the class focused on what is being taught, maintaining discipline consistently **and** in a fair manner and to ensure the reliability and validity of evaluation. The all-round development of the students is also the responsibility of the teacher.

Congenial learning environment

Adequate workspace and a pleasant environment for learning undoubtedly motivate the students and this in turn helps in the students' achievements. There are many Things we can do to create a pleasant setting for the students to learn, by using variety of **media** and the activities to be done at the post lesson session; physical condition in terms of seating arrangements, lighting, ventilation, **etc.**; and by **making** the announcements **particularly** on administrative or personal matters, without affecting the normal **academic** atmosphere of the class.

Human relations

Most of us generally think that our job in the classroom is just to teach, without giving any attention to the other conditions for teaching. **Lashley** (1981) has suggested four different generalizations about classroom management behavior. Firstly, the effective teacher develops and **implements** a workable set of classroom rules. Secondly, a good teacher structures and **monitors** the classroom in a manner that minimizes disruptive behavior. Thirdly, an efficient teacher quickly **defines** and, quickly and consistently, responds to inappropriate behavior. Lastly, an effective teacher couches the response

to **in** appropriate behavior in a tone that does not denigrate the students at whom the response is directed.

Most importantly, the teacher establishes a state of need (or desire) within the student that activates **him/her** to do something to satisfy that need (desire). This may simply be called motivation in the classroom.

Motivation is affected by five variables:

- **FEELING TONE**
 - a. The physical **and** psychological classroom environment (rapport) created by the teacher.
 - b. It includes the teacher's tone of voice, use of humour, using student's names and ideas, verbal reprimands, etc.
 - c. It **may** be POSITIVE (most powerful encouragement), NEGATIVE (needed at times to correct misbehaviour and redirect learning) or NEUTRAL (least effective, attitude of not caring).
- **LEVEL OF CONCERN**
 - a. The degree to **which** tension or anxiety is brought into the classroom by the teacher, **can** affect the level of student motivation. If these are too high, the student develops a mental block and cannot concentrate on the task. If adequate, it helps the student to focus on the-task. If too little, the student has little motivation to perform.
 - b. Teachers raise the level of concern by setting specific expectations, requiring completion of tasks, setting high standards for grading and making it clear that all students are expected to respond/participate.
- **INTEREST** in students is created when the lesson has conceptual meaning to **him/ her**. Novel approaches, vivid visual and verbal images and experiences cause the students' minds to "hook on" to the lesson.
- **SUCCESS**
 - a. Motivates students to keep trying to aim higher.
 - b. A consistent and long-term pattern of failures breeds further failure.
 - c. To promote success, the teacher should help the students to set a reasonable target for themselves, break learning into small segments, and provide positive feedback on what is correct.
- **KNOWLEDGE OF RESULTS**
 - a. Immediate and specific feedback motivates students.
 - b. It **may** be verbal, answers to quizzes, answers written on board, correction by students etc.

Self-learning: Promoting self-learning through setting tasks which will be evaluated. Some examples of such tasks are: making models, maintaining diaries of observations, **simulating** experiences, conducting interviews, researching a topic in the library, etc.

Instructional planning

Instructional plans **must** be constantly remodeled and redesigned, depending on the students' levels, readiness for group work, length of the content and the time period available for **instruction** and **evaluation**, for effective learning to take place. The teacher **must** be vigilant to ensure that **his/her plans** bring about the maximum amount of learning in the given **context** of the classroom. Please refer to Unit 10 Block 3 for a detailed section on Action Research./

L.W. Aderson (1982) suggested highlights on instructional planning that effective teachers must possess:

- Know their students
- Assign appropriate tasks to their students
- Orient their students to the learning task
- Monitor the learning progress of their students
- Relate teaching and testing, to testing what they teach
- Promote students' involvement and engage them in the learning process
- Provide continuity to their students so that their learning tasks and objectives are built on one another, and
- Correct students' errors and clear doubts.

Set a learning model: The teacher **himself/herself** must model the process of good learning. This includes keeping up with recent trends and research in your subject and sharing the process of learning you have used with the students.

Summary

Curriculum transaction is a crucial stage in the overall curriculum development process, especially in the higher education stage.

- The fundamental issue of how to integrate the content **inputs** with teaching-learning processes has been covered. For this, a need has been identified to analyse curricular contents with reference to three important components of instructional content **i.e.**, facts, concepts and generalizations. When facts are linked with direct observation of an event, it is concept that emerges due to the classification of factual data, and when these are expressed as statements, they become generalizations.
- Once content has been designed, the next step is to divide it into manageable units. **Three** essential components of content are **(i)scope** which refers to the breadth and range of contents to be covered, **(ii)focus**, which lays emphasis on the contents, and **(iii)sequence**, which refers to the order of arranging the content input.
- Once units are designed for presentation, some suitable modes of presentation have been explained. We have also identified some important criteria for selection of inputs for instructional strategies.
- We have discussed certain models of teaching and on how to select the different media useful for teaching.
- The input-process-output model on which the entire curriculum transaction process leans has been briefly presented.
- We have highlighted the role of the teacher as a curriculum practitioner and brought out certain facets that will help improve the quality of teaching.

Suggested readings

Reference: Erickson, H. Lynn. (1995) *Stirring the Head, Heart and Soul: Redefining Curriculum and Instruction*. California: Corwin Press Inc.

Website

http://www.tafe.sa.edu.au/vet_div/irsi/best_prac/htm/undrstnd/undtheo/thconcor/cptcr.html.