

Curriculum Development

Introduction

Ralph Tyler wrote a book that describes what is known as the rational curriculum development process, or the means-end model. Essentially, Tyler's book says that to develop a **curriculum** you begin by examining three sources for ideas about the possible objectives you should include in a curriculum: the students, society, and the subjects. You then "screen" the needs of **each** of these forces by checking ideas against a philosophy of education and understanding of the psychology of learning. This allows you to specify precise instructional objectives, which lead to the final steps of curriculum development: **selection** of learning experiences to accomplish the objectives, **organization** of the experiences into a logical sequence, and **evaluation** of the experiences to see if the objectives were accomplished.

In other words, there are four parts to the rational, means-end curriculum development process. Tyler framed these as four questions:

1. What are worthwhile educational objectives?
2. **What** activities will allow us to accomplish these objectives?
3. How should we organize the activities?
4. How will we know if we've accomplished the objectives?

Let us discuss the process of curriculum development further.

Learning outcomes

After going through this unit, you will be able to

- a specify the steps of curriculum development;
- a critically examine the processes presently adopted in curriculum development in Indian Universities;
- a understand the role of the different academic bodies and individuals in the process of curriculum development;
- a appreciate the need for, and the implications of, giving greater autonomy to teachers in the curriculum development/making process;
- specify course objectives to make them effective;
- analyse course outlines **keeping objectives** in mind;
- a **understand the** process of empirically validating curricular material; and
- appreciate the need for continuous **appraisal and renewal** of curricular material.

Steps in curriculum development

Curriculum development requires a systematic approach to make it relevant to all programmes and courses. Curriculum development is an evolutionary process. Before the curriculum is finalized, it has to be put through a series of developmental stages. The figure below indicates the process that consists of five stages or steps to arrive at the final curriculum.

Stage	Development activity
● Goal Specification	Identification and specification of instructional objectives
● Planning	Writing outlines Specification of scope Content sequence Selection of teaching-learning strategies Identification of reading and reference material
● Validation	Evaluation by expert bodies
● Field testing	Determine optimal conditions of programme use Study links with other classrooms Institutional operations
● Quality control	Refine curriculum for larger adoption

Figure 1 Stages of curriculum development

The curriculum development process normally begins with the task of identifying the **specific objectives** of teaching a particular course of the programme. The importance of setting specific objectives is that they act as broad parameters for making all further decisions regarding content selection, time allocation, assignment of credits, etc. Each course or programme can have very different purposes. For example, a course in **Physics at the under-graduate level**, may aim only at developing the basic knowledge and understanding of related concepts and ideas. At the post-graduate level, the purpose of the course will be to develop the capabilities of application and analysis. At the advanced level, the learner is expected to synthesise the knowledge obtained from diverse sources and perhaps even generate new ideas. It is the instructional objective, which guides us in the scope of a particular course of study, its breadth and depth, and the expected learning outcomes on the part of the students when they complete the course of study successfully.

Practices followed in Indian universities indicate that formulation of instructional objectives is left to individual teachers and examiners to examine the underlying objectives and orient their teaching activities accordingly. This is a great opportunity for exercising autonomy and deciding the scope of a particular field of study and on the quality of teaching skills and evaluation of students with ingenuity.

The route to using this opportunity is to identify the instructional goals clearly at the onset in departmental settings to avoid leaving it to individual interpretation; especially at the undergraduate level where external examination is involved.

The core activity in curriculum development process is working out the content that will help achieve specific objectives for each course. This involves a series of sequential actions as follows:

Step 1: Specification of the scope and contents of instruction.

Step 2: Writing content outlines.

Step 3: Specification of the relative weightages for the different content **items** within a course, in times of instructional time allocation.

Step 4: Selection of the teaching-learning strategies such as **classroom** teaching, practicals, demonstrations, field work, self study, library work, tutorials, seminars, group discussions and so on.

Step 5: Development of instructional material /identification of reading and reference material.

Step 6: Specification of evaluation procedures.

Self-assessment

1. *Examine the framework of any course you are teaching and see if it broadly adheres to the above six dimensions of effective curriculum development. Write your observations.*

.....

.....

.....

Mechanics of curriculum development

Decision-making process with regard to curriculum must be a cooperative and not an individual concern. The courses to be taught and their contents are of equal importance to teachers, students, administrators, subject experts and members of the community. Several **questions** remain unanswered today, two of the **main** being:

- How are the Indian **universities** operationalising the collective process of **decision-making** with respect to curriculum development?
- What are the specific roles played by each of the stakeholders in this process?

Universities adopt varying patterns and no single description can capture the process of curriculum development. As this directly affects the work of the teacher, it necessitates a closer study.

The broad outlines of the curriculum framework adopted by any university are relatively stable. For example, issues such as whether the undergraduate course must consist of one major course and two minor ones, do not require periodic deliberation. But the crux of **curriculum** planning and **development** is individual course outlines because the frontiers of knowledge are constantly changing. This has a direct impact on the teaching-learning process as well as the quality of students graduating from the particular university.

The **Board of Studies** is the formal body where collective thinking on curriculum issues is generated. Teachers and subject experts examine the proposals made for revision of existing curriculum, inclusion of new courses, appointments of examiners and so on. The proposals approved by the Board of Studies are then placed before **the** Faculty.

The **Faculty** is comprised of teachers from a multi-disciplinary background and varying specializations and together represents the various teaching departments of any university. Members of the community are also a part of the Faculty, such as educationists, social workers, industrialists and others. The Faculty examines **the suitability** of the proposals made **by** the Board of Studies and makes recommendations.

In some universities, the proposals approved by the Faculty are placed for further examination and formal approval to the **Academic Council** or **Post Graduate Council**.

Curriculum development activity	Responsibility
<ul style="list-style-type: none"> ● Course formulation – form and substance of the course 	Subject teachers/expert
<ul style="list-style-type: none"> ● Examining the form and substance of the course from the disciplinary angle 	Board-of Studies
<ul style="list-style-type: none"> ● Examining the relevance and placement of the Course in an interdisciplinary perspective 	Faculty
<ul style="list-style-type: none"> ● Examining the broad policy implications 	Academic Council/Council of Post Graduate Studies

Figure 2 Summary of activities and responsibilities of the curriculum development team in the universities.

Description in the above figure is broad and generalized. The constitution of the bodies and the procedures for processing the proposals will differ from one university to the other. By and large, curriculum related issues in most universities involve a cross-section of people. This is particularly necessary in the Indian context of higher education where affiliation to a central institution necessitates a common course of studies and an external examination to be followed by all institutions seeking the affiliation. While this reasoning seems sound, it still leaves some questions unresolved:

- Are these formal bodies able to understand and accommodate the ideas and aspirations of the students?
- Do these bodies have adequate representation of practicing teachers or do Heads of Departments, Deans and Principals who really belong to the administrative section overburden them?
- Are these formal bodies efficient enough to **elicit** and incorporate the perceptions of the community?
- These bodies are primarily focused on examining the proposals in form, but who ensures the quality of the substance of the curricular input is up to the mark?

To conclude, we can say that curriculum development is not a mechanical process. It requires collective thinking and decision making along with individual enthusiasm, dedication and experimentation. The challenge **for** curriculum developers in **any** university is balancing the diverse interests of many members. It is the teacher who ultimately transacts the course inputs and should **play** a major role in this process. As yet, this is to happen.

Freedom and autonomy for course specification

Quality of curriculum is hugely dependent on scientific and systematic preparatory exercises carried out by Board of Studies and **Faculty** before they carve out their **final** proposals. Many questions remain – who are the people who **carry** out these exercises? Are scientific explorations initiated before the formulation of curriculum?

The profession of **teaching** demands a wider participation from the teacher –serious thought must be given to **these limitations** to ensure the teachers' active participation in the curriculum building process. While the formal bodies may not offer them adequate scope of participation, the **informal** processes that are directly to do with the curriculum, provide plenty of **opportunities** for teachers to take initiative in the area of their specializations.

Autonomy for individual institutions and teachers

There are arguments for and against centralized decision making with regard to the curriculum. It is argued that when decisions are made at the university level, freedom of an individual institution and a teacher's skill and innovative spirit is taken away. Thus, many are in the favour of decisions being taken at the level of individual colleges. However, there remain many unanswered questions such as implications in terms of teaching and evaluation for any policy change to take place. These need examination.

Implications for teaching and evaluation

Autonomy to the teachers in the development of curriculum will offer tremendous opportunities to a teacher to experiment, innovate and explore new areas of teaching. Recently, UGC has made efforts to promote **Autonomous Colleges** in various parts of the country. Under this system, universities of long standing repute and consistent performance have been given the freedom to formulate their own courses and conduct their own examinations. However, the Universities continue to award the degrees and diplomas to students graduating from these colleges. Nevertheless, the teacher does not have complete freedom to formulate the curriculum as autonomous colleges have a similar structure for curriculum formulation, as do the universities. There are about 85 of more than 5000 colleges in India that have been given autonomy.

Autonomy to individual colleges gives them great freedom and encourages enthusiasm and commitment but it also puts a great deal of responsibility on them. It is important for teachers to **remain** dynamic and alert, aware of the research being done in their relative subjects **and** the aspirations of the students, which demands a high degree of professionalism.

Institutions have to set up their own mechanism of internal process of monitoring so that the freedom and autonomy are put to best use. Studies conducted on Autonomous Colleges reveal that the reactions of teachers and students on the success of this arrangement is **mixed**. Some consider it a positive step towards higher education, while others do not agree. It is too early to judge the merit and worth of this scheme. Perhaps, the provision of autonomy may have a direct impact on increased accountability of institutions and professions.

Development of specific objectives and course outline

What is **then** the objective of this unit? If the curriculum is already handed down to the teacher by the powers that be, then why is the teacher expected to **repeat** the process of formulating specific objectives. The answer is simple. The experiences for an individual student in the classroom and the collective of students in the college cannot take place in a directionless manner. The curriculum should give a clear indication to the teacher of what has to be taught and how it should be taught. In the higher education stage, a lot depends on self-study by the students with their teachers' guidance and supervision. The curriculum must therefore become a guide and also outline the outcomes expected of the students and the level of performance that will be considered adequate. This will also help provide the examiners a concrete basis to set the question papers and evaluate student performance. What remains to be assessed is whether the provision of a copy of the syllabus to the teacher and examiner is enough to achieve these objectives?

Objectives for each course must be clearly defined and expectations from students must be laid out clearly. These **specifications** should be made to facilitate measurement of course objectives in an objective manner. The course content must clearly indicate **learning outcomes** to be attained. This becomes particularly important when the evaluation involves external examiners.

Implications of having course specifications:

- requires teachers to make a detailed analysis of the expectations from the students enrolled in the course;
- requires authorities to ensure that necessary facilities are provided in the instructional settings where the curriculum is conducted;
- provides the practicing teacher with a solid reference point for evaluating the effectiveness or otherwise, of one's own teaching and guidance to the students;
- provides framework for self-study by students;
- helps eliminate the many different interpretations by the examiners and the expectations of the knowledge the students are supposed to make.

Specifications in terms of learning outcomes are not new to teachers. It is fairly common for a teacher to lay down the level of expectations in the performance of learners. However, these specifications remain only as a subjective understanding on the scope of treatment to be given to a particular content point, as well as the expectations of its impact on student learning. Even if the prescribed syllabus does not specify the objectives and detailed course contents explicitly, it is desirable that teachers explicate their **understanding** in this regard and make it known to their students.

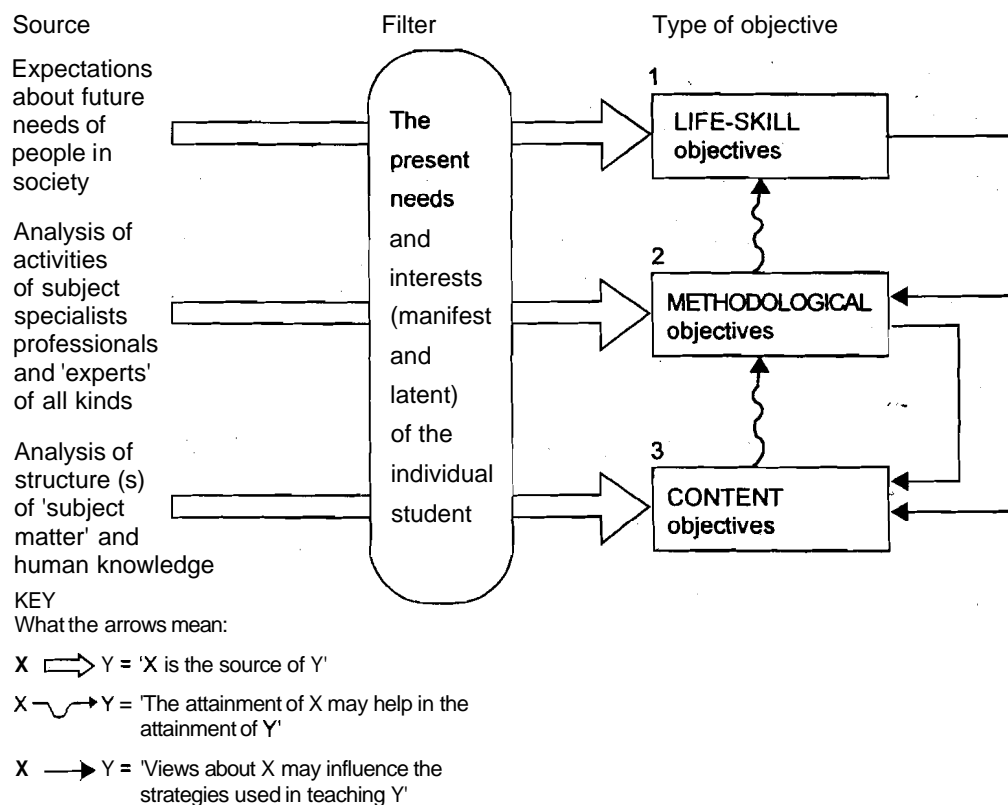


Figure 3 Source of objectives

Specification & weightage

The extent and nature of emphasis to be laid on various aspects of the courses in the programme, specification of objectives and course contents helps remove bias in the **interpretation** of subject content. The next most important point is to decide which aspects of the content in the course will be given relative emphasis. Criteria for relative emphasis are mainly three – **specification of time**, **specification of activities** to be undertaken and **specification of credits** given for different courses and contents.

Specification of time

The teacher will have to bear in mind that the total time available for transacting various courses is limited. Time is allocated in the syllabus according to the relative weightage to be given to different courses and content points in quantitative terms. The teacher will **need** to consider:

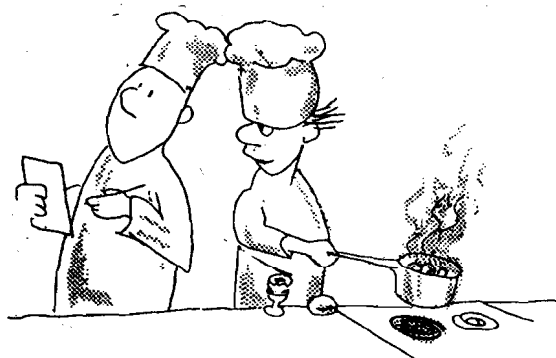
- specific objectives of various courses;
- previous level of learning of students with regard to the particular content units to be transacted;
- the difficulty level of the particular content units under consideration; and
- the particular stage at which the contents will be transacted, such as undergraduate level, post graduate level, etc.

Nature of activities

The achievement of different objectives involves adoption of variations in the transactional modes to be adopted. For example, some objectives may mean that the transaction of **the** course be done entirely through fieldwork. Yet other objectives may mean that the teacher uses a combination of modes of transaction depending on the demands of time and the resources available. A teacher will have to be conscious of the limitations of resources, time and the demands of specific objectives to be met to arrive at a combination of different kinds of activities to make the transaction effective for students.

Specification of credits

While deciding on the relative importance and weightage to be given to various courses and course contents, a teacher will also have to be conscious about the need for evaluation in addition to the effectiveness of student performance in the teaching-learning processes. To be specific, relative weightage to be given to different programme **courses/** content units for the evaluation of students needs to be considered. This will obviously influence decision on the **time** allocated for teaching and also help a teacher to decide on **the depth and** breadth of treatment to be given to a particular topic being taught. Relative credits allocated to different courses coupled with the nature of evaluation procedures to be adopted will also determine **the** types of activities that the **students** will be put through. For example, if evaluation is to be oriented towards assessing the knowledge component, it may be appropriate to keep the practical work component **in** teaching to the minimum. But, if the treatment of the course demands extensive fieldwork, a teacher will have to provide for the same.



I've been boiling these eggs for half an hour but they are still hard!

Competence assessments may involve more than just a **demonstration** of skill: an assessment of knowledge and understanding will take **place** although this will often **form** part of the same assessment by **questioning**. In some cases a **written** test may be required.

Source: John Burke

The teacher must balance the demands of time, nature of activities and the evaluation requirements in a meaningful way. The need of the hour is to view the process of curriculum development in a comprehensive manner, giving adequate consideration to objective specification, the specification of teaching-learning methodology, time requirement and the evaluation processes to be adopted. It is essential that the teaching-learning process and the evaluation process are closely linked activities. Detailed guidelines of the evaluation process have been dealt with in Unit 16 of the same Block.

Self-assessment

2. Write the outline of the syllabus in any one of the courses that you teach in the following table. Determine the weightage of each unit/sub-unit in the syllabus.

Syllabus Unit/Sub-unit	Time in hours allocated to it. (a)	Average marks allocated to it in the examination* (b)	Weightage = (a) + (b)
.....			
.....			

* Add up all the different marks that the concerned unit/sub-unit has been allocated in different examinations and divide it by the number of times that it has appeared in an examination.

Depending on the weightage, credits and the kind of objectives to be achieved the teacher would decide on the curriculum. This would mean that the teacher decides the combination of methodology/process and the assessment method to achieve the objectives. Given below is a table of suggested methodology and methods of assessment to aid teachers in making the choices vis-à-vis objectives.

Objective	Methodology of transaction	Methodology of assessment
<i>Cognitive.</i>		
1. Knowledge and Comprehension	<ul style="list-style-type: none"> ● Lecture method ● Library Research 	<ul style="list-style-type: none"> ● Paper – pencil test (written examination/testing)
2. Application	<ul style="list-style-type: none"> ● Problem solving techniques (inductive/ deductive methods) ● Project method 	<ul style="list-style-type: none"> ● Assess the product of the process used for accuracy, and speed.
3. Analysis	<ul style="list-style-type: none"> ● Group Discussion ● Project work 	<ul style="list-style-type: none"> ● Assess product of group work ● Paper and Pencil test
4. Synthesis	<ul style="list-style-type: none"> ● Project method ● Assignment 	<ul style="list-style-type: none"> ● Assess product of project for understanding of concept and its use to produce something innovative ● Assess assignment for innovative combination of different aspects ● Paper-Pencil test
5. Evaluation	<ul style="list-style-type: none"> ● Group discussion ● Debating ● Writing and presenting position papers 	<ul style="list-style-type: none"> ● Assessing the evidential strength of position propagated.

Figure 4 Options for processes and assessment vis-A-vis objectives

Student evaluation

An important aspect of curriculum development is student evaluation. This is specified at the same time as the objectives are specified and the methodology of curriculum transaction is decided. This is so because the curriculum plan is complete only when the evaluation criteria are in place to provide evidence of the achievement of objectives. The normal practice is to conduct **tests/exams** to assess **the** extent of achievement of these objectives. The tools thus used **have** an inherent disadvantage in the sense that they are an end of term phenomenon and so do not provide the teacher any indication of student progress during the process of curriculum transaction. However for the end of term examinations to yield results, which show the success of the content and methodology of transaction, the teacher should have mechanisms of assessment, which will help **him/her make** mid-course corrections.

Continuous comprehensive evaluation

This system of evaluation is considered most suited to the students and teachers based on research findings. **This will** be discussed in detail based on empirical evidence of four schools.

The biggest change foreseen in assessment practices represents a fundamental power-shift. Assessment and evaluation is gradually becoming a shared activity. Students and parents are becoming part of the process and expect to understand and participate in the decision-making that results. Teachers who want to serve their students well are beginning to seek out ways to share the evaluation process.

Constructivist pedagogy suggests that student **evaluation** should help students to develop the plan for **their** own learning. It should provide positive feedback and encourage students to participate actively in their own learning especially so in higher education settings.

From the information collected through assessment activities, teachers evaluate student performance. They use their insight, knowledge about learning, and experience with students, along with the specific criteria they establish, to make judgments about student performance in relation to expected learning outcomes.

An assessment system based on **the** principles of continuous comprehensive evaluation is a sound example of such a system. Continuous, comprehensive evaluation provides opportunities for teachers to **make** suitable changes in their efforts. Continuous feedback also provides direction to students and parents in their understanding about the progress of the child.

Continuous and **comprehensive** evaluation is intended to provide a **holistic** profile of the learner through assessment of both **scholastic** and **non-scholastic** aspects of education spread over the total span of instructional time in colleges. Through continuous evaluation, it is possible to regularly obtain valuable data about the strengths and weaknesses of the students. This is helpful in providing remedial and enriched instruction with a view to realising the learning outcomes and correlating through this monitoring with the aims of education.

Salient features of continuous comprehensive evaluation

Regular: Assessment is a means to an end and not an end in itself. Evaluation of student performance and achievement is not a one-time event but an on going process. With **the** aim of discovering the pace of progress and strengths and weaknesses of students, Continuous comprehensive evaluation (CCE) is held at regular intervals. This reduces unnecessary **burden** on the **student** and makes space for **better** concept clarity and application of learning.

Focus on holistic development: Continuous comprehensive evaluation covers **all** aspects of the student's scholastic and non-scholastic development. In addition to focusing on evaluating knowledge, CCE also emphasises on the development of health, interests and character, development of ability to problem solve, make choices for decision making, communicate and relate with people.

Uses a variety of tools and techniques: CCE aims to make an unbiased and accurate judgment of a student's progress for which teachers need to collect evidence from various sources. The selection of activities and procedures for assessment are employed with the central objective of the harmonious growth of the student.

Involvement of all stakeholders: Considering that there is tremendous a value and need for support to student learning outside the classrooms; peers, teachers, parents and other staff are involved and communication and orientation is provided for them.

Continuous process of evaluation: Diagnoses of learning gaps, feedback, use of corrective measures, re-testing of student learning some aspects which are continuous.

Comprehensive learning: Record of the personality and attitude of the student is also maintained in order to help the **him/her** to develop positive attitudes and values. Participation in co-curricular activities and games is also a component of the evaluation process. The focus of CCE is *thus more on improvement of student's achievement rather than passing judgments.*

Key concepts in continuous comprehensive evaluation

Integration

Consider evaluation as an integral part of the teaching learning process and not merely at the end of the course activity.

Continuity

Undertake as frequently as possible, assessment of students' learning to remain in constant touch with development and growth of students.

Comprehensiveness

Include both scholastic areas for assessment of total development of the students, using testing **and** non-testing techniques of evaluation.

Co-operation

Involves other teachers, students, peers, observers and even community members in assessment and judgement making for more dependable evidence.

Criterion referenced

Seek evidence in terms of predetermined objectives or criterion for learning.

Diagnosis

Analyse all evidence gathered about students to identify inadequacies in student learning, to provide basis for remedial measures.

Feedback

Use test results and other evidence for reinforcement and improvement of student learning as well as instructional strategies.

Reading and reference material

Education at university level demands a considerable amount of self-study. Curriculum must specify a list of books and publications, which the students can refer to. Content of reference material must have direct relation to the course **content** being transacted. These must be in **consonance** with scope of treatment provided in curriculum and **should** be easily accessible to teachers and students.

Normally, the two categories of materials listed are books that function as textual **reading** material and reference materials consisting of original writings. In the **Indian** context, **there** is absence of standard textbooks for a course and students are often forced to depend on classroom lectures. This problem is acute in the case of material in **Indian** languages.

The second category of material is the reference material that can include original writings on **the** subject by outstanding authors and researched work that may not be available in textbooks. This encourages students to **think** beyond **minimum** levels of learning that they are expected to achieve in a particular course.

Developmental tryout of curricular material

The best test for identifying suitability of curriculum is to try it out in the classroom and collect feedback from the field. **This** will validate the operational suitability of the curriculum.

Developmental tryout of curricular material helps to determine operational viability of the curriculum in terms of:

suitability of curricular expectations with respect to needs, abilities and aspirations of the learners;

operational feasibility – resources available to the institution to transact the inputs of **the curriculum**;

qualifications, background, **professional** interests and capabilities of **teachers** who will teach the curriculum; and

weightage given to various parts of the curriculum in terms of time, credits, nature of activities, etc.

The curriculum rarely goes through the above evaluation process. The commonly adopted rigid framework for **teaching** and evaluation provides little freedom for **such** developmental tryouts of the curriculum. This is perhaps the **main** reason for the frequent complaints made by the teachers and students of the inappropriateness of the curricular inputs.

Institutionalisation of the curriculum renewal process

Dynamism in curriculum development process is essential if students and teachers are to forge ahead together during the course of their teaching-learning endeavours. Curriculum must **respond** to the rapid strides made in the frontiers of knowledge in any subject, the ever-changing needs and aspirations of the learners and **the** changing socio-economic characteristics of society. A curriculum that effectively responds to all of these is a **dynamic** one.

There has to be a constant renewal and **update** of curricular inputs because research and new **findings** are constantly taking place across the world in every subject. It is important for curriculum revision to take place regularly **and** not on an ad-hoc or **contingency** basis.

Planning and Management of Curriculum

Acquiring feedback from students and other sources is vital if an institution of higher learning **must** know where it **stands** with regard to the existing curriculum. Is there a mechanism to collect this information and use it systematically to bring about an improvement required in the existing curriculum?

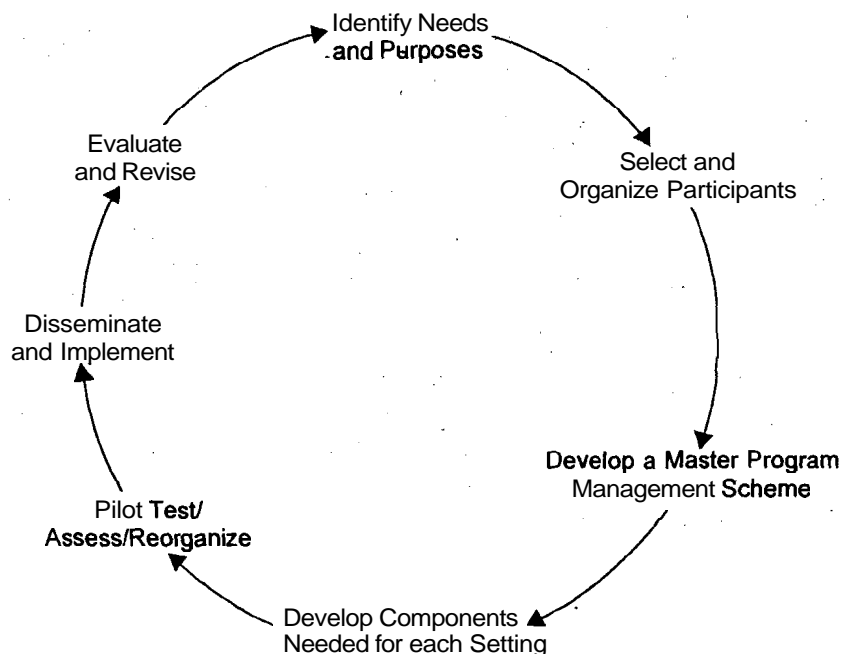


Figure 5 A Curriculum-development Model

Curriculum development is seen as a cyclical activity where each step is influenced by the one that follows, and in the process, redefines itself. Evaluative information on the curriculum gets generated in the field in a **formal** or informal manner. It is therefore possible to acquire this feedback and use it to renew the curriculum process as a continuous process.

Self-assessment

3. **Analyse** the objectives and content units of a particular course that you are teaching; also analyse the examination procedures/ question papers used for evaluating the course in the previous year.
4. In the context of the above discuss whether the weightage given in terms of time allocation to different topics, the teaching-learning procedures adopted, and the credits/marks allocated in the examination, are appropriate or not.

Summary

In this unit, we discussed certain steps involved in the curriculum development process, like setting the scope and contents of instruction, writing the content outline, assigning relative weightage to the content keeping time allocation in view, the selection of teaching-learning strategies, development of instructional inputs and specifying evaluation procedures. Focus has been on the various mechanics involved in curriculum development in different areas of study at the university level. Techniques on how to develop specific objectives for each course outline have been highlighted, keeping the learning outcome in mind, and also **specifying** the weightage to be given to time, nature of activities and student evaluation in terms of credits. Lastly, we have discussed the importance of constant curriculum renewal and the operational validity of **curricular** material through tryouts in the real **classroom**.

Unit-end activity

1. Collect systematic information from students on their perceptions of the suitability of the curricular inputs being provided in one of the subjects you are teaching, through an appropriate questionnaire. Write a brief note on the extent to which the curriculum matches the needs, aspirations and abilities of the learners. Also, list the problems that you face as a result of lack of time and resources in effectively transacting the prescribed curricular inputs.

Suggested readings

NCERT 2000 "Continuous Comprehensive Evaluation at Secondary Level" in *Inservice Teacher Education Package*.