UNIT 3 DESIGN AND DEVELOPMENT OF CBI COURSEWARE-II

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3.1 INTRODUCTION

Now-a-days computers and computer based communication system have a major role in education field. It is neither the increased scale of use nor their immediacy of response, it is simply that micro-computers have made us all into computer managers as well as users. The revolution is thus not in micro-electronics but in personal computer system also. One decade before the idea of having a self standing computer in a school classroom seemed a science fiction dream. Today, computers are commonly used for teaching-learning and other administrative activities in our country. The situation may not be same in schools located in rural and remote areas but today access is not difficult.

As you know, computer has the potentialities as a latest technology and a tool. Its tremendous potentialities can be manipulated by the experts who use it the best possible way. The courseware developed adapts the principles we use in the course development in any medium i.e. printed SIM, audio-video SIM, etc. In this unit, the focus is mainly on the issues involved with the selection of media in CBI design and development. The other aspects are development styles and screen design, prototype generation and test items.

The field of educational media and technology is of interest to educational reformers as well as educational planners. This is due to the radical change which can bring about in educational curricula and techniques by their potential to produce and distribute quality materials.
3.2 OBJECTIVES

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

- understand the relevance of media in design and development of CBI;
- list the issues related to media selection in CBI design and development;
- understand the various points involved in development styles and screen design in CBI; and
- describe the prototype generation and test items in the context of design and development of CBI.

3.3 MEDIA SELECTION ISSUES

3.3.1 Concept

The communication media used in education to date are Radio and Television. This was followed by the use of computers based materials such as Computer-Based Tutors. These are passive media and does not involve the learner while teaching. The selection of an appropriate communication media to impart mass education by using the CBI is very critical. The use of a computer in delivering CBI provides an interactive environment for the learners. They can proceed with the learning material any number of times and at their own pace of learning. This has become more serious in developing countries where problems are enormous and resources relatively scarce. The communication media should be apt to be relied upon to be useful in the years ahead.

In keeping with an expanded concept of education and the variety of activities now subsumed under such a concept, the role and expectations surrounding the users of communication media have broadened considerably in last years. The trend is towards systematic educational planning. Planning involving a wide variety of resources, prevails in most countries as well as to numerous international organizations working to different educational innovation of all kinds.

3.3.2 Purpose

The computerization trend consists of a purposeful and integrated approach to the use of communication media. So many interesting projects and experiments involving communication media have taken place in area where the educational needs appear most pressing and where traditional educational resources such as schools, trained teachers and learning materials of all kinds are in the shortest supply.

3.3.3 Need

Although the performance of the media to date in various educational reform and development projects has not been uniformly successful. Several projects have been initiated but few have survived long enough to demonstrate the scale or quality of impact that their originators and administrators had initially anticipated. So far the vision of what the media could accomplish in education has not been proceeded by adequate analysis of the specific educational problems that were to be addressed.

3.3.4 Role of Media Selectio

Now-a-days communication media have been spread throughout the world and created a network of interconnectedness among almost all nations. Radio spread rapidly during the years after 1960 as transistors made cheap portable radios a possibility for many people even in poor rural area, televisions is now spreading throughout many area of the world. After that television lies with both schools and the families as a socialising force. Today computer has taken a place at every where.

3.3.5 Kind

Each and every field of education has been effected with the impact of computer and networking. The following are issues which are needed for media selection:
i) Democratization of educational opportunity
ii) Improving the quality of instruction and learning
iii) Impact of communication media on rural area
iv) Participation of people in their own education
v) Effective demonstration via computerized plan
vi) Motivation to education field through computerized graphical mode

Check Your Progress

Notes: i) Write your answers in the space given below.
ii) Compare your answers with those given at the end of the unit.

1. Define what are media selection issues?


2. What are the two major objectives of media selection issues?


3. What is the role of media selection issues?


4. What are the three major kinds of media selection issues?


3.4 DEVELOPMENT STYLES AND SCREEN DESIGN

3.4.1 Goal

Development of all teaching system used in the project required the design and fabrication of suitable interactive video workstation. Interactive video is a unique combination of video disc and micro-computer which has the potential to augment existing attributes of each medium separately. Unless the relatively recent development of interactive video disc technology, the combination of the richness of film and television with the spontaneous qualities of interactive computing has been unattainable. IV workstation required the production of appropriate courseware for use.

3.4.2 Steps

Any project can be divided in four steps for developmental purpose. These steps are:
Step-I: It is devoted to examining a suitable theoretical base for the production of the computer video disc Software to teach the concept of weather forecasting. This step of the developmental project was to derive design dimension based upon a review of the existing literature especially that applying to:

i) Learning problems in geography;

ii) Translation of these dimensions for video disc materials.

Step-II: This step involved the recording of visual materials on 16 mm film as part of a larger video disc material project. This step had distinct but integrated stages:

i) Selection and preparation of presentation chart and diagrams;

ii) Selection of satellite images to match the synoptic charts and diagrams;

iii) Selection and preparation of diagrams and illustrations using graphic design technique.

Step III: This involved in computer assisted learning courseware preparation. It has two stages:

i) Deliberation about selection of an appropriate programming language system to generate the initial coding for CAL Program;

ii) Adoption and refinement of Apple Super PILOT in the computer assisted interactive video instruction designing.

Step IV: This is involved in evaluation of computer-assisted interactive video materials.

3.4.3 Screen Design Objectives

The concept 'Screen Design' to the development of computer assisted learning has emerged as a result of closely related two issues. First current micro-computer technology with the dynamic visual display rather than the older, typed scrolled output from a teletype printer terminal, has opened up opportunities which are greatly affected the way in where the user can actually interact with the program. Second, the problems of handling images requires methods of defining very clearly particular areas of the screen and the drawing of graphs on them. This is emerging aspects of screen design and the control of a program linked with a style of designing and code, and related to the option decoder. In the sequence of development it has been apparent that the screens not just a dynamic replacement of the scrolling paper line by line output of the teletype it is now a key part of the way the user perceives the program and interacts with it.

3.4.4 Screen Design Planning

From its starting, computer is an effective learning aid is being influenced by the design of the screen, far more attention needed to be given to the planning, designing and execution of screen displays. Primary units were very much a reflection of the structure of the code and its associated roles, this, in some cases actually observed the educational purpose of the unit itself. The collection of expertise suggested the new general insights into the issues:

i) The graphics should be associated with pictorial image.

ii) Picture must be used to replace words.

iii) Appropriate and excessive use of colour combination

iv) Various strategies to be used by artists over the countries could be used to provide a sense of depth and related importance being the screen two-dimensional.

v) Because space is an important component of any picture so that use of space should be effectively done by considering its positive benefits.

vi) Messages to drive the program do not need to be separated from the graphics areas, but can be incorporated within.

3.4.5 Utilities of Screen Designing

- It is important to try to give the screens, particularly when they change some visual continuity, without linking disparate elements in a spurious way.
Generally, people read from left to right and top to bottom, it is sensible to place all headings or titles at the top and all prompts, such as 'Enter your choice or press return at the bottom.

Always clear existing information before replacing it with new. This root only attracts attention to the cleared part in anticipation of the new, but it prevents the new from being muddled with the old.

Create an impression of depth by using shadow, colour or perspective.

Animation can direct the eye towards the area of the screen that is currently most significant.

**3.4.6 Environment Utilising in the Developmental Process**

The most important consideration of screen design can make a significant difference to the impact of a CAL with. It is important to link the design with the accompanying notes this creates a server of the unity of identity for the whole package. This can be achieved by choosing particular pictorial image and a title that are not only used on the front page of the software and the title cover of the booklets, but which can be readily associated in the user's mind with the unique contents of that particular unit. The environment can be selected as per the need of user.

**Check Your Progress**

**Notes:** i) Write your answers in the space given below.

ii) Compare your answers with those given at the end of the unit.

5. What is the goal of developmental process?

6. What is the objective of screen design?

7. What are the three utilities of screen designing?

8. What are the environments may be adopted for developmental process?
3.5 PROTOTYPE GENERATION

3.5.1 Concept
Prototype generation is a process through which we perform two jobs simultaneously i.e. development as well as online data testing. Generally at the time of development a developer faces the problem that how to test the software. Dummy data use for testing the software in precise but at the epoch of implement the same software it gives the problems. So that the concepts of prototype has taken a place. The live data is to be tested at the time of developmental process.

3.5.2 Importance
Now-a-days prototype technique is very important technique in IT technology. To develop a package for Import Export Trade Licensing, Custom, Central Excise and passport, etc. This technique proved a very dynamic role. A developer can sort out the problem which he/she faced at the developing stage immediately. Some advantages are below:

i) It is time saving process during the developmental stage.
ii) Software implies the accuracy and perfectness by least efforts.
iii) User-friendly and interactive media for development.

3.5.3 Application
In the field of development so many applications of prototype are involved. All trunky projects in industry, agriculture, space, defense, food and civil supply are handled through this technique. Perfect software maintenance is possible through prototype generation.

3.6 TEST ITEM

3.6.1 Concept
Test item is an essential part of education system. It is involved uniformly in education at the different stages. Test item depends upon the nature of educational structure. Without testing system the education system is incomplete. Test item may be structured as per the requirement of educational pattern. It is a matter of fact to assume that computerized test system can be implemented into educational setting with automatic success. Using information technology in education management, selection of test items irrespective of scope is an innovative process which needs managing. Test item has a broad scope encompassing management activities in exam planning and assessment in education field.

3.6.2 Type
There are following types of test item:

i) Personality Test (oral test)
ii) Academic test
iii) Computer Aided performance test

i) Personality Test
This test is conducted for individual student. In the classroom the teacher asks the question and examines the performance of individual student during the lecture. Teacher may judge that the particular student is grasping the concept or not in the class. Demonstration on computer is the best media for such test because at the screen of computer, teacher may ask the question.

ii) Academic Test
Academic test is a regular basis test through which a certain course covered by the teacher at the fixed time interval. There are various kind of academic test as following:
Computer Based Instruction

(a) Weekly Test: In this item the test covers the course which has been taught during a week. The question paper prepared on a computer and student solve it on computer also.

(b) Monthly Test: The course of one month taken for monthly test on computer. This is cumulative test of four weeks on computer.

(c) Half Yearly Test: This is mid session test and included the course of last six months. There is also a valuation programme at computer which valuate the questions' answer.

(d) Annually Test: This is conducted once in a year and covers the course of whole year.

(iii) Computer-Aided Performance Test

This is an advance technique for taking the exam as well as valuation. In the procedure there are a question bank of various questions covering the whole course under different topics. There is also mentioned a time frame which effects course. For example, if we want to take the weekly test the computer ask the period of exam. We may cover the course of one week as we have given the period for one week. In the same way monthly test, half yearly and annual test may be conducted by computer feeding the assigned time period. A package is also available on computer for assessing the answer. So that teacher can examine the performance of students. Presently this technique has been adopted in civil service exam and in many other departments also.

Check Your Progress

Notes: 1) Write your answers in the space given below
2) Compare your answers with those given at the end of the unit

9. What is Test Item?

10. What is computer-aided performance test?

11. What are the kind of Test Item?

3.7 LET US SUM UP

In this unit we have covered the four major content points: media selection issues, development of styles and screen, design, prototype generation and test items. The major issues discussed, with respect to media selection, are concept, purpose, need, role and kinds. Goals of development process, steps of development, screen design objectives and planning, utilities of screen designing and environments utilizing in developmental process are discussed under the theme developmental styles and screen design. Concept, importance and application of prototype generation are discussed under prototype generation. The test items discussed in two aspects i.e. concept and type of test items.
3.8 UNIT-END EXERCISES

1. Select a few CBI coursewares and analyse them with respect to the issues discussed in this unit. Discuss about them with your peers at the study centre and write a report.

2. Select any topic of your choice from secondary/higher secondary school syllabus. Write a report highlighting the media selection issues you would like to consider in design and development of CBI courseware in this topic. Write a report.

3.9 ANSWERS TO CHECK YOUR PROGRESS

1. Media selection issues is a tool by which we manage the learning process.

2. i) Teaching with computer
   ii) Administration with computer

3. To Spread the knowledge throughout the world.

4. i) Improvement of instruction and learning quality
   ii) Impact of communication media on rural area
   iii) Participation of people in their own education

5. Test Item is a media to examine the performance of the student.

6. Computer based examination is called the computer-aided performance test.

7. i) Personality test
   ii) Academic test
   iii) Computer-aided performance test

3.10 SUGGESTED READINGS
