ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN DEVELOPING SELF INSTRUCTIONAL MATERIALS FOR OPEN DISTANCE LEARNING

Dr. Anita Singh
Assistant Professor, Faculty of Education
Pt. Sundarlal Sharma (Open) University Bilaspur (C.G.)

In the title of the topic above, three terms ICT, Development of self instructional materials (SIM) and Open distance learning (ODL) are given. First of all, they should be introduced :

ICT stands for Information and Communication Technology. ICTs have diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information.Technologies involved in ICTs are Computers. Internet, broadcasting Technologies ie. Radio & TV and telephone. At least five levels of technological use in Education ate identified –They are presentation, demonstration, drill and practice, interaction and collaboration. Although computers and internet are the ICTs that enable interaction and collaboration, it demands technological literacy. Specially, technological literacy of computer applications for distance education may be categorized into four heads:]

(1.) Computers Assisted Instruction (CAI) is used in presenting discrete lessons to achieve specific but limited educational objectives. Modes used in this category are drill and practice, tutorial, games and problem solving.

(2.) Computer Managed Instruction (CMI) – This uses –the computers branching , storage and retrieval capabilities to organize instruction and track students records and progress.

(3.) Computer Mediated Communication (CMC) – This is used to facilitate communication such as electronic mail, computer conferencing and electronic bulletin boards.

(4.) Computer based Multimedia (CBM) – The goal of using this tool is to integrate various voice, video and computer technologies into a Single, easily accessible delivery system. Latest advancements of recent years like internet using electronic mail (e-mail), World Wide Web (WWW), use of internet and WWW will help students in gaining the basic knowledge of how to get advantage with network world. ICT is more powerful than previous technologies because of their ability to integrate multiple media into simple educational application, interactivity, flexibility of use and connectivity. Use of ICT can empower both the teacher to effectively transect content and the learner to learn efficiently.

The Concept of Open and Distance Learning:

Open and Distance learning is defined by the Commonwealth of learning as "a way providing learning opportunities to all section of society"

Open and Distance Learning refers to educational patterns, approaches and strategies that permit people to learn with no barriers in respect of time and space, age, no age limit no regards to sex, race, tribe, state of origin etc. According to Holm berg (1977), it is a system of education that

does not operate through convention which is essentially restriction in nature – admission restriction, attendance restriction, subject combination restriction etc. The combination of distance education and open learning will give a composite picture in the context of the term – Open and Distance Learning

Open and Distance Learning is one of the most rapidly growing fields of education. The terms open learning and Distance education represent approaches that focus on opening access to education and training provision freeing learners from the constraints of time and place and offering flexible learning opportunities to individuals and group of learns.

According to Dohmen (1977) , Distance education is a systemically organized form of self study in which student counselling, the presentation of learning material and the securing and supervising of students success is carried out by a team of teachers, each of whom has responsibilities. It is made possible at a distance by mean of media which can cover long distance.

There are two common aspects of distance education – ie self study and the use of media for educational communication. Its perception as an alternative to the exiting conventional system includes corresponding challenges, requiring immediate attention.

Distance education has four elements namely student ,community, Private /Public organization for –profit /non profit communication, radio, television, internet etc and content diverse course. Distance education has five generations – correspondence, broad cast radio / television, Open Universities using combined approaches interactive teleconferencing and the current generation of on line based classes.

Self Instruction Material (SIM)

SIM stands for self instructional material. SIMs include all the materials prepared to stimulate independent study/learning. These materials are specially prepared teaching materials-largely pre-planned, pre-produced and pre-packed. Tuition through distance education involves the learner receiving instruction at a distance, aften in the form of self –instructional materials. The student has to depend more on his own initiative and motivation. Therefore, there is needed to create a sustained academic interactive dialogue between.the instructional material and the students and between the student and the tutor. Systematically designed instruction can greatly impact individual human development (Gagne, Briggs-1952)

The Self Instructional Materials (SIMs) are the learning packages, modules which facilitate personalized instruction techniques and technology. Programmed instruction (PI) personalized system of instruction (PSI), teaching machines, cybernetics are the well known techniques adopted related to self instruction material.

Special features of SIM are:

- Active responding while learning.
- Small steps of learning resulting in mastery.
- Immediate feedback for each response.
- Low error rate and low fault rate.
- Self pacing, self styling and self control.

SIM gives the hope that is can replace and take responsibility of the teachers in every aspect. Hence, providing and provoking well designed instructional materials to the distance learners to achieve to mastery learning is the need of hour today.

Characteristics of SIM:

IGNOU (1989) has introduced six major characteristic features of SIM keeping in view of writing the self –instructional materials: They are

(a) Self – explanatory: The content of self instructional materials should be self - explanatory as it is prepared for self learning. The learner is able to read through the material systematically and get a clear grasp of whatever has been presented.

(b) Self- Contained: The written text should be self –contained fulfilling the immediate need of the learner. He should not feel immediately any need of additional sources.

(c) Self –directed: Developed self –instructional material should be self –directed in the sense that student receives guidance, hints and suggestions at each stage of learning. The material performs the role of a teacher. It contains clear objectives, sequential development, illustrations and appropriate learning activities.

(d) Self –Motivating: SIM should be highly motivational for the learners and it should be able to draw attention to known facts, relating knowledge with familiar situation and making the entire learning relevant to the learner's real life context.

(e) Self –Evaluative: SIM should be such that the learner should be able to evaluate his proceeding on the right learning track self –evaluation in the form of self check questions, exercises, etc. will assist in making this possible. These are now available both in computer managed as well as traditional print forms.

(f) Self – Learning: SIMs are based on the principle of programmed institution. The features of programmed instruction such as specification of objectives, breaking the content into small steps, sequencing learning experiences providing feedback, etc are incorporated in SIMs. Thus a systematic approach to learning is followed in the preparation of SIMs. This feature of SIMs make the students learn independently.

Role of ICT in the Development of SIM

Information and Communication technology (ICT) is broadly interpreted as "technologies that facilitate communication and processing and transmission of information by electronic means". They have changed fundamentally. The way people learn, communicate and do business. ICT has made possible. the transformation of the nature of education –where and how learning takes place and the roles of students and teachers in the learning process. ICT has promoted the development of a knowledge society through open and distance education. The introduction of ICT uses, integration and diffusion has initiated a new age in educational methodologies and thus it has radically changed traditional method of teaching and learning patterns for the instructors and the students both.

ICTs are defined as technologies that utilize a combination of information technologies (such as computer or database) and communication technologies (such as wired or wireless network). In recent years, distance education has now been joined by several other concepts and practices that have arisen as a result of new techno logics and social developments. ICTs features has technology mediated learning (TML) such as e-Learning, Online learning, Web based Learning, Virtual learning and distributed learning. Online and Web-based learning which refer learning through internet ,e-learning refers to any type of learning using electronic means of any kind such as TV, Radio, CD –ROM .DVD, Multimedia package, Mobile learning.

Development of study material on SIM format is a challenging task and is quite different from the material meant for format education. In this format, it is kept in view that the instructional designer, the author and the student are often separated by distance so teaching by distance should stimulate the students' intellectual motivation and contain all the necessary learning activities that are capable of guiding through the course objectives. Hence SIM should contain all that which the syllabus prescribes.

Dr. Shrivastava ,N.()2012,.P-72) has thrown light on DEC guidelines for the development of Self Instructional Materials. They are follows:

Self instructional materials include ample advance organizers, learners' activities, illustration and explanations for the learners to progress thorough the course smoothly and achieve autonomy in managing learning.

- The contents should be arranged from simple to complex and presented using media that optimizes learning.
- Sufficient study guidance given to enable the learner to smoothly navigate media that optimizes learning.
- Learning objectives clearly stated in behavioral terms for each programmed, course and units.
- SIM should be readable, fluent and unambiguous and also as per need of the learner
- It should be broken down into proper chunks
- It should contain sufficient illustrations to make the materials usually interesting, self explanatory with proper option or properly labeled.
- Illustrations should be subject connected and simplifying difficult concepts for the learner.
- There should introduction to each module as well as to each unit.
- Introduction should be interesting and stipulating to recall learner's prior learning.
- There should be clear and useful summaries of reviews space for learners to write down notes.
- Sufficient self assessment Questions and other activities and responses should be there.
- Materials should be based on Multi media (print, Audio, Video, C.D. computers etc.
- Learners should know about how and when to use the multimedia. It should be enjoyable and interesting and useful in achieving the programmer's objectives.
- Evaluation should be built into the materials at appropriate places.
- Tables should be clear and unambiguous.
- Question should be task inviting and application oriented.

- Learner evaluation should be planned for both formative and summative to ensure achievement of desired knowledge levels, skill and competencies.
- Enough time given to the student to attempt the assignments.
  - Before the announcement of the programs, SIM should be ready.
  - Proper mechanism for material distribution should be there.
- Today the multimedia computer has changed the present teacher oriented system to a learner-oriented one on creating individualized learning environment. Being a combination of technologies, through multimedia, variety of information can be added with graphics, text, video and animation and that clearly demonstrate the complex process easily on education.
- In multimedia approach, more than two media of communication are involved in a learning package or instructional procedure. The variety of teaching content can be best presented by employing various media of communication. This facilitates the individual variation of the learner. Hence multimedia packages of learning are presently developed.
- Dr.Rawat ,S.C. in his book " Essential of Education Technology"(P-522) has given example of multimedia package developed by NCERT and CET This experiment has involved the multi media package with the components television program for 22 minutes, Radio Program for 20 minutes and pre/post television for 1 hour.

Conclusion:

There is a positive impact of using self instructional materials in all subjects, particularly in teaching. The self instructional materials may be in the form of CD ROMs and in the form of books but using ICT, it should be made qualitative, user friendliness and flexible.

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