

Enhancing Innovation in ODL: e-Learning and e-Content

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1. Introduction:

E-content is a very powerful tool of education. E-content is valuable to the learners and also helpful to teachers of all individual instruction systems. E-content is the latest method of instruction that have attracted more attention to gather with the concept of models. Education is one of the basic needs of men and women. The rule of the education is the attainment of human excellence and perfection not just in the field of knowledge or activity but life in totality. The ultimate aim of the E-content is to abolish the disparity among the learners through effective education.

E-content is an important outcome of e-learning. E-learning is the computer and network – enabled transfer of skills and knowledge. It includes web-based learning, computer-based learning, virtual education via virtual classrooms and digital collaboration. Here contents are delivered via the internet/extranet, audio or video tape, satellite TV.

E-learning is a process and E-content is a product. This approach of teaching has become an answer to the complicated modern, social, economic condition and an exploding population. E – Learning is highly motivating especially for the distance learners who donot get ample time for attending classes for one reason or the other. E-content lesson is generally designed to guide students through information or to help them perform specific tasks. An E-content package can be used as teacher in the virtual classroom. Using E-content, the time and finance involved in the teaching process can be minimized. E-content is facilitating individualized instruction.

Some of the benefits of E-content are discussed below:

Methods of Presenting Subjects

- Learning and studying at any time, more subjects for students to choose from
- Communications between teacher and student and other students

- No requirement for physical presentation of student or teacher
- Easy communication with several options

Access to Information Sources

- Access to digital libraries and web search with resources always available
- Changing the vision and knowledge of users
- Supporting a large number of students in a class.
- Increasing creativity developing and supporting education.
- Managing information instead of saving information.
- Increasing public literacy
- Methods of learning
- Users important role

Economy

- Reducing costs in comparison with traditional methods.
- Most of these students have career and income and this will affect the economy of the country.
- Reducing the costs of institutions and buildings.

2. Significance of the Study:

E-content helps in giving shape to a digital environment, we come to know the role information, and communication technologies played in transforming the competitive landscape. As a result, much effort has to be spent on the enhancement of E-Content.

Some of the advantages of accessing e-content:

- Convenient training to student
- Self-facing facility to every learner
- Interactive engagement of users
- Quick reference materials accessibility

Academically, this paper will

- increase learning resources availability and accessibility

- enhance the quality of teaching
- raise performance standards and will be at par with the other state Universities.
- empower Distance Education by providing teaching and learning support using ICT based contents

Socially, the research will; promote awareness of the ICT potentials in education to teachers, students and the society, encourage students and the communities to engage more in ICT based activities.

3. Objectives:

The objectives of the paper are to:

- Promote and analyse the importance of E-content in teaching
- Describe the process of designing and integrating E- Content
- Facilitate educators in developing E-Content
- Highlight the practical insights learnt from the hands on experience in developing e- Content by Dibrugarh University for CEC

4. Concepts Reviewed:

a. Role of Communication Technology in Distance Education: The increasing need for education, limitations on access to information centers, economic problems, a lack of experienced experts, and the costs of education brought about the development of new delivery methods for instruction. There is a growing need for methods that are economical, high quality, and suitable for use by large populations. The meaning of “literacy” is being able to read and write, but as Alvin Toffler has said, in the 21st century, an illiterate is not one who cannot read or write but one who cannot teach or learn.

Rapid changes in ICT have made the world face this new meaning of illiteracy and examine education requirements. The need for widespread information and computer literacy call for new teaching methods. Digital education: remote or distance education delivered online, is a way of solving this problem. Remote education systems require technology that provides access to information and education without limits on time or place. In such an atmosphere, anyone can learn according to his or her individual needs and abilities. Remote education systems attempt to:

- increase the quality of learning
- reduce the time of attaining educational goals
- increase efficiency
- increase the independence of users and flexibility of education
- reduce costs without effecting quality
- eliminate limitations on time and place

b. E-learning: The origins of the term e-learning is not certain, although it is suggested that the term most likely originated during the 1980's, within the similar time frame of another delivery mode i.e. online learning. While some authors explicitly define e-learning, others imply a specific definition or view of e-learning in their article. The belief that e-learning not only covers content and instructional methods delivered via CD-ROM, the Internet or an Intranet (Benson et al., 2002; Clark, 2002) but also includes audio and videotape, satellite broadcast and interactive TV is the one held by Ellis.

E-learning is another way of teaching and learning. It comprises of instructions delivered through electronic media including the Internet, Intranets, extranets, satellite broadcasts, audio/video tapes, interactive television (TV) and CD-ROM. It facilitates access to knowledge that is relevant and useful. E-learning involves the delivery of education and training to anyone, anytime and anywhere. The development and delivery of e-learning materials in recent times by several organizations and institutes is under-pinned by a desire to solve authentic, learning, teaching and performance problems. The success of e-learning depends on how learning takes place, that is, the underlying pedagogy and the real value of e-learning lies in the ability to deploy its attributes to train the right people to gain the right knowledge and skills at the right time. Education and training is poised to become one of the largest sectors in the world economy. E-learning is being recognised as having the power to transform the performance, knowledge and skills landscape. E-learning is viewed variously as having the potential to: improve the quality of learning, improve access to education and training, reduce the cost of education and improve the cost effectiveness of education.

E-learning may also be defined as the acquisition and use of knowledge distributed and facilitated primarily by electronic means. This form of learning depends on networks and computers but may involve CD-ROMs, software, other media, and telecommunications. E-learning can take the form of courses as well as modules and smaller learning objects. E-learning may incorporate synchronous or asynchronous access and may be distributed geographically with varied limits of time (Wentling et al. 2000).

A “total” e-learning solution comprises the three key elements as defined in **Figure 1**:

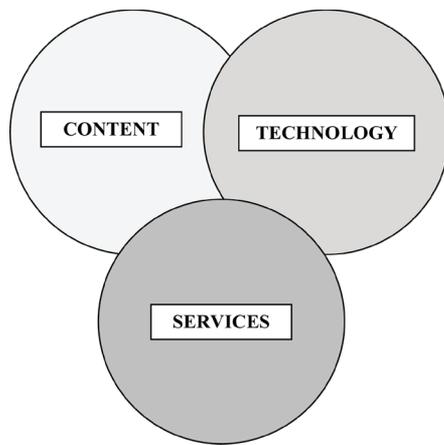


Figure 1: Comprehensive e-learning solution

5. **E-Content Design:**

The New ADDTIE model is the generic process traditionally used by instructional designers and training developers. The five phases—Analysis, Design, Development, Testing, Implementation, and Evaluation represent a dynamic, flexible guideline for building effective training and performance support tools.

It is an Instructional System Design (ISD) model. Most of the current instructional design models are spin-offs or variations of the New ADDTIE model; other models include the Dick & Carey and the Kemp ISD models. One commonly accepted improvement to this model is the use of rapid prototyping. These ideas of receiving continual or formative feed back while instructional material are being created. This model attempts to save time and money by catching problems while they are still easy to fix. For example, the New ADDTIE model was used

in the framework for helping create new research topics in learning technology.

Stages of New ADDTIE Model:

The New ADDTIE model consists of five stages-Analysis, Design, Development, Testing, Implementation and Evaluation. The following diagram exposes the New ADDTIE model.

The ADDTIE model is a systematic instructional design model consisting of five phases: (a) Analysis, (b) Design, (c) Development, (d) Testing, (e) Implementation, and (f) Evaluation.

(a) The Analysis Phase:

This phase is the most important as it identifies areas in our current situation that require training. This phase is conducted taking into account the views of subject matter experts, the target audience and our ultimate objectives and goals. A few questions addressed during this phase are:

- Who are the target audience?
- What skill deficiencies exist in the target audiences?
- How do these skills connect to the organizational goals
- What is the budget?
- What are the delivery methods?
- What constraints exist?
- When is the project due?

(b) The Design Phase:

The design phase involves the complete design of the learning solution. It will address the training methodology, whether training will be administered online, and detailed storyboards illustrating the training programme and courseware content. During this phase, the following points are taken into account.

- The most appropriate medium is selected by examining the kinds of skills required to achieve our goal.
- The learning objectives are written and the modules are designed with its corresponding lessons.

- Course content is designed specifically for use with an interactive, electronic medium in the case of online learning.
- Determine the appropriate interactions; they should be creative, innovative, and encourage learners to explore farther.
- Plan activities that allow for student group work to help construct a supportive social environment.

(c) The Development Phase:

The development phase concerns the actual production of the design specification. This also involves creating or obtaining any media mentioned in the design of the courseware. The development phase concerns the actual production of the design specification. This also involves creating or obtaining any media mentioned in the design of the courseware. This phase sees the creation of storyboards, graphics and programming involved in the development.

It involves the following considerations:

- Designing according to storyboard specifications.
- Programming according to storyboard specifications.

(d) The Testing Phase:

The E-content developer experiences this phase of testing and they need an E-content expert team. These expert teams are mainly concerned with the checking process, such as—all links, spelling mistake, content error, image, animation timing, audio and video are checked. Hence, these processes create strong base to E-content through-

- User interface testing
- Timing of animation testing
- Audio and video testing
- Hyperlinks testing

(e) The Implementation Phase:

This phase of where the developed course is actually administered to the target audience. The delivery environment should be prepared for the implementation of the course. This phase is where the developed course is actually administered to the target audience. The delivery environment should be prepared for the implementation of the course. The installation and maintenance of the course is considered for explanation during this phase.

(f) The Evaluation Phase:

This is the phase, which decides whether the course is effective and satisfies the course objectives. This phase considers feedback from learners. Evaluation is done constantly, during both development and delivery.

Interactive User Interfaces

A user interface is the system by which people (users) interact with a machine. The user interface includes hardware (physical) and software (logical) components. User interfaces exist for various systems, and provide a means of:

- Input, allowing the users to manipulate a system
- Output, allowing the system to indicate the effects of the users' manipulation. Software for managing courses was first used as a supplement to face-to-face instruction but has now become an important independent method. The user interface is one of the most important parts of any program because it determines how easily we can make the program do what we want.
- Helping distance users learn library skills, study skills, and increasing information literacy.
- Guiding users in new references and subjects.
- Supporting scientific activities
- Discovering other institutions that can help the library
- Managing intellectual property and copyright

The librarian should take part in distance learning systems to ensure that the virtual library is accessible and useful. Technology is not the reason for distance education but is only an instrument, so technology skills and people skills are both essential.

6. e-Content Development at Dibrugarh University: Some Issues and Discussion:

The UGC has already provided some guidelines for the development of E-content. The scheme provides financial assistance and technical support to teachers and other experts based in colleges and universities for the development of E-content. The inclusion of E-content in learning is now inevitable, and the UGC initiative is designed to meet the new challenges, and to help India take the lead in this newly emerging field.

Some of the issues regarding the design and development of E-content are as follows:

(a) Template of E-content:

Dibrugarh University has adopted the CEC template for integration of e-contents. The template after integrating the contents is shown as follows:



Fig3: Template after integrating the contents

(b) e-Content Module:

E-content module has following elements:

- Home
- a. Objectives
- b. Subject Mapping
- c. Summary
- d. Text
 - 1. Case studies
 - 2. FAQ's
- e. Video and audio
- f. Assignments
 - 1. Quiz
 - 2. Tutorial

- g. References
 - 1. Glossary
 - 2. Links
- h. Download
- i. Contact

We have adopted the four-quadrant approach in E-content Development

1st Quadrant: Text Resources: Textual Document, PDF / e- Books / illustration, documents & interactivity wherever required Simulations, Virtual Labs

2nd Quadrant: Visual Resources: Video and Audio Content in an organized form, Animation

3rd Quadrant: Web Resources: Related Links, Wikipedia Development of Course, Open content on Internet, Case Studies, Anecdotal information, Historical development of the subject, Articles

4th Quadrant: Self Assessment: MCQ, Problems, Quizzes, Assignments, & solutions, Online feedback through discussion forums & setting up the FAZ, Clarifications on general misconceptions etc.

Unique Features of e-content module are:

- Maintaining highest Audio/Video quality
- Production of e-content in complete 4 Quadrants
- Creating Transcription (Text) out of the video spoken by the Teacher and making the text available to the students in e-content modules
- Creating e-book out of each e-content module is developed & incorporated in Template under Downloads & Academic Script, besides introducing Glossary, Frequently Asked Questions and their replies, Quiz, Assignment, case studies, Tutorials etc.

(c) Content Duration:

Content duration has been estimated on the basis of the number of hours that are required to transact the content in the classroom. For example, a course in the classroom requires one credit and a credit is equivalent to 15 hours. The content of a course will be taken as 15 hours classroom teaching. On an average, UG students have to take 6 to 8 papers in an academic year. Therefore, during the study period of

3 years a student may take 18 - 24 papers. Each paper requires 20 - 25 lessons. Presuming that a lesson will take three hours of teaching, 60 to 75 hours will be required to complete one paper. Two and a half hours of classroom lecture is normally covered by an E-content module of 30 minutes duration. Therefore, on an average, 300 Modules are required for completion of the full course. Similarly, duration of Video programmes produced by the Programme Developer concerning each module shall be about 30 minutes. Production of 'Learning object Repository' (LoR) related to the modules also produced by the Programme Developer and for use in PC and internet shall be of 1-2 minutes of duration.

(d) Engaging the Course Coordinator:

Academic Standing Committee shall engage a Course Coordinator for each of the e-Course, launched by the CEC. The responsibility of the Course Coordinator shall be to:

- Frame a syllabus and introduce improvements in the syllabus on the subject assigned.
- Choose a number of subject expert(s) and assign them Modules for Content Development job on the subject assigned to him/her.
- Ensure Text, Lecture and complete course material is available as per CEC E-content Template.
- Ensure all E-content Modules of the whole course are produced in association with the Production Agency / Agencies that are assigned to do the work.
- Preview the programmes produced and certify its correctness academically.
- Coordinate with Programme developer and CEC, for proper E-content generation.
- Ensure corrections suggested by the CEC are incorporated.

(e) Monitoring of the Programme:

The entire process of E-content development requires support of academicians, technologists and Media Managers. The EMRC, Dibrugarh University is already engaged in the production of E-content.

(f) Future Work:

- To march forward with the recent technological development and information explosion, DU should emphasise on the development of more E-content modules.

- Study on the use and the usability of E-resources needs to be made on regular basis.
- Involve educators from various departments of the University in developing E-content. If possible, involve educators from various affiliated colleges under Dibrugarh University.
- Review the developments in computers and communication networks to apply these in education and training.
- Virtual classroom technologies should also be introduced for the better utilization of the e-content.

7. Conclusion:

E- content is the latest method of instruction that has attracted more attention. The ultimate aim of the E-content is abolish the disparity among the learners through effective education. Development of E-content plays an important role in e-learning but undoubtedly, it is not an easy task. It not only requires experts' knowledge in the respective area but also needs lots of patience in developing and structuring the contents. A high sense of creativity is required while using new technological features such as attractive images, animations, links, audio and videos thereby improving the quality of the content.

We can use this facility without restriction of time and place. It is very much useful because inclusion of animation and audio & video effects make the subject more interesting to the learners. It is said that people are visual minded. Hence, it is possible that they retain most of what they see and hear. E-content helps in enhancing the learner knowledge level which leads to creative thinking.

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