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## Effective e-content development procedures and its importances for self paced learning

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### Abstract

Education is one major sector that has undergone the influence of innovations in ICT. Starting to provide an electric content service, platform for organizing learning experiences in managing learning and assessment has been changed greatly by ICT developments. Students, teachers, educational administrators and every stakeholder in education have been benefitted by the integration of ICT in education. Rests of this are going to deal with these issues at a greater strength. Application of ICT in Education has precedence of developments through educational technology. Since the present day ICTs have all the strengths of erstwhile, even the field of educational technology has renamed itself as ICT. In this sense, ICT includes both traditional as well as modern educational technology so called advanced learning platforms. Today the entire world is moving fast towards digitization and the eager to learn new things using new technologies. The evolution of computers especially the internet has affected all spheres of our life. Ten to fifteen years back we used to spend our time in the library for information in books, magazines and journals. Now a day one can go for the information in the web sites. Well trained teachers with required knowledge, skills and commitment can develop scientific and critical thinking, promote tolerance and develop cultural and social values in them. Innovative technologies will make it possible to achieve these by providing new ways to teachers. Hence, as teachers it is important to meet these new challenges by continuously acquiring new knowledge and skills to discharge our duties effectively.

**Keywords:** Influence, benefitted, strength, trained teachers and innovative

### Introduction

The e-Content development and the technology associated learning described here do not seek to replace traditional teaching and learning, but are expected to supplement them. We are in a digital era. It is difficult to think of any event in our daily life that is not using Information and Communication Technology. Our schools and classrooms are no exceptions. This is meant for introducing these technologies with the intension that you meaningfully integrate technology in their practices related to teaching and learning. As an ordinary citizen as well as a teacher, handle enormous data all the time. Data refers to facts, events, activities and transactions have been recorded. Data is the raw material from which information is produced. Number of students in class is a factual description of classroom. With the availability of technology, it is possible that a teacher now not only can reach the parents but also interact with them in real time.

The task as a teacher engages in during the school time and outside requires generating information very frequently. The students' e-portfolios are digital display of students' progress as well as your teaching efficiency. All these have started appearing in the classroom to make the learning experiences rich. It includes not only traditional technologies like radio and television, but also modern ones like cellular phones, computer and network, hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing. This integration of ICT in the field of education has been due to two major reasons such as paradigmatic change in the way we started looking at the process of learning and consequently the teaching practices and the evolution of new technology that could meet the needs from the first change. Educational content is a key element of ICT use in education. Content development may seem to be a minor issue in ICT use in education, but it is essential to connect technological service to educational purposes.

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When content has the real power to change human experiences and thoughts in a certain context, it is educational content in that education means to continually enhance the construction of individuals' experience. Even though the meaning and value of educational content have been consistently emphasized over time, the format and medium through which to deliver content has changed rapidly over time. Educational content can be classified into two types namely audio-visual aids and self-study materials, in terms of their usage. The material itself is not sufficient for mastery learning, but used to clarify and enlarge teachers' explanations in many cases. Learners can use the self-study materials at their own paces. After computer had been introduced in educational fields, self-paced learning materials become a main product in the development of educational computing. Most self-paced learning materials are displayed and delivered in electronic forms.

### **E-content**

Electronic content is also known as digital content refers to the content or information delivered over network based electronic devices. Wide varieties of digital materials that are of educational significance are available now-a-days. Some of the quality materials that are available free of cost or with minimum restrictions can be used, re-used and modified by teachers and students for their teaching and learning. As textbooks are too expensive, the students are switching from textbooks to digital course materials. These materials provide both teachers and students a greater interactivity and social collaboration. It is becoming popular because of its flexibility of time, place and pace of learning. It includes all kinds of content created and delivered through various electronic media. E-content is available in many subjects and almost all levels of education. It can be used by wide variety learners with diverse needs, different backgrounds, and previous experience and skill levels. It can be shared and transmitted easily and promptly among unlimited number of users around the world. Teachers, students and others get benefited by the use of well designed and developed e-content.

It is basically a package that satisfies the conditions like minimization of distance, cost effectiveness, user friendliness and adaptability to local conditions. E-content design, development and approach will depend upon the nature of the content and the learners. It will also depend on the quality and complexity the learning wishes to create. Various instructional design models are available according to our requirements. Most of the models involve the process of analyzing the learner needs and goals of the instructional material development, development of a delivery system and content, pilot study of the material developed, implementation, evaluating, refining the materials etc.

### **Instructional design**

The practice of creating instructional experiences that make the acquisition of knowledge and skill more efficient, effective and appealing. The process broadly consists of determining the current status of learner understanding, defining the end goal of the instructional material and creating some 'intervention' to assist the transition. Most common and popular model used for creating instructional materials is the ADDIE model. This abbreviation stands for the five phases involved in the model. They are analyze, design, develop, implement and evaluate. This cycle can be

repeated until the exact model is arrived. Instructional objectives should be specified and delivered. This model will be highly simple and useful for learners. Resource rich environment is necessary for making teaching and learning effective. However for teachers many of the educational resources were not easily available because they used to be copy righted. Hence there was a movement to produce learning resources and make them available with no or very less copy right restrictions. Dick, Carey & Carey method can be a beneficial way here.

### **E-Resources**

Pictures, photos, audios, videos, demonstrations, animations and graphics etc can be included based on the interest of the investigator or producer. The main thing is that the learner should accessible and the knowledge based, should be a worth full in nature that can induce once interest to learn. These things should be kept in mind while preparing a perfect content based on the learners level of understanding.

### **Text format**

Text font selection is the main area of concern regarding the E-content presentation while developing a package. The preferred font may be taken as Times new roman, Bookman old style, San serif and Serif etc. The font visionary and style can also form an important aspect during development.

### **Video**

Avoid ambiguity while preparation, casual, providing enough spacing between words and sentences, correct pronunciation for the words, relevantness, modulation, voice pitch corrections, clarity in visual presentation mode etc should be done for perfection.

### **Image, photo and picture**

Quality items should be selected while downloading. High resolution formats are fairly preferred and pixels should be high rated so that magnification or zooming will be done at learning leads to usefulness among learners.

### **Script writing**

It's an art. The script writing reveals the interest of the investigator and it will help the developer too, for a successful development of a package. Specific sentence highly relevance with simple meaning is accepted. Being a writer, one should not include his/her higher level language to complete the work. Script should be easy to read and the learner should not have difficulty in understanding its meaning. Higher level of language style or tough words should not be used anywhere else. Most important is the script should be written according to the level of learner's class. More precise is highly required. It should be like an actual classroom practice environment.

### **Perfect Module**

Dynamic nature, should create interest, interactive, well organized effective integration of multimedia components, hypertext and hypermedia functionality should be checked with easy navigation functionality. Well planned, simple in language style, avoid jargons, general instruction should be neat and clear, avoid complex sentences, and should be crisp. Without comma's having long sentences should be avoided, need motivation in between, things should be conveyed from known to unknown.

### Performance gap

This is an important area while dealing with developing an instructional design. This lies between the actual performance and the desired performance. The module effectiveness can be identified here.

### Graphics, Audio and Video-Creating and Editing

There are several audio, video and graphic creators and editors available online. Some are free and some are proprietary.

Format Factory 2.96 has wide range of handy functionality in individual media editing and format conversion as a single software. Video, image and audio transformation each have different in nature. It can change a videos to (.mp4, .avi, .3gp, .rmvb, .gif, .vob, .mov, .flv, and .swf), audios to (.mp3, .wma, .flac, .aac, .mmf, .amr, .m4a, .ogg, .mp2, .wav, .wavepack) and pictures to (.jpg, .png, .ico, .bmp, .gif and .tif). It also has video and audio joiner, mux file creator. ROM device/DVD/CD/ISO maker etc

We video is a video creator and editor that allows to edit and make video in an easy and intuitive way. It allows controlling the video sections easily in areas like the transition, fast and slow motion, adding effects etc.

Magisto is a video editor that can help to make video in just a few steps. Upload the video, choose one of the premade editing styles, add a sound track, and add a title and the video will be ready for download or for sharing.

Draw Pad is a graphics editor and is easy-to-use image composition and manipulation program for all types of graphic design projects. One can make sketches and paintings on your computer; create logos, banner ads or billboards, draw diagrams, icons and other web graphics

Photo Shop is well known and widely used graphic editing software. It helps in image editing and drawing. One of the important features of Photo Shop is a layer style that allows you to create graphics quickly with ease.

My Paint is a graphics editor that can be easily used by teachers and students for digital painting. It enables people to create quick sketches and also complex artistic drawings on their computers.

Inkscape is free, open source vector drawing and editing tool. It is a useful tool in doing line art. Inkscape can be used in all major computer operating systems like Linux, Mac and Windows. It can be imported and exported to many major file formats.

GIMP is a robust image editor. It is well known open source software available as completely free. It is a good alternative to Adobe Photo Shop and has most of the characteristics of Photo Shop. It has the features like powerful painting tools, layers and channel support, multiple undo/redo, editable text layers etc.

Wave Pad This is audio editing software. This is a full-featured professional audio and music editor for Windows and Mac. It lets you record and edits music, voice and other audio recordings. When editing audio files, cut copy and paste parts of recordings and then add effects like echo, amplification and noise reduction. Wave Pad works as a wav or mp3 editor.

Audacity is free open source audio editing software. It is an easy to use multi track audio editor and recorder for Windows, Mac, GNU/Linux and so many other operating systems. Using audacity you can record live audio and also computer playback on the windows, vista, etc. It can convert tapes and records into digital recordings or CDs. Change in

the speed and pitch of a recording. Numerous effects can also be given to the audio material.

Video Pad is a powerful and easy-to-use video editor that lets you import videos, add music and effects, then burn to DVD. One can edit video from any camcorder Capture video from a DV camcorder, webcam, or import most the video file format. More than 50 visual and transition effects are available to add a professional touch to your video.

Open shot is a free, simple to use open source video editor for Linux. It is user friendly software, everyone can use and get great results. Open shot can take peoples' videos, photos and music files. It helps to create the film as one feel like, can easily add sub-titles and transitions. It can export film to DVD, You Tube, Vimeo and many other formats. Open shot integrates well with two other open source programs that are 'Inkscape' and the 'Blender 3D' animation program. It supports many video, audio and image formats. Audio mixing and editing is possible in Open shot.

Concept mapping Digital concept mapping tools are another versatile tool for creating e-content in visual form. There are both online and offline concept mapping tools and these are some time referred as mind mapping tool. Teachers can easily create concept map on various topics, edit it, link it to the websites, and add graphics.

### Authoring tools

Various tools are available to produce e-content. Microsoft Power Point and word processors are also e-learning tools. These tools are not appropriate to present interactivity, testing and scoring. To develop interactive content various elements such as examples, illustrations, animations, audio, video, interactivity etc are assembled. For this purpose we can use special tools which are authoring tools or author-ware. An e-learning authoring tool is software packages which can be used create and modify web content for the use by other people. Authoring tool or author-ware is a program that helps to write hypertext or use multimedia applications. Authoring tools allow authors or e-content developers to integrate or use any array of media to create professional, engaging and interactive e-content. The main advantage of authoring tools is their easier and faster use. Using these tools e-content can be developed and transferred easily. These authoring tools have some common features. They are

- Scope for interactivity
- Navigation-ability to move throughout the content based on the content menu.
- Editing -e-content developers can make changes or update the material easily.
- Preview or play back -it is possible to preview or play back the material.
- Cross platform and cross browser inter offer-ability - it is possible to run on all platforms and different browsers.

EXE Learning is a free software tool that can be used to create educational interactive web contents. It can generate interactive content and it allows one to create easily navigable web pages including text, images, interactive activities, image galleries or multimedia clips. All the educational material generated with eXe learning can be transferred to different digital formats. Once installed eXe learning has its own tutorial in the help menu. eXe learning can be downloaded from [www.exlearning.net](http://www.exlearning.net)

Xerte is a free and open source authoring tool that provides a full suite of open source tools for e-Learning developers and content authors producing interactive learning materials. Adobe Captivate is proprietary software. It is a rapid responsive authoring tool that is used for creating e-learning contents such as software demonstrations, software simulations, branched scenarios, and randomized quizzes in Small Web Formats (.swf) and HTML5 formats. It can also convert Adobe Captivate generated files formats (.swf) to digital (.mp4) formats and can be played with media players or uploaded to video hosting websites.

Power Director is also one of the best software for making an e-content package with lots of easy annexing facility to bring out a perfect package.

### Discussion

Nobody doubts that content development is a critical aspect of ICT use in education, even though the impact of ICT use on learning outcomes is open to much debate. As technology has been rapidly changing and exerting considerable influence on education, access to information and content has become one of the most important benefits of ICT use in education. There are several issues to be discussed in content development for the better use of ICT in teaching and learning. The general description of the electronic learning content must include the grade level of the target audience, specific subject areas and the elapsed learning time. Digital/electronic content is difficult and expensive to produce. The reusability and interoperability of learning content should be guaranteed in different delivery media. These systems can assist teachers to get quick and easy access to resources for making lesson plans and for teaching preparation, and assist learners to get useful learning resources for better performance. As technology is continually upgraded and transformed, the need of content development is growing more. The lack of appropriate and relevant educational content is an important barrier to ICT use in education. The technological innovation will change the characteristics and attributes of educational content in future.

### Conclusion

A systematic and scientific approach is needed to develop quality content. Instructional design is the teaching device that makes instruction as well as instructional material more engaging, effective and efficient. There are three learning theories (cognitivism, constructivism and behaviorism) supports the instructional design as backbone. Cognitivism envisages the organization of content, storing and retrieving of the content. Constructivism supports the learner centered holistic approach in learning. Behaviorism stresses in reinforcement and retention, transfer of knowledge in E-content development. As in the case with most innovations, one can't understand the real impact until people are actively exploring e-content. Even though most students are already using e-content and many faculties have received proposals from publishers to distribute their content. The sooner a campus establishes a process for supporting its community's exploration of different models of e-content, the sooner it will be able to help positively influence the e-content market place and also address the largest priorities of higher education today, learning in new effective ways while simultaneously lowering the cost of education.

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