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THE PARAMETERS FOR DEVELOPING E CONTENT

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Abstract:

Educational learning materials that have been effectively designed will facilitate the achievement of desired learning outcomes for students. Effective design of E content materials relies on instructional design processes that reflect the absence of or reduction in face-to-face instruction. It involves deep knowledge of cutting edge domains and technologies. Developing an appropriate E content material which facilitates independent learning and to learn in the absence of teacher involves certain parameters which are in line with learning theories and the apt method of producing the electronic material. Those parameters which are essential for the development of the proper e content are outlined in this paper.

KEYWORDS:

Multi media, Contiguity, Modality and Redundancy Principles. Validation

INTRODUCTION:

This paper focuses on the objectives, principles, phases of development and validation of E content material. The concept of E Content includes electronic versions of books, journals, maps, media, and archival materials. The content available through TV, radio, phone, multimedia CD/DVDs and Internet can also be termed as e-Content. The e content tends to deploy the media in creative and productive way and to restructure education to respond constructively and progressively to the technological and social changes. The e content provides scope for the integrity of the collection, availability around the clock, remote accessibility, interesting to use with audio and visual and scope for the multiple and simultaneous users. E Content integrates content management, resource management, collaboration and personalization. The process of development of E content makes the teachers to rethink their basic tenets to deploy the media in creative and productive way and to make use of the digital technology constructively and progressively to the individual learning needs.

OBJECTIVES OF E CONTENT PRODUCTION

Know your target audience and their learning preferences:

It is better that one knows the target audience and their learning preferences, so that the E content will be more effective. It is very important to review and re-review the content at the development stage with an eye of the end users and make sure that it will work for them.

Define clear learning objectives and work the content around them:

The content developers need to be very clear about the objectives and outcome of the learning content, and more significantly, they should be able to clearly communicate to their learners up front, before

they take a plunge.

THE PRINCIPLES OF E CONTENT DEVELOPMENT

Well-designed contents can facilitate knowledge transfer across a large section of learners with excellent efficiency. If the content developers understand and apply the fundamentals of learning theories coupled with creative instructional strategies for creating courseware rather than just creating content dumps, no doubt, that E content will become more effective and convenient for the learner. Cognitive load theory is an instructional theory based on our knowledge of human cognitive architecture (Clark, Ngugen and Sweller,2006).It has been used to generate a variety of instructional effects (Sweller 2004) that provide demonstration of effective instructional practice. The fundamental principle of cognitive load theory is that the quality of instructional design will be greater if attention is paid to the role and limitations of working memory. The total amount of mental activity is imposed on working memory in an instance of time is known as cognitive load which has been found to have three distinct (Sweller,1994).

While developing the E content the multi media principle, contiguity principle, Modality principle, Redundancy principle and the personalization principle are the most important aspects that has to be kept in designing the content. (Gagne, Briggs & Wager, 1992).

The multimedia principle: Adding graphics to words can improve learning.

The graphics refer to a variety of illustrations including still graphics such as line drawings, charts, and photographs and motion graphics such as animation and video. The illustrations that are congruent with the instructional message need to be provided. Images added for entertainment or dramatic value will not improve learning but they can actually divert learning.

The contiguity principle: placing text near graphics improves learning.

Contiguity refers to the alignment of graphics and text on the screen. Contiguity principle states that graphics and text related to the graphics should be placed close to each other on the screen. While graphics can boost learning, it will be important to select the kind of graphic that is congruent with the text and with the learning goal.

The modality principle: explaining graphics with audio improves learning.

People learn better when words are presented as speech rather than on-screen text.

The redundancy principle: explaining graphics with audio and redundant text can hurt learning.

Some e-Lessons provide words in text and in audio that reads the text. This might seem like a good way to present information in several formats and thus improve learning. Controlled research however, indicates that learning is actually depressed when a graphic is explained by a combination of text and narration that reads the text.

The personalization principle: Use conversational tone and pedagogical agents to increase learning.

The coherence principle essentially tells us that “less is more” when learning is the primary goal. It suggests that visuals or text that is not essential to the instructional explanation be avoided. It suggests that you not add music to instructional segments. It also suggests that lean text that gets to the point is better than lengthy elaborated text.

Apart from considering the above mentioned principle the Gagne's nine learning events are to be taken in to consideration as a model for creating E content. Gagne proposed that the content should have nine distinct instructional events to be effective. They are:

- (1) Gaining attention (reception)
- (2) Informing learners of the objective (expectancy)
- (3) Stimulating recall of prior learning (retrieval)
- (4) Presenting the stimulus (selective perception)
- (5) Providing learning guidance (semantic encoding)
- (6) Eliciting performance (responding)
- (7) Providing feedback (reinforcement)
- (8) Assessing performance (retrieval)
- (9) Enhancing retention and transfer (generalization).

PHASES OF DEVELOPMENT OF E-CONTENT

- Analysis Phase
- Designing Phase
- Programming Phase
- Validation Phase

ANALYSIS PHASE

a. Selection of a Unit

In order to select the unit for software development, it is important to answer the following questions;
Will the software be effective than other media / methods for this particular unit?
Will the software provide individual learning experience?

b. Content Analysis

The process of dividing the topic into sub-topics or sub-points is called content analysis. Content analysis helps the teacher in identifying all the concepts, definitions, information points, tools, examples, formula, diagram, illustrative graphics, etc., related to the content.

c. Entry Behavior

Along with the content analysis, analysis of the target group is essential. Before developing any educational software, vocabulary, learning style, needs, conceptual level, and comprehension level of the learners should be taken into account. Once the content and target group are analyzed, a teacher can sequence the concepts so that they are logically arranged. Here the teacher can identify the prerequisite to learn the topic. If some basic concepts are not clear to the learner, she / he will not be able to use the learning material of the topic. Hence, the specifications of the learner's entry behavior are to be finalized.

d. Specification of Objectives

After selecting a suitable topic, and analyzing it, the instructional objectives can be determined keeping in the mind the earlier learnt capabilities of the learner group both in terms of their previous knowledge and other competencies.

e. Development of Evaluation Measures

Self-learning materials also demands a pre-test to decide whether there is a need on the part of the learner to go through the material or a sub-unit or whether the learners can skip it. Self-learning material provides facility to each individual learner to check what the learners know and what the learners can learn.

DESIGN PHASE

a. Development of Modular structure

In developing a modular structure, the programme developer should identify the title of each module, objectives and the combination of presentation methods most suitable. Thus the whole E-content software would be a set of various interrelated modules. Though they are interrelated, one can select modules to be learnt or the pre-test may help the learner in selecting appropriate modules.

b. Development of Flowchart

The flowchart is an important piece of documentation needed when developing software. Once all the information that is required to be included in the course has been identified, and the rule set has been constructed, flowchart becomes the link between this information and the screen-presentation. The flowchart shows the quickest route through the course. It shows the frame numbers and the content loops. It helps prevent the course getting muddled and clearly shows the branching. It is also important in a validation, which is checking back to what the designer wanted to happen.

c. Designing Frames

One of the advantages of any instructional E- learning software is that information can be broken down into quite small packages. A module consists of a series of frames. Some of these will be criterion frames, teaching frames and testing frames.

d. Criterion Frames

This is a test of the learner's knowledge. Therefore, a criterion frame on the flowchart should be clear of loops guiding the student to get correct answers to questions raised in frame.

e. Teaching Frames

Teaching frames contain all the information needed to complete the course.

f. Testing Frames

Testing frames can have help and hint frames with them. These can be in the form of a prompt or a clue. Anticipated wrong answers must be handled properly in the answer analysis, which requires a lot imagination on the part of designer.

g. Preparing Screens with Reference to Actual Programming

A number of characteristics of computer display are discussed by field experts also some guidelines for their effective use are defined. Some important points are discussed in following paragraphs. They are discussed under the following headings:

- Screen layouts
- Text
- Graphics and colours
- Timing
- Animation
- Sound
- User control

I. SCREEN LAYOUTS

This refers to what is displayed of the screen of the terminal. Information to be displayed should be presented one key point at a time. It is sensible to place titles at the top of the screen and prompts for action should appear at the bottom after the screen has been assimilated. The technique of blinking can be used to catch the learner's eye towards important concept. The design may wish to retain some text or a digram while displaying additional information.

The use of windows to display information in a box that overlays part of the existing screen can be very effective to emphasis points, informations, etc, windowing may also be effective for error message. Alternately, visual consistency might be more important to keep users confident and comfortable with the conventions adopted, that is where to look for new information, how to answer questions adopted, that is where to look for new information, how to answer questions, etc.

TEXT

The screen format should always adopt the conventions that lines do not end in the middle of words, and that paragraphs should not start on the last line of a page display. Text should be distributed over the whole screen or centred. Characters in lower case are assimilated more quickly than just upper case, which may be reserved for heading and other important emphasis. Text should be grammatically consistent.

III. GRAPHICS AND COLOURS

Graphic design creates visual logic, an optimal balance between visual sensation and graphic or text information. Without the visual impact of shape, color and contrast pages are often graphically boring

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and will not motivate the viewer to investigate their contents. It is advisable to be consistent with the use of color throughout a piece of software. Also large solid blocks of white and yellow should be avoided since they give an irritating flicker. Too much contrast or very bright colors should be avoided. Dull colors make learners disinterested. Repeatedly same colours, shapes and textures should be used. The weight of the page should be equally distributed in terms of kinaesthetic, top to bottom and left to right must be balanced.

IV. TIMING

Allowing the user to control when changes to the screen display takes place, and at what speed makes a programme more flexible for use with a wide range of the learners of a different abilities.

V. ANIMATION

The illusion of movement is a powerful feature that can focus attention dynamically. It can visualize process of change that the programmes is illustrating. Allowing the user to control animation may increase learner's participation and interactivity of the media to a great extent.

VI. SOUND

Uses of sounds have led to the development of E content in phonetics and also for developing as well as reading skills. The learners should also have control over the use and volume of sound.

PROGRAMMING PHASE

Once the final screen layout is ready E content preparation is almost over. To execute the E content one needs tools for execution. These tools are called authoring tools. These are the tools that are designed to minimize the actual amount of programming expertise required by a teacher in the creating of educational software.

Dean Christopher and Whitelock Quentin (1988) state that some fundamental features must be provided by any authoring system:

- Present text and questions on a screen
- Accept responses entered used a keyboard
- Analyze the responses
- Store details of responses and values of counters on a file
- Branch to other parts of the learning programme
- Provide feedback
- Interface with sub-routes written in computer programming languages.

VALIDATION OF THE E CONTENT

EXPERT VALIDATION

When an e content development was completed it is ready for peer evaluation. In the sense it has to be given to the experts in E-content developers, Web studio Expert for their opinion about the technical aspects involved. The software has to be modified according to the suggestions given by experts.

INDIVIDUAL TRYOUT

After completing the expert and technical validation, the E content has to be given to the target students. The purpose of this tryout is to improve the software with reference to terminologies and comprehension, language ambiguity of the frames. This tryout has to be done on four or five individuals separately. Here, the vocabulary terms and comprehension difficulties could be identified and removed.

SMALL GROUP TRY OUT

The next stage is to test the e content with a group of around 10 or 15 students. The selected students are to be the representative of those for whom the programme was intended. The student responses and their reactions about the programme will be considered for improving and modifying the frames of the

programme.

GROUP TRYOUT

In this tryout, the E content has to be tried on a group of students in their real learning atmosphere to find out the learning difficulties and the other Parameters with which the E content was developed. After this stage the E content is ready for use in the teaching learning process.

CONCLUSION

The e content plays a pivotal role in the process of teaching and learning. The technological developments have paved way for the better creation of e content material. Although this concept gaining momentum and could facilitate the learning. The focus has to be laid on the proper development of the e content. The multi media facility in the computers as well as in all our information and communication technology could create an ambience suitable for independent learning provided the power of technology and psychology behind the use of technology is well understood and made use of appropriately while designing the e content. The success of E content lies in the potential of presenting the audio and visual information through the modern techniques in the right direction. The e content developers should keep in mind that the effectively designed E content alone will facilitate the achievement of desired learning outcomes for students.

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