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Developing Teaching Material for E-learning Environment

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Abstract

In the new economy, knowledge is a source for a competitive advantage. Economic and social developments are strongly related to the development of human capital, which is associated with education (ESCWA2005). The other hand, Information and communication Technologies (ICT) have changed the way people live and work, the ICT evolution increasingly supports innovative methods of learning. In this context, Rosenberg (2001) has observed that e-learning strategies are leading to changes in the way people learn. This paper focuses on the elements of effective design and development of quality materials for on-line learning. The elements of design are discussed in detail.

Keywords: E-learning; Scenario, Feedback, Delivery, Context, Content Design and Writing, Materials Development.

1. Introduction

This paper details the design phase of the e-learning resources which includes the tasks instructional design, content design writing, and software development. This design takes into account the difficulties of developing and delivering of the content, effectively through on-line, wherein no specific computer software's were focussed. The development of teaching and learning resources has always been integral to education and training. Several factors are to be taken in to consideration while developing the content particularly due to the nature of online content. Good online teaching and learning involves various forms of interactivity and consideration needs to be given to how to effectively design and develop the resources that make best use of the medium, have the right blend of activities, are motivational, accessible, and effective educationally. Communication and interaction between students is an important part of effective online learning and this again has implications for content development and may need the involvement of special expertise to build this successfully into the online course or learning content. Technical issues play a far bigger role in the development of online content than in traditional print-based resources.

2. Related Studies

There are several studies have been made in connection with developing materials for online learning or e-learning. Roslin Brennan (2003) cites communication, interactivity, and social cohesion as key pedagogical goals, while George Siemens (2003) contends that variety is a central requirement for

learning, and that media choices should be made according to desired learning outcomes. Many of these concepts can be traced back to the work of John Dewey (1970), who, in writing about experiential learning, argued that education must engage with and enlarge experience, and that interaction and environments for learning provide a continuing framework for teaching practice. This process of making meaningful connections is at the core of all learning (Horton, 2000, p. x; emphasis in original). E-learning materials often reflect these concepts through the use of simulations and a focus on interactive learning activities. Jasinski (2001) explores improvization as a strategy to make online materials more meaningful to learners by providing a better balance between content and process. Jasinski contends that this strategy enables a fast transition from the conceptual to the operational, and that students learn by playing with rules, not by rules, or to create new rules.

Content development can cover activities of varying scale and complexity. The Key elements of Developing Teaching Material for E-learning Environment are namely, Activity, Scenario, Feedback, Delivery, Context, Influence, Content design and Writing and Materials development. These aspects are discussed in detail. This paper provides an overview of the processes and some of the aspects to consider when developing content for e-learning.

3. Activity

Creating effective e-learning relies on having tasks for students to undertake that provide an experience likely to lead them to the desired new understanding. Muirhead and Haughey, (2003), emphasised that a rich activity is one that opens up opportunities for action rather than directs students down a prescribed pathway. Such an activity implies the active involvement of the learner in making choices about what experiences to undertake. Biggs, (1991), opines that the more ways in which the learner is involved in task related activity, the stronger the learning. Learning takes place in the student's mind and body; therefore the activity needs to be considered from the perspective of the actions and challenges it affords the student, rather than the complexity of the materials or tools provided for the activity to take place. As Gee (2003) suggests, an active learning experience is one where students experience the world in new ways, form new affiliations, and prepare for future learning.

4. **Scenario**

In an effective design of e-learning materials, the target audience must be clearly identified in order to develop scenarios that are likely to engage and stimulate the learning. An interesting context or scenario will assist the activity to have meaning. (Brodsky, 2003) observes that the Scenarios are usually provided by a story, role play, or simulation, within which the activity plays a pivotal role in helping students to contextualize content. The scenario will most likely be fictional; however, there is an assumption that the learning or skill gained through the activity will be transferred to future real world situations. This transfer is assisted if the learning scenario raises issues and problems similar to those in the real world; scenarios with this real world correspondence are often referred to as being 'authentic.' An interesting scenario will make extensive use of humor, imagination, reward, anticipation, or drama to enhance the activity. It will have topics and themes likely to be relevant and interesting to the target audience. authenticity and interest are highly valued aspects of e-learning design scenarios.

5. **Feedback**

Effective use of feedback will enable an e-learning design to set up a dialogue within which the student participates, without which designs may simply become plans for broadcasting content. Effective E-learning design will include provision for feedback that amplifies the learning from the experience, and enables students to increase their level of skill and knowledge. The range of available feedback strategies is vast, including reflective responses to prescribed questions, semi-automated responses by the system to student actions and work, shared comments in online forums and blogs, and personal responses via email, telephone, and post. Enabling feedback from a broader range of people via the presentation of their views in an online forum, where reviews and downloads could provide qualitative and quantitative feedback about the appeal of their creation to others.

6. Delivery

Good educational material relies on appropriate delivery to reach its full potential. The appropriate delivery of E-learning should aim to maximize the engagement of the student with the activity, enable the communication of stimulating contexts, and maximize opportunities for feedback and reflection. This may cross the technical boundaries of e-learning systems, which presents an opportunity for new solutions and technologies.

7. Context

The situation within which the e-learning resources are to be used has a significant influence on the design but may only be partially predictable. Elements of activity, scenario, and feedback need to take into account the users' profiles and the delivery element needs to consider the technical infrastructure. However, additional contextual considerations include the institutional objectives of the e-learning program, the role and skills of any instructor, longevity of the resources, and cultural sensitivities. The broader context within which the learning activity is delivered can influence many elements of e-learning design. One example of the broader context is the supervisory situation that might be assumed. The materials should be suitable for use as a standalone resource, and not assume a detailed level of teacher input.

8. Influence

The impact that the e-learning materials will make is an important design consideration. The influence of the E-learning design can be assessed from a number of perspectives, including the way that it will affect the learner, the ramifications that it will have for the learning community into which it will be implemented, and the environmental influence of its development and use, the potential effect of the content and the extent to which the content benefits the user (Raskin, 2000). Considering the influence of the design requires designers to appreciate their relationship with, and influence upon, the learner and the learner's social and physical context. Designers need to act in a responsible and ethical manner to ensure that the impact of their e-learning design is of benefit to the learner, society, and the environment.

9. Content design and writing

Online offers many more options than a lot of people think. Time spent exploring options here can open up many more ideas for presenting content, and is more likely to produce meaningful and integrated assessment embedded within learning activities. Mapping and then sequencing the key elements of the content. Applying instructional design effective for online (choosing appropriate teaching strategies; presentation considerations; and building in scaffolding that will support the learners move to independent thinking as they become more familiar with the topic and the medium which is very important to do when learners are not in a face-to-face situation). Technical or multi-media decisions - Deciding what should be presented on screen and what should be downloadable/printable. Deciding which is key content, and needs reinforcement, what material can become secondary links, and which comes under the heading of supplementary or additional learning resources. Doing a walk-through to confirm time allocations for each learning activity (including reading); congruence between assessment and learning objectives and learning content and learning tasks; clarity; and completeness.

10. Materials development

This phase takes the material produced in the writing and planning phases and turns it into product - liaison should occur between writers and the developers if these are different people throughout these stages. This phase includes: producing the physical product Developing e-learning content ·producing any accompanying documentation. These steps require: Knowing what standards should be aimed for (technical compliance and usability of the product being developed). Establishing means by which to measure or test that standards and usability objectives have been achieved. Considering when to measure, and how information from this will feed back into the development process to achieve best outcomes most efficiently. Gagne's nine learning events are the most popular and effective model for creating eLearning contents. 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).

These nine events should be taken into consideration as the basis for designing instruction and selecting appropriate media *(Gagne, Briggs & Wager, 1992).*

11. Visual Development

According to Gestalt principles, font sizes, colors, style and alignment must be in good arrangement, this helps to keep different groups separate and give strength to the site. 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 and will not motivate the viewer to investigate their contents. Dense text documents without the contrast and visual relief offered by graphics and careful page layout and typography

are also more difficult to read. However, without the depth and complexity of text, highly graphic pages risk disappointing the user by offering a poor balance between visual sensation, text information, and interactive hypermedia links. Visual and functional continuity of the Web site organization, graphic design, and typography are essential to convince the audience that the Web site offers them timely, accurate, and useful information. A careful, systematic approach to page design can simplify navigation, reduce errors, and make it much easier for users to take full advantage of the information and features of the Web site.

The primary task of graphic design is to create a strong, consistent visual hierarchy, where important elements are emphasized, and content is organized logically and predictably. Graphic design is visual information management using the tools of layout, typography, and illustration to lead the reader's eye through the page. Readers see pages first as large masses of shape and color, with foreground elements contrasted against the background field. Only secondarily they begin to pick out specific information, first from graphics if they are present, and only afterward do they start parsing the "harder" medium of text and begin to read individual words.

Repeatedly same colors, shapes and textures should be used. This strengthens the organization of the page. Texture is the surface quality of an object. Texture is experienced when someone touches objects and feels their roughness, smoothness or patterns. Texture is the artist's way of mapping these tactile impressions on to the two dimensional picture. Varying the pattern of light and dark areas on an object creates texture. Light and dark gives the impression of depth. Photographs and shapes should be created with enclosing boundaries and white background should be used, if possible, to forms a perfect contrast color. Mostly, horizontal lines should be preferred. The direction of a line can convey mood. Horizontal lines are calm and quiet, vertical lines suggest more of a potential for movement, while diagonal lines strongly suggest movement and give more of a feeling of vitality to a picture. The weight of the page should be equally distributed. In terms of kinesthetics, top to bottom and left to right must be balanced.

12. Conclusion

The technology affords opportunities to educational designers to amplify the strengths and weaknesses in both the activities and the delivery systems. It is because of this amplification of technological tendencies that the design phase is so critical. The elements of developing e-learning material namely – activity, scenario, feedback, delivery, context, influence – content design, writing and

software development provide focus for the educational designer, in the development of an effective e-learning design. Proper use of learning principles and instructional design strategies are the foundation for creating effective eLearning contents. With well designed contents, eLearning 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 then the E-Learning will become the most preferred medium for learning. The teachers and teacher educators should delve deep in to the intricacies of the development of e-learning material and should make use of the power of technology for the benefit of the student's community.

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