E-learning Strategy - Development and Quality

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Abstract: **E-learning technology is driven by several factors. Among these factors is the principle of sharing and reusing existing teaching materials. This is in addition to the possibility to personalize courses according to several criteria such as the preferences, capabilities and students' needs. In this paper, we analyze the existing standards and technologies related to the subjects. We aim at providing an original technique for a modular architecture of an e-learning system which allows designing and implementing an e-generation course. The e-generation course maintains a consistent view on the entire authoring process. The process of e-content structure is objectives-based. To create a course the author has to be aware in each step of the course generation of the objective and the relevant information for the learner, we also covering importance of development phase and quality of any e-learning course.**

1. INTRODUCTION

E-learning can be defined as the use of computer and Internet technologies to deliver a broad array of solutions to enable learning and improve performance.

Understanding that we should be using standards and best practices throughout e-learning development, the question becomes "what standards and best practices should we follow for E-learning development?"

1. Separate presentation from content as much as possible by using Cascading Style Sheets and semantic (X) HTML markup.
2. Separate behavior from content as much as possible by using unobtrusive JavaScript techniques.
3. Avoid plugins and browser-specific technologies as much as possible
4. Keep content as accessible as possible by following established accessibility best practices.
5. Keep your courseware portable.
6. Ensure your course has a long shelf-life and is easily maintainable.

QA is an ongoing process in the eLearning Course Development. After the production of the course, the QA team needs to check various elements for their functionality. Given below is the checklist for the elements in the course that needs to be checked during the final QA process:

1. Title
2. Content
3. Interface functionality check
4. Assessment (if any)
5. Loading
6. Compliance Testing
7. Online version

These are some of the elements which are tested at the post-production stage, we will look into detail in our next section of this paper.

2. REVIEW BACKGROUND

2.1 Strategy for E-learning course development

In case you want to implement an e-Learning strategy, first and foremost you must define your vision, i.e., where you want to go. Then you must establish how you will help yourself achieve your corporate goals through e-Learning. Define your strategy on the basis of your business/human resources requirements. Finally, implement it with support from your managers and suppliers. Remember that e-Learning is not just a Human Resources/Training project. Rather, it is a process impacting the entire organization.

If, in addition, you will add a corporate virtual university, choose a suitable LMS allowing controlling and tracking your students' progress, and providing additional reference material in various formats and with different cooperation tools, such as chats and discussion forums, to share knowledge and experience

High quality content, polished design, and easy navigability are three important ingredients of any successful eLearning course. However, one of the most essential elements of an eLearning course design and development is often overlooked; and that is no other than interactivity. Note that even **high quality eLearning courses** are going to fall short of expectations if the learner isn't fully engaged and motivated to

learn. Not to mention that learners won't reap the many rewards your eLearning course has to offer, given that they are less likely to actually acquire and retain the information you're providing.

1. Keep it relevant and on-topic!
2. Exploration is key to learner engagement.
3. Include interactive, reality-based scenarios.
4. Integrate quizzes or assessments at the end of each module or lesson.
5. Tap into their emotions.
6. Encourage group collaboration.
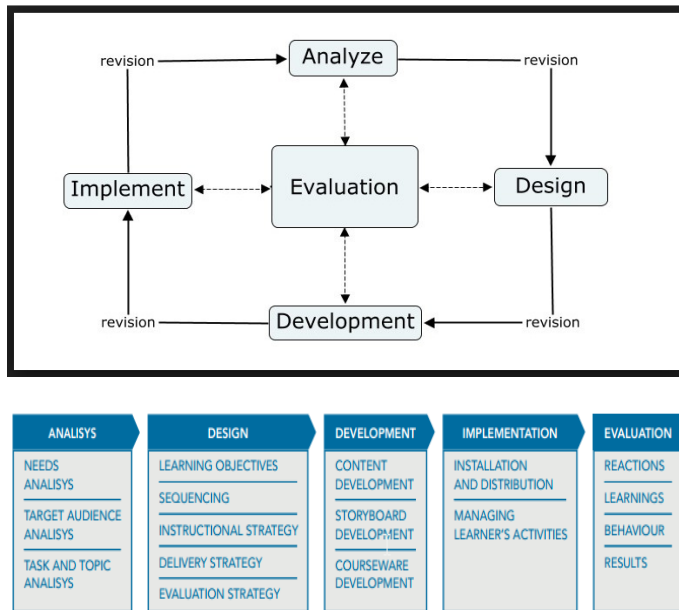7. Make your eLearning course aesthetically appealing.

Fig. 1 E-learning life Cycle

2.2 Common errors and keys to success:

A few common errors made in developing an e-Learning strategy follow:

1. Lack of a clear vision.
2. Equating technology to strategy.
3. Focusing strategy on LMS (Learning Management System).
4. Focusing on developing on-line supply with traditional content.
5. Failure to attain consensus.
6. Lack of executive support.
7. Considering the e-Learning strategy as a part-time or short-term job.
8. Ignoring threats and weaknesses.
9. Failure to manage change.

10. In contrast with these, key factors leading to successfully developing an e-Learning strategy include:
11. An effective educational model.
12. Effective learning.
13. Appropriate technology.
14. Management leadership and sponsoring.
15. Organizational redesign.
16. Change management strategy.
17. Awareness of the business needs.
18. Recommendations

3. DEVELOPMENT

Below diagram shows in detail development steps for E-learning courses. We will look in detail for the development stages.
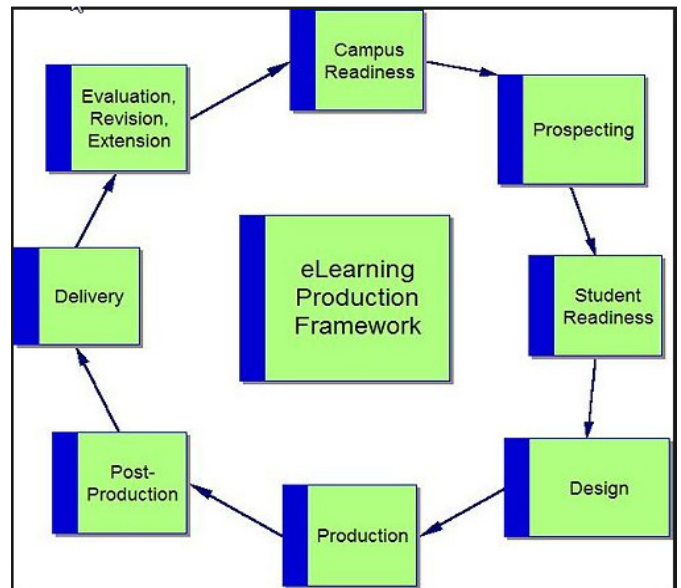

Fig. 2 E-learning production life cycle

3.1 Technology:

E-Learning Technology

There is a continuum of e-learning software with simple HTML on one end of the spectrum and complex, enterprise-wide Learning Content Management Systems on the other. One of the secrets to successful e-learning implementations is to choose the correct software for the correct need. The e-learning software must satisfy the needs of the online learner, the online instructor and, in many cases, individuals in an administrative capacity who must track and maintain learner records. Generally, there are five types of e-learning software that can be used alone or in combination. These are: [2]

- Programming Languages

- Authoring Packages

- Learning Management Systems

- Learning Content Management Systems

Programming Languages: The most common programming language for online learning is Hyper Text Mark up Language which is better known as HTML. It is possible to develop a simple, online lesson using straight HTML. However, the use of straight HTML does not provide for a high level of interactivity or interaction on behalf of the learner.

Authoring Packages: These authoring packages include Macromedia's Dreamweaver and products like Captivate and Lectora. More and more of these packages are being made available by various vendors.

Learning Management Systems (LMS): These systems are specifically designed to track the performance of a multitude of learners. They can be academically focused like Blackboard, e-College, or Web CT, or more focused toward corporations like Docent, Saba, and Click2learn's Aspen.

Learning Content Management Systems (LCMS): These systems are simply a combination of several types of e-learning software. Most LCMS provide the capability of tracking users, the ability to author content, and the ability to store and retrieve content when needed. These "mega" packages allow an organization to have an enterprise wide solution that takes care of every e-learning software need.

3.2 Development Process

Developing an e-learning course from start to finish can seem like an extremely daunting process to a newcomer, and there's definitely lots to learn along your way.

In this stage, the e-learning content is actually produced. The content can vary considerably, depending on the available resources. For example, e-learning content may consist of only simpler materials (i.e. those with little or no interactivity or multimedia, such as structured PDF documents) which can be combined with other materials (e.g. audio or video files), assignments and tests. In that situation, storyboard development and the development of media and electronic interactions would not be conducted.

The development of multimedia interactive content is comprised of three main steps:

Content development: writing or collecting all the required knowledge and information;

Storyboard development: integrating instructional methods (all the pedagogical elements needed to support the learning process) and media elements. This is done by developing the storyboard, a document that describes all the components of the final interactive products, including images, text, interactions, assessment tests; and

Courseware development: developing media and interactive components, producing the course in different formats for CD-ROM and Web delivery and integrating the content elements into a learning platform that learners can access

3.2.1 What does Courseware development imply?

Once the storyboards are ready, the development team creates the final interactive e-lessons. Alpha and beta versions are prepared for testing and review before distributing the course online and/or through CD.

Courseware development may require the work of a group of professionals. Specifically: [4, 5]

1. A course integrator to assemble all the course components and set up the course interface; this person may also be responsible for quality assurance testing;

2. Graphics developers to create graphics and animations, including navigation buttons and icons;

3. Multimedia developers for audio and video editing;

4. HTML/XML coders if there is a need to develop tailored templates; and

5. Programmers to develop complex interactions.

Not all these roles are required in every case. It depends on the mix of media and on the required level of interactivity. For example, only a course integrator and graphics developers would be needed for courses composed of only text and images, with a medium level of interactivity and created using authoring tool.

4. QUALITY

Quality in e-learning has become a leitmotiv in educational policies, an imperative for practitioners, and a huge demand for learners. Achieving high quality is a much debated and sought-after goal in all segments of education. Before launching your eLearning course, it's a good idea to have others review it. You want to discover any hidden issues before the big launch.

4.1 Quality Review

Prior to piloting the final course with your learners, the eLearning developer, client, and subject matter experts should go through the course. At this point, you're almost done, so there shouldn't be major changes. What QA needs to look for is;

Are there any typos and grammatical errors?
1.   Are links and external resources working?
2.   Is all of the content there?
3.   Is the content accurate?
4.   Are implementation plans in place?

4.2 Learner Review

The review you do with your client is going to be different than the one you do with your learners. With your client, you review the project goals and agreed upon deliverables. On the other hand, when you review the course with your learners you're testing the course's effectiveness. Here are some things to pay attention to:
1.   Is the navigation clear?
2.   Have you provided the right instructions?
3.   Watch the learner go through the course?
4.   Does the course meet the learning objectives?

4.3 Technical details

If your course supposed to run on various platforms and browser then it must checked across stated technical specification

1.   Course tested on different browser
   a) Internet Explorer
   b) Chrome
   c) Firefox
   d) Safari

2.   Course tested on multiple devices
   a) Desktop
   b) iPad
   c) MAC
   d) Smartphones

Quality is very much critical part of any type of software, and if it's eLearning then the target audience matters a lot.

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