

e-Learning – Courseware Development With Pedagogical Approach Enhancing Skill's Learning Process

Zulkifli bin Mohd Sidi

*Pusat Latihan Pengajar dan Kemahiran Lanjutan (CIAST)
Jabatan Tenaga Manusia(JTM), Kementerian Sumber Manusia
Po Box 7012, Jalan Petani 19/1, Seksyen 19,
40900 Shah Alam, Selangor.
Tel.: 03-55415736, Fax.: 03-55481441,
E-mail: zulkiflisidi@gmail.com*

Assoc. Prof. Dr. Isa bin Mohd Samat

*Faculty of Information Technology & Quantitative Sciences
Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor.
Tel.: 03-55435329, Fax.: 03-55435501
E-mail: isa_samat@hotmail.com*

Abstract

Author believed that courseware with interactive multimedia Computer-based Training (CBT) systems can enhance the skill learning process. Based upon a thorough analysis of user instructional needs, that courseware develop with pedagogical adoption will incorporate the appropriate blend of audio, video, graphics, and interactivity to create programs that support the acquisition of various levels of knowledge from the simple information level to a thorough working knowledge level.

By developing courseware using CBT system (or sometimes called e-training) and using user friendly authoring tools software such as QuestNet +, Macromedia Authorware etc. will enhancing the capabilities of producing a lot of CBT approach.

The media are used such as compact disk (CD) for stand-a-lone courseware will gave users knowledge and training on single PC. The skill learning processes are more interesting with interactivity at every area although no internet coverage can still using electronic approach.

Keywords: *Computer-based Training (CBT), Trainer-Centered, Learner-Centered, On-line, Courseware and constructivist.*

1.0 Introduction

Multimedia technology is one of the most exciting innovations in the age of information. The rapid growth of multimedia technology over the last decade has brought about fundamental changes to computing, entertainment and training/education. The exponential growth of multimedia technologies and applications has presented society with unprecedented opportunities and challenges.

Training or educational multimedia courseware and applications are in many ways similar to printed textbooks and other teaching and reference materials in that they come in a wide range and variety. Some multimedia applications are broad and comprehensive while others are more focused. Applications either address introductory and advanced trainees or students or trainers/teachers and scholars of particular subject areas.

The potential of interactive multimedia in the learning or training environment is well-recognized world wide, as evidenced by various projects funded by universities, schools, government bodies and private organizations.

Today greater demands are being placed on skill's training systems at all levels to produce citizens who can apply knowledge in new domains and different situations. With the gradual increase in the integration of computer and multimedia technology in training activities, there is a need to consider not only the unique opportunities they bring to training and trainees, but also the benefits that may be derived from their use. However, a majority of the teaching-training courseware available in the Malaysian market focuses on subjects such as Malay language or Bahasa Melayu, English, Mathematics, and Science. Therefore, there is a need for computer-based training (CBT) materials in skill's training activities, which can provide trainees with practice and foster moral values at the same time.

Mohamed Ibrahim & Sherif Kamil, (2003) found that Steil, et al, (1999) wrote, "During the 21st century, e-Training is expected to play an increasingly important role in education and training worldwide. In the past decade, a dramatic shift to e-Training as part of the learning process has taken place in the world of education".

Today, besides texts-books or instructional materials, computers provide a new means of presenting literature to trainees. Computer can be the vehicle for presenting instructional and lesson to the trainees or students on CD-ROM or to evaluate trainees on lesson that they have learn as a knowledge assessments. In addition, with access to the courseware, computers can be a means of learning more about literature and serve as a vehicle for sharing ideas with others. Multimedia is suitable in presenting training to the trainees for it facilitates learning and enjoyment of lesson.

2.0 Courseware Problem

Courseware profit-making and curiosity-seeking potential have largely ignored training courseware as a potential market. It is because the investment in the training field is limited. Therefore courseware development is seldom related to skill's training although courseware development has grown rapidly in recent years. Courseware developments were mostly related to business or are games-oriented applications. (Norhayati & S.P.Hwa, 2004).

3.0 Enhanced Values

Computer-based Training (CBT) as naming courseware offers an enhanced level of communication flexibility, multi-medium distribution, interactivity, freshness and engagement:

1. **Non-linear flexibility:** Training courseware is produced in separate modules. Thus, the lesson's trainer has the option, based on audience feedback, to genuinely respond to the specific interests of the users (trainees). Taking control of the presentation, the trainers tailors each in-person presentation to respond to the interests of that particular group. Similarly, on the Internet (known as Web-based Training), users can view only those modules that they think are of interest, and then respond in kind with a multimedia instructional of their own.
2. **Multi-medium distribution:** Courseware can be both broadcast and narrowcast via multiple media including, CD-ROM, Internet, Intranet, DVD, VHS, television, as well as right off one's laptop.
3. **Interactivity:** Courseware provide the quiet time in between story modules that permit real-life of instructional, audience feedback and a respondent flow of new information based upon users input.
4. **Freshness:** Courseware, because of their computer-generated nature, can be updated easily and quickly. Sometimes in a matter of just hours a training modules can be refreshed with new video, photos, graphs and audio.
5. **Engagement:** Courseware provides the ultimate medium for employing training instructional technologies and techniques. The result is in content that doesn't just entertain, but engages the users.

Hence, the author adopted this approach in design to develop an interactive multimedia learning environment for trainee in skill's training at Manpower Department Institutions, Ministry of Human Resources to foster moral values in skill's training.

4.0 Instructional Medium

Multimedia is chosen as an instructional medium to present the content of Training Courseware. The instructional with integrated various literary elements are presented not only in text, but also in graphic, audio, video and animation.

Multimedia has a lot of different connotations and definitions vary depending on the context. In the context of skill's training, interactive multimedia is defined by three criteria:

- Interactive multimedia is any package of materials that includes some combination of texts, graphics, still images, animation, video and audio;
- The materials are packaged, integrated and linked together in some way that offer users the ability to browse, navigate and analyze the materials through various searching and indexing features as well as the capacity to annotate or personalize the materials; and
- Interactive multimedia is always "trainee-centered". In interactive multimedia, the trainees controls the experience of reading and instructional the material by selecting among multiple choices, choosing unique paths and sequences through the materials. One of the key features of interactive multimedia is the ability to navigate through material in whatever ways are most meaningful for individual users (Norhayati & S.P.Hwa, 2004).

5.0 Pedagogical Approaches and Learning Theories

The appropriate pedagogical approaches and learning theories play a vital role as a basis of Courseware development. It incorporates a variety of pedagogical approaches and learning theories to meet diverse learning styles of trainees. Designing Courseware for fostering moral and values training needs greater effort in the presentation of the content since this will partly determine the success of the learning process. According to Norhayati & S.P.Hwa, (2004) it is important to carefully design the way content is structured, organized, and presented. The types of activity in which the users will be involved play significant roles in the success of pedagogic designs.

The designing of the courseware which is instructional lesson included is the most priority, Park Hong Shik, (1993) notes that the most common instructional process is described as the *Four Step Methods*. It is consisted of Preparation, Presentation, Application and Testing/Follow-up. These methods of lesson delivery are completed on one lesson.

Based on the pedagogical approaches and learning theories, the modules of the model was designed and developed based on trainee's capability with Four Step Methods.

6.0 Perpetual Navigation

Perpetual navigation is the aspect of interface, which is designed for the trainer-centered environment. With multimedia, navigational and participatory features provide more flexibility and control to the users. These unique features allow them to quickly access information when they need it. The learner is given more control over what and how s/he wants to learn. This transmission of information is done via the different modalities like sight, sound and touch, which is it allows learning through the most natural means - the senses. All-important icons based on the existing modules of the courseware are constantly presented on the screen. Although not all of the icons are activated, nevertheless they remain on the screen to enable the trainers to know where they are at and where they can navigate to next.

Users become participants in an exciting experience involving the sensory modalities of sight, sound and touch, all of which naturally facilitate learning. Courseware then incorporates simulation and application in teaching and learning to assist trainers in exploring different aspects of technology matter (values of instructional, assessments, etc.) that is instilled in the courseware.

7.0 Interactivity

Interactivity within the program includes the use of active texts, buttons and icons linked to definitions, further information, other modules and so forth. Through interactivity that adopted in the four learning modules.

The training courseware merges the idea of lesson with multimedia functionality to produce dynamic and flexible courseware to exercise thinking while acting, testing, exploring, and navigating. Courseware method explores new horizons in the use of lesson as a mean for helping trainees construct and reconstruct their thinking structures.

Courseware, which uses the CD-ROMs and computer-based as the means of dissemination, is a didactic tool made up of four key modules:

Positive Values

The focus of this courseware module is to project the positive values and images of the lesson using computer-based

technique. It always allows trainees to practice and promote their comprehending and listening skills.

Motivated Values

In addition to projecting positive values and images, the courseware is able to motivate users and cultivate reading and learning habit indirectly due to the multimedia approach and tutoring strategies of scaffolding, self-explanation and hyperlinks provided in courseware. The trainees will interact with the interesting of the interactivity and perpetual navigation courseware approaches.

Knowledgeable

The trainees can also retrieve the terminology or scientific word which is not familiar before using the quick search menu. It assists the trainees in understanding the lesson and instructional. The main objective of developing this CBT Courseware is to enrich the trainee skills at their own pace.

Assessments

The activities that adopted are the problem solving with interactivity and perpetual navigation approaches. The two activities are Knowledge Test (Theoretical), and Performance Test (Practical).

Meantime, the trainees can practice and promote their affective skills via the tests.

Norhayati & S.P.Hwa, (2004) notes that the assessments adopts the thinking and decision development approach that takes into account the literacy experience of the users, which assists in the cognitive, affective and psychomotor development of a trainees. It aims to reinforce the practice their thinking skills through activities related to the theme of the lesson, and help to foster the cultivation of technical experiences.

8.0 Future Expected

Many multimedia technologies are available for the researchers to create competitive skill's training courseware, an innovative and interactive multimedia application. These technologies include Adobe Photoshop, Adobe Premier, Authorware and CBT Pro to create and edit graphics and video files respectively, SoundForge and Macromedia Swish to create or edit sound and animation files, respectively.

The courseware development is done using a Macromedia Authorware or Quest Net authoring environment. Elements of interactivity and perpetual navigation are incorporated to involve the user in the application and to create a multi-sensory experience. CBT Courseware then is packaged into a distributable format for the end-user. The author will save these multimedia applications as standalone presentations for CD-ROM delivery.

The virtual reality (VR) and combination of VR and Artificial Intelligent (AI) to produce a mixed-reality (MR) application can be installed in the courseware. Virtual technologies will make the courseware more attractive to the trainees and enhance the process of learning.

9.0 Conclusions

Skill's training is a part of human life. The interactive multimedia courseware reveals an interesting and exciting tool for teaching and learning. It may be used in class as a demonstration tool. On an individual basis it helps to reach pedagogic goals.

In conclusion, author would suggest that an additional feature for skill's training interactive multimedia application would be to present content by mixing different presentation modes and including various activities that support as much intelligence as possible. The interaction is the key feature and consists of test, simulation, data

input etc. Finding of the study would be able to address some teaching and training issues, in particularly the uses of interactive multimedia in training the trainees for excellent skill's required to the Malaysian industries.

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