Case Study: Implementation And Qualities Of Multimedia Technologies In Technical And Engineering Based Instructional Design

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Abstract: Multimedia technologies have potential to produce high quality learning environments which actively engage the learner of technical and engineering or Vocational education, Because in this modern era information technology is involved in every field of life, and with the help of information technology we can easily generate and develop very efficient and effective interactive medias for our learners. Computer based multimedia and teaching techniques are very sufficient for all age group students. In technical and vocational education, Multimedia applications are increasing day by day due to technology involvement in the industries and work place. This paper starts with an overview of the specifications and general characteristics of multimedia in TVE like how multimedia involvement is effective in TVE and how can be used to enhance that process of teaching and learning in technical and vocational subjects and its implications in this modern era of technical and vocational education from different prospective.

1. Introduction

In this modern era learners have grown up in an electronic globe. There is no doubt that the approaching generation will be even more technologically advanced than our current students. Computer technology multimedia offers us a powerful and versatile tool that can dramatically change teaching and learning. The result is an improved ability to present abstract or complex material with increased student comprehension and interest in technical and vocational education. Different new computer based teaching aids are using in today's modern classrooms like visualize, projectors and touch screen boards and power point slides because of involvement of technology in all sectors [1]. The application of computer based multimedia is very broad in education and training. In medical and engineering education the use of computer based multimedia is very effective. Because with the help of computer based multimedia aids teacher can deliver in efficient way and on other hand learners can also understand in very sufficient way. Multimedia can permit greater individualization, in turned fostering improved learning. The most effective use of multimedia in education is online distance learning [2]. Through this multimedia the learner can access classroom through internet, In online distance learning the learner can also give feedback to the instructor through audio and video interfacing .ICT is also playing very efficient role in the development of multimedia enhancement in technical and vocational education in all over the world. In educational training programs the interactive media perform very effective role in technical and vocational education and training sessions. The background of this study is the effective use of computer based multimedia teaching and learning aids in technical and vocational learners enhancement. Developers can also use instructional models and methods for enhancing the qualities and characteristics of multimedia technology for enhancing the learning process of students. Teaching models are responsible to define the methods of teaching and their strategies, which are consequently based on the teaching approaches. Various teaching models have been proposed by many academicians and physiologists, who help the teachers to acquire proper plans to enhance the learning capabilities of the learners and at the same time, allow them to design their course contents and syllabus more efficiently (Asad, Engr Muhammad Mujtaba, 2014) [2]. The purpose of this study was to discover effective method of teaching with computer-based multimedia and technology.

2. Literature Review

In the delivery of technical vocational education and training (TVET) through distance education, student support plays the key role. Whether provided to an individual student or group of students, student support is necessary and complementary to the print material supplied. Student support includes all those activities (administrative or academic) which help students progress through the course. Most teachers and instructors believe that the students can understand very fast if the instructional medium contain some graphics

because Computer technology multimedia offers us a powerful and versatile tool that can dramatically change teaching and learning [2].

There are many qualitative researches has been done and still in progress in the area of "integration of technology in technical and vocational education". Because the technology is involved in all fields of education and also enhance the teaching and learning skills in this modern era. Many researchers have done researches on mobile learning in world. (Engr. Muhammad Mujtaba Asad,) [10]

In first article review related to Multimedia and mobile leaning in Malaysian technical and vocational education, In paper researcher discuss about the basic defiant ion and concept of mobile learning of E-learning effectiveness in Malaysian technical and vocation education. Researcher try to highlight that mobile learning is the evolution of e-learning, which completes the missing component of an e-learning solution and mobile learning furthermost uniforms for those mobile parties in education organizations and institutions [7]. So, using mobile and computer based devices in education is mostly considered and preferred as recommended tools. In teaching which mobile technologies are assumed to have the potential to be apply in teaching and learning institutions.

In this article researcher more talk about possibility of engaging multimedia for normal schooling in Malaysian Technical and Vocational Education and Training. Researcher describes the various observations s for education by reflecting on the positive judgment from educational researchers around the world.

The next article is also related to E-learning in Africa. The part that communication plays in the learning practice is a critical achievement feature. It is inside this framework that m-learning can add to the excellence of education and teaching and learning. In this article Researcher try to clarify that mobile learning is a usual extension of electronic learning (e-learning).[4]

In another article describes the educational prospects of teaching in a real time wireless classroom by multimedia based instructions. In this research researcher describe system that permits the instructor to offer on line assessments in class through multimedia technology, which are sorted-out instantly. Learning stuffs are projected to keep track of learning activity efficiently. Conventional classroom learning has certain faults. Open ended discussion hundred undergraduate students on the problems faced in conventional classrooms [9].

These applications could be used on a Pocket PC, notebook and mobile phone and other multimedia technologies. They offer a range of instructional application such as classroom chat room, collective text editor, organization of power point slides, opening on

line course ware on a mobile device, sending and receiving feedback, email and accessing to remote computing functions and programs.

Next study has highlighted the issue of Comparison of Teacher Development Programs through multimedia. In this paper two programs are known and the opposing ways in which they applied these structures are defined. Then the program results are associated along five dimensions:

1).Access to equipment.
2).Administrative support.
3).Technical support.
4). Collegial support and classroom implementation.
5).Implications for teacher development programs is discussed.

In this research researcher used comparative case methodology to observe the teacher development programs of two different groups: a private computer company and a public school district.

The next article touches on the issue of Use of Interactive Whiteboards for Teaching and Learning. The main objective of this paper is to assess both teachers' opinions and their use of IWBs. A questionnaire was developed based on an extensive literature review as well as associated instructional theories and models. This study not only looks at the opinion but also examines the actual usage and behaviors associated with promising IWB features in real settings [10].

The use of computer technology in university Teaching and learning is also a technology integrated article which reflects the usage of computer technology in university for teaching and learning purpose. The paper discovers how university practice of computer technology is formed into marginalized and curtailed positions by a variation of actors. From the 'writing' of ICT at a national policy level through to the marginalization of ICT within the lived 'student experience', a consistent theme emerges where computer technology use is constructed in limited, linear, and rigid terms far removed from the creative, productive, and empowering uses which are often celebrated by educational technologists.

The paper reflects how these leading creations of a peripheral and limited use of ICT may be tested by the higher education community. In particular, it determines by reflecting on existing critical thinking about how educational technologists can foster a more expansive and empowered use of computer technology within university.

3. Discussion

This study focus on the effectiveness and characteristics of computer based multimedia technology and multimedia-supported instruction in this modern in TVET. The basics characteristics of an effective media is

based on its efficient feature like Graphics of computer based multimedia because many thing which can easily explained by the graphical representation in multimedia instructions in technical courses. So we can say that the main characteristic of computer based multimedia instructional technology is:

A).Graphics and colours representations
B).Animation used in Multimedia Instructions.
C).Audio and Video multimedia instructions.

A. Graphics and colours representations

The utilization of colour in computer based multimedia is very much effective in instructional designing and. Graphics and colour are most effectual when used for cueing and prominence because it attract direct student attention during teaching and learning process. According to some famous researches on this colour and graphics effectiveness in multimedia technology in TVET, they recommend colour distribution for teaching and learning like

A).By using an utmost of three to six colors per screen.
B).Being dependable in colour selection within a program.
c). with implementation of brightest colours for the most central information.
D). by usually accepted colours for particular events (e.g., red for stop or warning, yellow for pause or consider, green for go or proceed). Very hot colours (such as pink and magenta) should be avoided since they may come into view to pulsate on the screen.

B. Animation used in Multimedia Instructions.

Majority graphics can be animated to exemplify points, instruct information or concepts, encourage students, and display procedures in many learning settings. Animation is use, however, both for the clarification of active processes and for heightening the contact of appearance. For early education level mostly instructor used this approach for teaching young basins, because that multimedia which is implemented on primary students is mostly focus on moving objects and animation because through this activity students can remember for long time period. In TVET many animation based program are used for training and demonstration purpose in TV schools and college community like if instructor wants to teach about the working of electrical machine so through multimedia animations he can easily deliver complete working concept of motor function.

C. Audio and Video Based multimedia instruct

The use of audio and video multimedia is very much in all type of classrooms because the students requirements are much more increase due to the development of technology. Most of the students not prefer to learn and remember thing by reading books that's why the learning style in which audio instruction are involved are very helpful for teaching them. The very good example of audio and video multimedia instructions is online learning or distance learning. In e-learning student mostly focused on audio and video instructions more than verbal or documented. According to my point of view the audio video multimedia instruction is very much effective in all educational sectors in technical, medical, engineering and social sciences. Motion video, including commercial tapes, movies, and home videos, is often a major element of interactive multimedia software, but computers need special hardware and/or software to display video. Video presentations are generated from video files that consume a lot more storage space than simple animations.[2]

4. Finding And Conclusion

The existing study analyses the effectiveness of computer based multimedia-supported teaching and learning in technical and Engineering education. Through the briefed literature review and discussion it can be easily estimated that the effectiveness of correct multimedia is very much useful of all educational sectors including technical and vocational. Through efficient and appropriate multimedia selection instructor or teacher can teaching his students in a proper, effective and outcome based way. All these multimedia technologies can be used to enhance the learning and teaching skills in technical and vocational schools and colleges through implementation of suitable multimedia for the development of students according to this modern age.

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