3-D ANIMATION AND WEB LEARNING–A SURVEY

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Abstract –*The main aim of this research article is to study the opinion of B.Sc computer science students on web learning and animation. There are slight differences between Web learning, E-Learning, distance learning, computer based training, computer assisted learning, open learning, etc. Information and communication technology has developed tremendously over the last ten years. Innovative teaching and learning practice are common among the educators due to this recent ICT development. Particularly, this research paper analyze the students' opinion on web learning and animation. Even though many educational institutions adopts web learning system, still there are no such an opinion survey among the students' regarding the web learning system in their educational set up. Web learning system uses audio visual files, animation; video captured teaching notes, portable document files, etc. Web learning system provide the opportunity to educators, not only in teaching and learning activity but also in evaluation, administration, group discussion, debate and seminars. Due to the flexibility and freedom, students like this format along with face to face teaching. Highly motivated learners uses web learning system independently than low motivated learners in software programming. There are differences among the students in using web learning system. There are many factors like cognition, motivation, individual differences, web learning systems' design aspects, social background, teachers' mindset involved in web learning system implementation and success. This research paper aims to study and to implement web learning system in a constructive manner according to the students' opinion.*

Key Words: *Web learning system, Animation, Webinar, Students' opinion, motivated learners, Individual differences, Cognition.*

1. INTRODUCTION

There is a positive correlation between the development of higher education and the economic development. The success of economic development is solely depending on education and human resources. The web learning system has today become a part of the higher learning environment. In this fast developing knowledge society, there is, within reach a huge amount of web resources; it is also a vital source to educational information on the latest happenings in the rest of the world. Today, most of all Universities uses their own web learning system to facilitate their educational process and services. Commercially, web learning systems are used for varied purposes from sharing educational information to learning management and more. The importance of web learning system is developing day by day due to the flexibility. The NASSCOM (National Association of Software and Service Companies) predicts the huge opportunity due to the launch of Digital India movement and Smart Cities. According to the World economic forum's human capital report, 2015, there is a gap between educational syllabi and job market requirements. There is a need to keep the pace with the changing technological developments. Universities are increasingly beginning to adopt online certification training. This web learning offers students from across geographies unmatched flexibility and freedom to learn at their own pace. There is a huge demand for educating the 54 percent of Indian population aged below 25 years. According to National policy for skill development and entrepreneurship 2015, India faces two main problems – unemployment, lacking in job skills. Only 20 percent students are job ready whereas 80 percent lacks in job skills. Web learning system provides the skill training in a cost effective manner. Online universities, virtual schools, autonomous colleges, Indian Institute of Technologies, MITs, world top ranked universities, etc., provide education through web learning system.

2. IMPORTANCE OF THE RESEARCH

Web can be utilized in all the areas such as mentoring, debating, seeking, collecting, organizing, synthesizing, analyzing, discussing and sharing data. Web has become one of the most important media for learning and teaching activities which develops the interest to study further. Furthermore, there is a confusion among the learners regarding the slight differences and interlinks in e-learning, distance learning, computer assisted learning, web learning and mobile learning. This research article addresses the issues in web learning and learning strategy.

E-LEARNING

E-Learning includes all the forms of electronically supported learning and teaching. E-Learning includes Web based learning (WBL), Computer based learning (CBL), Internet based training (IBT), Computer supported Collaborated learning (CSCL), online resource based learning (ORBL), Networked collaborative learning (NCL), etc. Multimedia and internet technology are the basic parts of E-learning strategy. E-Learning content can be delivered via the internet, Television, CD, DVD, Audio, video tape, etc. Texts, pictures, 2-D animations, 3-D animations, graphics, sounds, music forms can be used in E-Learning [1].

Advantages of E-Learning

• No need to travel

• Study from anywhere, anytime

• Learning according to the learners' freedom

• Low cost and flexible

• Addition to face to face mode

E-resources

• E-Journals

• E-Books

• E-Library

• Web based materials

• Data bases, Web logs

• CDs and DVDs

• Audio and Video tapes

• PDFs and Word files

• Power point slides

DISTANCE EDUCATION

Distance education is a method of delivering, teaching and evaluating the learners without their physical presence in a class room. Distance education may include face to face teaching and learning for practical components. Distance education includes the technologies like satellite TV, Internet Radio, Online tutoring and Teleconferencing. In India, University education system has three types. They are Government University, Private University, and Deemed University. University like IGNOU, KSOU, and TNOU are Government controlled Universities. Deemed Universities like SASTRA, PRIST, PERIYAR MANIAMMAI and VINAYAKA MISSION'S are controlled by private educators. Private Universities like KALINGA (Raipur) are also controlled by private educators. All these three types of Universities conducts distance education courses up to

Master degree level. From the year 2009, M.Phil and Ph.D level programs are not conducted through distance mode in India.

COMPUTER BASED LEARNING

Computer based learning is one of the new innovation to improve the face to face learning. Computer based learning requires well-constructed computer room, and computers. A computer is the key and main component in the computer based learning environment [2]. Desk top Computers, Laptops and Tablet PCs can be used in computer based learning environment. Computer based training is very useful in learning self-paced manner. Application and programming software can be delivered through CBTs. CBT courses are delivered through CD and DVDs. Web based Training requires internet to teach and learn. Immediate feedback and evaluation is the main advantage of computer based training and web based training. 2-D animation, 3-animation, pictures, photographs, graphics can be added in computer based training and learning to faster the learners' understanding. One of the main advantage is CBTs can be distributed to wide learners at very low cost.

MOBILE LEARNING

Smart Mobiles, tablets, laptops, Personal Digital Assistants Portable DVD players can be used in teaching and learning process. Mobile devices helps the learner to learn according to their own pace and environment. Due to the online education rapid development, internet connection can be utilized in any handheld devices for learning [3]. Mobile assisted language learning is a new concept in learning new language. Now many Universities are offering online courses to reach the unreached. These handheld devices are used as a main tool in online certification and online courses. Mobile devices change the student and teacher roles in learning. Students can develop, deliver, discuss, interact and evaluate with the help of mobile devices. Audio based learning contents, video based learning contents, and internet based web contents, word files, flash files, and portable document files can be downloaded in a mobile device for learning.

WEB LEARNING SYTSTEM

Web learning system is a new way for mass learning. It can be used for skill training, adult learning, software training, higher education, etc. It solves problems like individual differences, individual learning capability, needs and interests. Web learning system is helpful to provide individualized learning environment according to learners' differences [4]. Web learning system can be enhanced by using technologies such as artificial intelligence, clustering and cognitive science. Web learning system can be designed according to the learners' requirements, web learners' profile such as age, gender, education, profession, geographical representation,

learning web research history, learning pattern and cognition. Learning and teaching process can be enhanced by using the learner's opinion. Web history can be used to check the details such as web pages visited, links searched, duration and pattern of searing the learning material. The development of web learning system usability design is an important research area of web mining among the current computer science researchers [5]. However, this research requires not only computer science specialists but also multimedia specialists, educational technology specialist, etc. Student centered learning system should be designed according to the students' opinion.

ANIMATION ON LEARNING

Even though animation can be utilized in computer graphic movies, interior design, television entertainment, movies, business, tourism, education, publishing, web design, engineering advertisement, corporate presentation, fashion designing, etc., it helps to simplify the learning and teaching process [6].. Computer graphics software provides simulations for learners which allow them to a 3 Dimensional view in classes such as civil engineering and designing. There are many evidences for the positive impact of 3-D animation on learning [7].. Due to the development of 4 G technology, 3-D animation contents can be easily downloaded and viewed in a small handheld devices such as smart phone and tablets [8]. Software such as Cinema 4-D, Auto desk Maya, Auto desk 3D Studio MAX, Adobe Flash and Combustion are very useful in creating animated learning material [9]. 2-D and 3-D animated materials are available not only for the primary education but also secondary and higher education. Presence of attractive 3-D animation and computer graphics enhances the web learning system design [10]. Menu placements, appropriate links, colors, video and audio file placements, etc, also plays a vital role enhancing the learning experience [11].

3 RESEARCH METHODOLOGY

This survey paper attempts to study the opinion of Web learning system and Animation among the computer science undergraduate students. A systematically prepared questionnaire was given to the B.Sc undergraduate students which had 30 questions. (15 questions for testing web learning system and 15 questions for testing animation).

4 SAMPLING

This survey was conducted among the computer science students in a city based college. Total 50 students were selected from the sample. Convenience sampling was used to select the appropriate sample. Carefully constructed questionnaire was given to the students to check their opinion on Web learning system and Animation.

5. LEARNER'S OPINION ON WEB LEARNING

This survey was conducted among the computer science students in a city based college. Total 50 students were selected from the sample. Convenience sampling was used to select the appropriate sample. Carefully constructed questionnaire was given to the students to check their opinion on Web learning system and Animation. Questionnaire includes

- Study on opinion about Web learning system
- Animation contents and its impact
- User interface design
- Links
- Menu
- Downloading time
- User experience

6. LEARNER'S OPINION ON ANIMATION

- 80 % of the learners opined that animation helped them to understand.
- 90 % of the learners felt that the loading time for animation and player was very slow.
- 60 % of the learners felt that the animation parts did not place in an appropriate area in the UID
- 96 % expressed their willingness towards 3-D animation in web learning system.
- 78 % of learners suggested the inclusion of 3-D animation in web learning system.
- 66 % of them felt that animation motivated them to study further.

7 CONCLUSION

The inclusion of educational technology advancement into traditional face to face teaching and learning process provides an effective solution to this current technology driven computer science students. The web-based learning system is a powerful tool to enhance the learning experience. This system provides freedom among the learners and teachers. There are no time, place and cost constraints in web learning environment. It helps to design a personalized learning environment. Further it develops the motivation and learning interest among the students. Therefore, the web learning system should be incorporated further more in the teaching and learning process to enhance the educational effectiveness. This research is also concludes that 2-D and 3-D animation in the web learning system facilitates the communication process. Apart from simplifying the communication process, animation motivates the leaners to go further. Educators should solve the downloading time problem in order to enhance the learning experience. This research is also concludes that the good user interface design, appropriate placement of menus and links are very important in web learning system.

REFERENCES

[1]Clark & Mayer, "E-Learning and the Science of Instruction", San Francisco, 2008

[2]Park & Lee, "Adaptive Instructional Systems", Handbook of research on educational communications and technology, 2nd edition Mahwah, NJ: Lawrence Erlbaum, 651–84, 2004

[3]Fall & Berman et al. "Multi institutional development and utilization of a computer-assisted learning program for the pediatrics", CLIPP project. Academy Med, 80:847–55, 2005

[4] Cook & Dupras, "M. A practical guide to developing effective web based learning", Gen Intern Med, 19:698–707, 2004

[5] Chen, "Cognitive Modeling of Student Learning in Web-Based Instructional Programs", International Journal of Human–Computer Interaction, 17(3), 375–402, 2004

[6]Hegarty, "Individual differences in mental animation during mechanical reasoning", Memory & Cognition, 22, 411-430, 1994

[7]Mayer, R.E., & Moreno, "Animation as an aid to multimedia learning", Educational Psychology Review, Volume 14, 87-99. 2002

[8]Palmer, "Animated demonstrations for learning procedural computer-based tasks", Human-Computer Interaction, 8, 193-216.1993

[9]Lowe, "Animation and learning: Selective processing of information in dynamic graphics", Learning and Instruction, 13, 250-252, 2003

[10] Wilbert, "The essential guide to user interface design", Wiley publications-India, 2009

[11] Jesse, "The elements of user experience", James Garrett, March 2000.