An Analytical Study on the Effectiveness of Multimedia in E-Learning

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Abstract: *Today, internet technologies are an integral part of our lives. Instructional designers have new and more flexible technologies at their disposal and learners have a multitude of choices. The internet has opened the way for courses and seminars, discussion forums and other approaches to learning to be delivered online with innovative ways to interact with instructors and other students. E-Learning is a key to help organizations to stay in current and grow the information resources available. What you may not aware is that you already using forms of e-learning in your daily life. In the past few years we have seen continued and sustained growth in the deployment of E-learning initiatives in large and small organizations of every type: corporate, higher education, government, military, and non profits. We have also witnessed significant evolution in e-learning practice as improvements and innovations in designs and delivery capabilities using various tools have led to more far reaching programs. The need for this study is to analyse the effectiveness of multimedia in E-Learning and how far it's used in the growth of the field with its history, types and delivering methods and authoring systems.*

Keywords: *E-learning, multimedia, interaction, effectiveness, technology*

1. INTRODUCTION

In this shrunk world, with the growth of the internet technology, specifically the World Wide Web (WWW) as a new medium of sharing information, it is possible for us to share the desired information from around the world with greater speed spending lesser time. The web-based electronic information products not only eliminated paper, physical storage and transportation costs, but also offer a host of other possibilities for incorporating multimedia and hyper-link features to electronic documents which is less possible on paper media. Internet also offers a variety of new services such as e-mail, web chat, e-journals, e-books, video conferencing, blogs, wikis, digital and virtual libraries etc.

E-Learning is an Umbrella term that describes learning done at a computer, usually connected to a network, giving us the opportunity to learn almost anytime, anywhere. To define it simply, 'e-learning' is the use of electronic information and communication technology to deliver learning products to expand knowledge and improve performance. For the learner, technology opens up new ways of accessing a wide range of learning solutions. Hyder (2007) proposes a more generic definition: multimedia is any combination of text, graphic, art, sound, animation and video delivered in any electronic means. Thus non interactive and non digital devices are also included within the purview of Multimedia.

Expertise of the best instructors could be used multimedia to create content and distribute them to thousands of students all over the globe as a part of e-learning programs. It can create content and distribute all over the globe for the benefits of students and multisensory perception of study material provide good grasp of the subject matter and interactivity elements to provide for better retention. Multimedia tools can include text, images, graphics, sound, animation, video and virtual reality. The study analyzed how multimedia makes the e-learning content more effective. Also finds how it is more effective than traditional learning method, functions in delivering a e-content and scope of e-learning in future. The study has some limitations too. The research analysis is confined to just arts and visual design students.

1.1. Objectives

❖ To find the impact and the effectiveness of multimedia in E-learning content.

❖ To analyze the importance of multimedia in creating E-learning content.

2. E-LEARNING FOR EDUCATION

E-Learning is a Panacea for all educational needs of both individuals and industries. The word e in e-learning is not something to do only with the web, it is much more. Organization today is looking at acquiring and distributing learning for optimizing the performance. It is important to realize here that e-learning is still being defined and its scope is not limited to or defined by one type of organization, institution or set or people. Implementing and deploying e-learning is not simply about converting traditional classroom training material into computer based and web based training platforms. Organization must identify the skill gaps of their target audience and determine the training platforms to deliver the materials effectively via Computer based, web based or classroom based. Once the skill gaps of employees have been identified, the organization can determine which training platforms have the opportunity to deliver the material effectively their targeted audience. The implementation e-learning plan must address issues identified in the business analysis, learning and performance analysis, Technical needs analysis stakeholders' readiness analysis. Chadha and Kumail (2002).

Hyder (2007) states that "Engage learners with lively, interactive instruction. Share powerful presentations, stream media modules or live video, and even pass control to attendees to demo applications. Set up hands-on labs so students can practice.

Technical account of multimedia, content information of popular graphic tool, animation tool, formats and its type of animation been clarified, which tools used is helping in e-learning and its important types, In types it tells about Animation, audio, content, export, import formats are been given in example. Readers will learn to identify the range of hardware, software, and services needed for e-learning projects, understand major categories of tools and see what each category produces, learn the major vendors in each category, and develop criteria for picking specific products. William (2005).

2.1. Effectiveness of Multimedia in Learning & Teaching Data Structures

Junaidu (2008) in his study explains that online electronic education is now being widely accepted as a major viable component of higher education. This is fuelled by the emergence of worldwide information and computer communications technologies. However, online education is not being adopted in science and engineering subjects as widely as in other fields because of the idiosyncrasies of some science and engineering-based courses. This paper explores and reports on the importance of creating multimedia-rich course content and the important role that animations can play in creating a successful online learning experience.

Singh (2003) states that multimedia, redundant multimedia reflects on the various aspects, which affect the student-learning rate using multimedia. The effectiveness of Multimedia as a means of "Education and Entertainment" often coined as "Edutainment". While it has traditionally been found that Multimedia improves student learning, it may be a combined effect of the extra preparations done by the designer as well as the novelty of the approach.

Lee (2005) discusses some of the means of effectively evaluating, designing and managing e-Learning programmes and hopes to accurately envisage what the future may hold for the development of online education. Despite the ample support and enthusiasm for virtual models of learning from both the corporate and educational arenas, the effectiveness of e-Learning is by no means a sure thing. Successful e-Learning programmers require specific conditions and constant monitoring and a lot more research has yet to be done before an acceptable universal model can be developed.

The development and use of any e-Learning programme or strategy represents an individual, organizational and social investment. For this reason, the effectiveness of e-learning should be evaluated. Without knowing the efficacy of e-learning strategies one cannot know the value of their use. Measuring effectiveness can constitute a useful tool to base decisions on the use of any e-Learning strategy. Bardon (2002).

Strother (2002) explains how animated characters can help create an immersive environment that elicits learner's social responses. However, it has been discovered from experiments with Stanford University that characters must be designed to be right for the task and not distracting the learner. When designing characters, it's essential to ensure that all audio, visual and content cues create an experience that both engages the learner and enhances the learning process. Only then can you teach how best to respond in a real life situation.

Zhang et al (2006) discuss the interactive video in an e-learning system allows proactive and random access to video content. Our empirical study examined the influence Of Interactive video on learning outcome and learner satisfaction in e-learning environments. Four different settings were studied: Three were e-learning environments with interactive video, with non interactive video and without video. The fourth was the traditional classroom environment. Results of the experiment showed that the value of video for learning effectiveness was contingent upon the provision of interactivity. Students in the e-learning environment that provided interactive video achieved significantly better learning performances and a higher level of learners satisfaction than those in other settings. However, the students who used the e-learning environment that provided non interactive video did not improve either. The study offered an explanation for inconsistent findings reported in previous studies. It suggests that interactivity can be a valuable means to improve learning effectiveness in e-learning environments.

3. RESEARCH DESIGN

The research method adopted for the study is survey method to find the objective of the research.

3.1. Survey

Samples are selected randomly from the population of age group between 18 years to 25 years those who are studying Arts and Visual Design. Sample size is 100. The structured questionnaire was distributed to the samples and collected their opinion individually to evaluate the effectiveness of multimedia in e-learning among the students of arts and visual design.

4. ANALYSIS AND INTERPRETATION

The collected data from the respondents were analysed and evaluated to find the effectiveness of multimedia in e-learning among the students. The e-content designed using a multimedia tool were shown to the students and their responses were collected to find the effectiveness and the impact of multimedia in e-learning. The results of the survey were analysed.
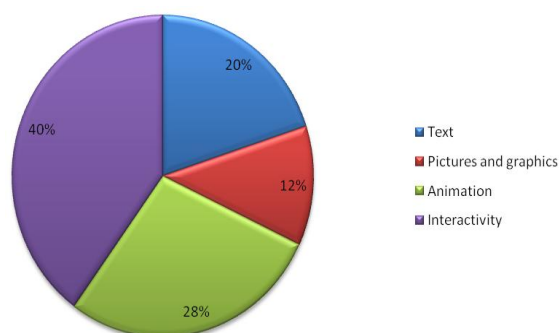
4.1. What do you like the Most in the Course of Study?

Fig4.1. *Students most liked in the course of study*

The e-content on visual design was shown to the students and asked what they liked most in the course of study 40% of the students told that they liked interactivity as it helps to go back to the lessons. And 28% told the animations used in the buttons roll over and roll out was good.

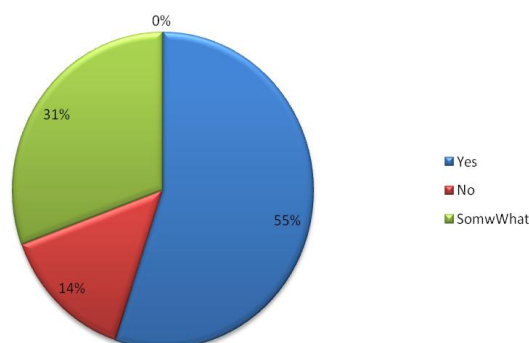### 4.2. Does E-Learning Completely Fulfill your Study Process?

Fig4.2. *Fluffiness of study process in e-learning*

Based on the e-content the researcher asked whether the e-learning course completely fulfilled their study process for that 54% said it fulfilled the study process as it covered the subject well with a easy understanding and 30% said that somewhat their study process is fulfilled.

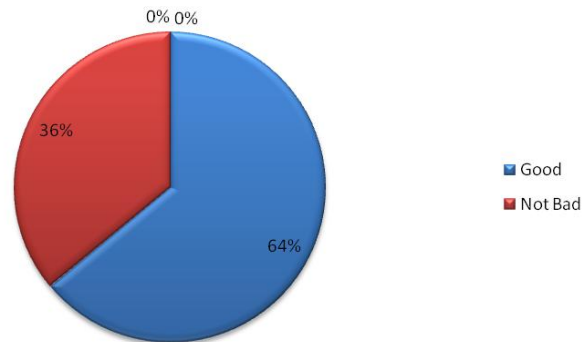### 4.3. How are the Designs and Colors Applied in the E-Content?

Fig4.3. *Designs and colors applied in the e-content*

When asked about the designs and colors applied in the e-content 64% of the students told the colors and designs used are good and pleasing with a professional look and 36% told that it's not bad.

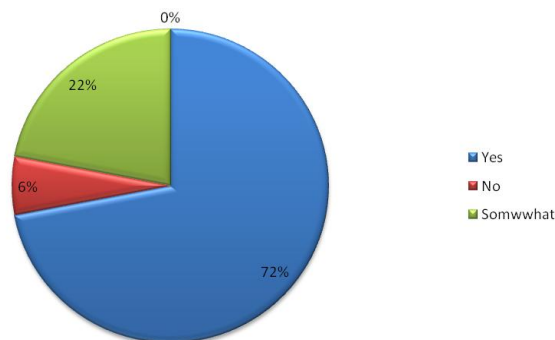### 4.4. Does Interactivity in the course help you to reuse?

Fig4.4. *Interactivity in the course*

The researched formulated a question on how interactivity is helpful in the course to reuse and 72% of the respondents said that interactivity is really helpful in reusing the course by going back and front in the e-content and 22% of the students responded that the interactivity is somewhat helpful.

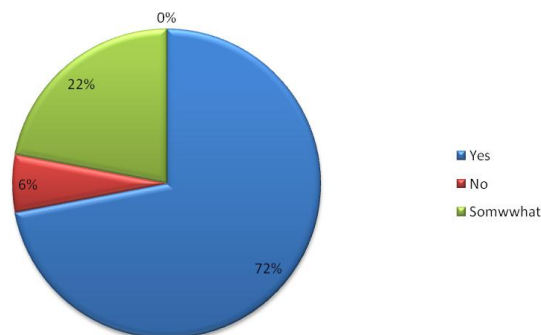### 4.5. Do You Like the Visual Presentation and Gradual Flow in The Study Material?

Fig4.5. *Visual presentation and gradual flow in the study material*

When the researcher asked about the gradual flow of the course and visual presentation 86% of the students responded that the course has a gradual flow and visual presentation is good.

4.6. Would you like to take Part in E-Learning Course?

As most of the students were introduced to the course first the researcher asked whether they wish to take part in e-learning course in future 56% of the students responded that it purely depends on the subject and 44% students responded that they really like to take part in e-learning course as its new and comfortable
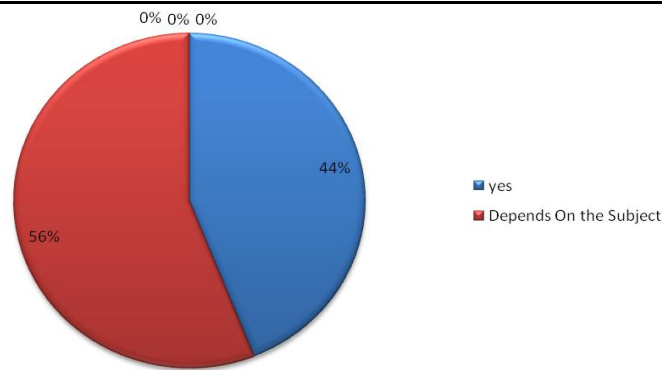
Fig4.6 *Likeness to take part in e-learning course*

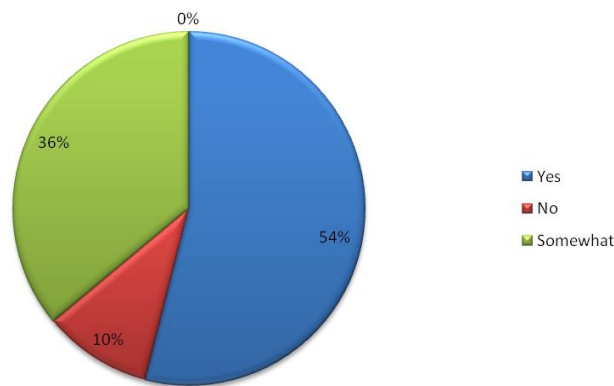### 4.7. Is E-Learning more Effective than Traditional Learning?

Fig4.7. *E-Learning more effective than traditional learning*

A discussion came whether e-learning is more effective than traditional learning or not. For that 54% of the students responded that yes E-learning is effective as it has some advantages like anytime, anywhere and cost effective and have reusability. But 36% of the respondents tell that somewhat e-learning is effective than traditional learning as still some personnel touch of contact with the faculty and doubt clearing sessions are lagging

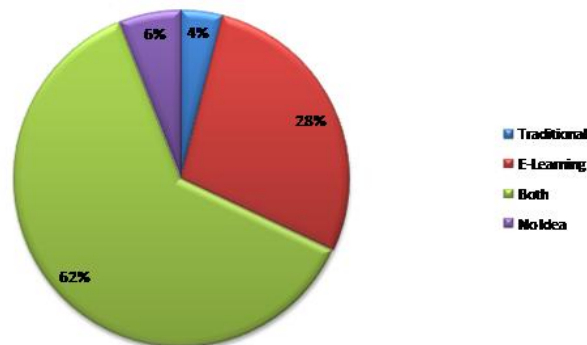### 4.8. Which TYPE of LEARNING METHOD you PREFER?

Fig4.8. *Preference of learning method*

When the researcher asked about which learning material the students prefer. 62% of the students responded that they prefer both e-learning and traditional learning as it will fill all the needs of their study process and also some respondents feel that both joined in hands can give a good study process. And 28% of the respondents told that they will prefer e-learning as they feel it has more advantages than traditional learning. 6% of the respondents told they really have no idea to select which is best.

4.9. Rate the Overall E-Learning Content you have observed in this Study

When the students were asked to rate the overall e-learning content 44% of the students told the content is good. 36% of the students told the content is excellent and fulfill the study process. And 20% of the students responded that the content is ok and need some more features for better understanding
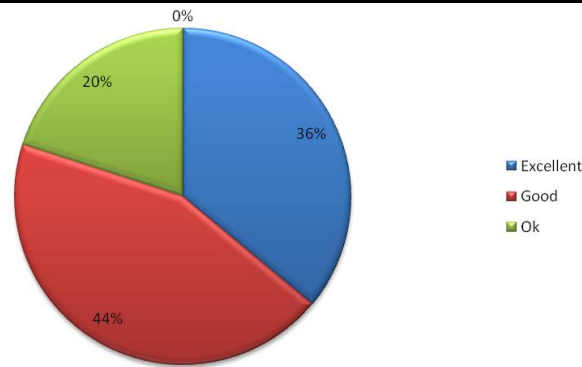
Fig4.9. *Rating for the overall e-learning content observed in the study*

Interpretation of Results

❖ With the use of many collaboration tools like flash, Maya, Photoshop the learning made easier and comfortable for students.

❖ And 40% of the students prefer that the interactivity tools help them to reuse the e-content again and again.

❖ Through the feedback got from the students we conclude the research that Multimedia in e-learning is really helpful for better understanding of the subject. It is found that student's subject knowledge has improved with the delivery of effective learning content and high level of interactivity. 44% of the students have rated that e-learning is good.

❖ It is understood that e-learning is a reusable and non threatening technology where it are not biased as some teachers and it's a social media where the syllabus and subjects are used globally.

❖ And Multimedia occupies the space of a human in the form of audio and animations helps the learner to understand the process easily.

❖ Makes us to interact and do procedures on our own. And 3D and video based learning is more effective.

❖ They also shared about the future of e-learning as there is a chance for the industry to double in another 4 to 5 years and virtual type of learning will be more interesting and effective will also come in Indian Market. E-learning in future has a chance to make a global curriculum and contents in global standards, were all the people in the world will learn same content and same subjects.

From the research performed, the following findings have been derived by the researcher.

Students want more animation and interactivity in the course of study as it helps to revise the subject and understand the process easily and they like professional and pleasing colors in the e-learning course material. Step by step process of navigating the content gives gradual flow in the course of study. Most of the students wish to participate in e-learning but it purely depends upon the subject like management and training, science, soft skills etc, Students feel that e-learning tied up with traditional method of teaching will be more effective as they feel both will help in better understanding of the subject. Future of e-learning as there is a chance for the industry to double in another 4 to 5 years. E-learning in future has a chance to make a global curriculum and contents in global standards, were all the people in the world will learn same content and same subjects.

5. CONCLUSION

In past Few years, the use of information technology has increased substantially in the education domain. At the same time, expectations of students and teachers from the technology supported education systems have increased as well. In that way e-learning is a new option in the learning chronologies that exists in the past. E-Learning has brought back the joy in learning through its innovative and interactive content and delivery. New software programs have made life easier for developers and facilitators of e-learning! Interactive exercises, testing, collaboration, and content development are significantly simplified.

E-Learning has created a new dimension in education, both within and beyond the curriculum and is still looking at further opportunities of becoming more useful via new emerging technologies. Multimedia plays a vital role in e-learning by gaining the attention of the learner as it is the factor

which pulls the learner into the course and helps to interact and simplify the procedures by animations. 3D, virtual and video based learning will be more effective and makes the course interesting. E-Learning content has a visual appeal and helps students in retaining the information than the normal class room teaching. By providing effective and quality learning material there will be an increase in the number of knowledge students. Thus using this, there is increase in competitiveness of Indian industry in the global market by improving the quality and reach of quality education to all.

REFERENCES

[1] Bill Bardon (2002) The e-learning Guild's Handbook of e-learning Strategy, The e-learning Guild, London.

[2] Dongsong Zhang et al (2006) 'Instructional Video In e-learning: Assessing the impact of interactive Video on Learning Effectiveness' Journal of Information and Management vol.43, pp.15-27.

[3] Gaurav Chadha and Nafay Kumail (2002), E-Learning An expression of the knowledge economy, Tata McGraw Hill Publications.

[4] Horton William (2005), E-Learning Tools and Technologies, Joe Wikert, New York.

[5] Judith Strother (2002), An Assessment of the effectiveness of e-learning in Corporate Training Programs' International Review of Research in Open and Distance Learning Vol. 3, No. 1.

[6] Karen Hyder (2007), The E-learning Guild's Handbook on Synchronous e-learning, Publisher: The e-learning guild.

[7] Sahalu Junaidu(2008), Effectiveness Of Multimedia In Learning & Teaching Data Structures Online' Turkish Online Journal Of Distance Education. Vol. 9 No. 4.

[8] Vivek Kumar Singh (2003), Does Multimedia really improve learning effectiveness?'Asia Pacific Conference on Education, Malaysia.Figueria Lee (2005), E-learning: The Quest for effectiveness' Malaysian online journal of Instructional Technology Vol.2 No.2 pp61-71

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Dr. P. Sri Jothi, is an Assistant Professor and Head of the Department, in Visual Communication Department, Asan Memorial College of Arts and Science, Chennai, India. Her interdisciplinary research is focused on the Role of Media in Science and Technology Communication for the Development Rural Women. She has published and presented many research papers in national and international journals and in conferences. She handles classes for both UG and PG programmes since 2004 till date. She specialized in, Marketing Communication, Advertising, Multimedia-2D graphics and animation and Communication theories subjects. Her main areas of research interests include Science Communication, Information Communication Technology, Women Empowerment, Rural Development and Development Communication.