RESEARCH ARTICLE

ANALYSIS OF E-LEARNING IN BUSINESS AND TOOLS FOR IMPROVING THE EFFECTIVENESS OF THE EDUCATIONAL SYSTEM

S. Jayakumar[1], S. Manimaran[2], M. GopiAnand[3]

[1]Department of Master of Computer Applications, PSNA College of Engineering and Technology, India
[2]Department of Master of Business Administration, PSNA College of Engineering and Technology, India
[3]Department of Master of Computer Applications, PSNA College of Engineering and Technology, India

[1] jayakumar.psna@gmail.com; [2] hodmba@psnacet.edu.in; [3] mgopianand@gmail.com

Abstract— E-learning is defined as medium of instruction through computer technology, which in other words is known as Internet/Intranet etc. for the dissemination of teaching and learning. It involves classroom based learning, synchronous distance learning, resource center laboratory training and independent learning. Because of the increasing demand for continuing university education, this E-learning is used worldwide. E-learning is flexible and is a new trend in education delivery approaches which assures quality and increases educational opportunities. There is a team in E-learning which includes different human resource. There are E-learning issues, ICT (Information Communication Technology), obstacles in the way of E-learning, challenges and legal issues which are presented in this paper apart from the tips for evaluation of online resources.

Key Terms: - E-learning; ICT; VLE

I. INTRODUCTION

As per the Open and Distance Learning Quality Council, UK – "E-learning is the effective learning process created by combining digitally delivered content with learning support and services". And also, as per the Network for Capacity Building and Knowledge Exchange, "E-learning is the effective teaching and learning process created by combining e-digital content with local community and tutor support along with global community engagement."

There is a great demand for E-learning today. It helps for continuing education in one's life. E-learning has lot of importance as far as university education is concerned. Through E-learning any kind of learning is possible, since it is flexible. With the help of this E-learning, knowledge can be acquired worldwide. It is a trend today that this kind of E-learning has been used as delivery approach in the field of education. Person sitting anywhere in the world can learn through this mode anytime and hence helps for lifelong learning. While receiving education through this method the quality aspects are also taken care of. It is possible to access any kind of information which will ultimately facilitate to expand educational opportunities. Today it is possible to create any kind of infrastructure required, provide human resource for E-learning. Lot of youth is coming forward to involve in this E-learning willingly and show enthusiasm to participate in the E-learning process.

II. SIGNIFICANCE OF E-LEARNING

The traditional approach to learning in the form of lectures, assignments and test is slowly finding its way out. The overall self-learning segment, in which e-learning is a part, in USA is worth about $16.5 billion. The size of the outsourced e-learning business in India is projected to be about $375 million by the end of 2012, growing at a compounded annual growth rate of about 15 percent. The revenue is expected to double in three to four years, triggered by US e-learning and publishing companies setting up their offshore centre in India. E-learning is gaining much importance in the globalized era because of various factors important among them are learner friendly technology, networked environment, geographically distributed work force, compressed business cycles, instant learning solutions, high cost of traditional training methods, challenges of work-life balance. The work place and our homes are being networked with various communication devices which paves the way for information from anywhere in the world at any time. The work force in the globalized era is widely dispersed across national boundaries. It will be difficult, uneconomical and impractical to call all for class room training. The problem can be easily solved by e-learning solutions.

The product or business lifecycle have compressed substantially in the changing world of business. Organizations cannot afford to send their employees away from work for several weeks for class room training. They need the employees to learn and perform simultaneously right from day one with the help of e-learning solutions as in [2]. The new forms of organizations created workplaces in which there are not enough experts to guide the junior employees for the development of their knowledge. E-Learning solutions bridge this gap. Traditional class room training is quite expensive as in [4]. E-learning solutions can help by carrying and delivering the training programmers right to the place of learner, rather than forcing them to travel to a distant training centre. E-learning solutions can help employees by delivering learning content at home. So that employees can balance their personal life and learn whenever/wherever they are comfortable.

III. E-LEARNING PROGRAM PROCESS

A. Types of E-Learning

E-learning can be classified in to two. They are Synchronous learning, Asynchronous learning.

In synchronous learning, learning and teaching take place in real time even though the trainer and learners are physically separated from each other. Examples of synchronous learning include live radio broadcast, live television broadcast, online lecturers, audio video conferencing etc. Here the trainer will be delivering a live lecture and learners spread across different geographical boundaries will be listening, watching the same, asking/answering questions with the help of communication technologies like conference calls, world wide web, video conferencing etc., In asynchronous approach learning takes place with time delay as well as the trainer and learner are physically separated from each other as in [5]. Examples of asynchronous mode of training includes self-paced course taken via internet, CD-ROM, videotaped class, audio video web presentations, email messages etc.

B. Measures for Proper Management of E-learning

- It is through servers any information regarding the courses that are hosted can be accessed. For this purpose proper management of servers is necessary.
- The network and network of networks (Internet) needs to be properly managed.
- As innumerable courses are available in the E-learning, it is necessary that the contents of the course are efficiently managed which includes updating of the courses with all dedication.
- For day today running of the courses, handling student feedbacks, giving assignments to the students, conducting tutorials and holding tests, proper management is necessary.
- There is a need for quality assurance of online courses.
- Proper measures to access online courses and modules all the 24 hours in a day are necessary.

C. Infrastructure and the Technological Tools

- Proper software tools for implementation of online courses and/or modules.
- Hardware and network infrastructure to support access to the online courses.
- Setting up of a video conferencing network on the campus.
- Setting up of a multimedia and video on demand laboratory.
- Setting up of centers with high bandwidth connectivity for decentralized access.

D. E-learning Development Process

- Paper-based worksheets
- Identify the business needs and learning needs
- Understanding the learner characteristics and design the program

- Creating Infrastructure and then develop the e-learning content
- More interactive resources – presentations
- Shared folders/Intranet of resources
- Remote access to resources
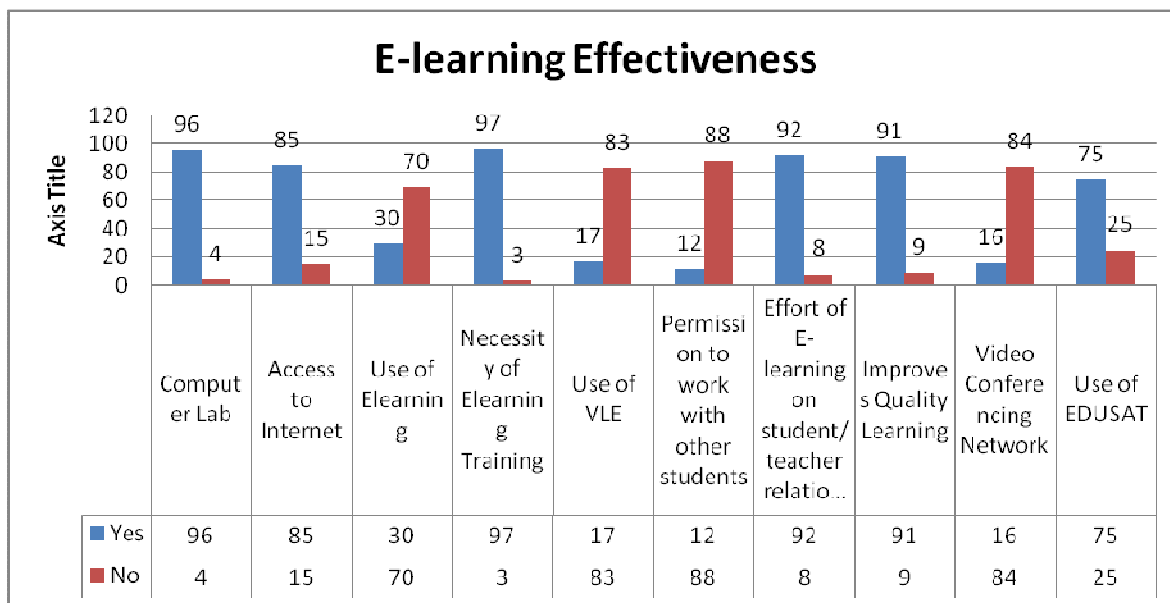- Launching the program, track the progress and measure the results

IV. **E-LEARNING TEAM**

This team is formed with eight different roles. These roles are performed by various well trained people. Each and every role has its own rules and regulations. The people who are for these roles should follow them correctly in order to achieve the effectiveness of the e-learning process.

TABLE 1
HIERARCHY OF E-LEARNING TEAM AND THE ROLES AND RESPONSIBILITIES

S. No	Members	Roles and Responsibilities
1.	**Subject Matter Expert (SME)**	The SME's role is to provide content, resources and expert testimony. The SEM also checks the accuracy of all materials created by the rest of the E-Learning team.
2.	**Instructional Designer (ID)**	The instructional designer analyzes training needs, provides consultation on instructional strategies and techniques for e-learning, analyzes content, defines scope and learning objectives, selects delivery format and assessment strategy based on client training goals while supporting their business needs.
3.	**Online Developer**	The online developer helps realize the instructional designer's vision by using authoring tools to create e-learning--usually for the web.
4.	**Editor**	Reviews E-Learning materials for clarity, consistency of style, grammar, spelling, appropriate references and copyright information.
5.	**Multimedia Specialists**	The multimedia specialists, depending on the project, can include a graphic designer, voice actor, videographer or photographer. These people collaborate with the instructional designer to provide additional media that supports the ID's design and objectives for the training
6.	**Information Technology (IT)**	IT manages all the technology aspects of E-learning including hosting, learning management systems, sign-on security, etc.
7.	**Project Manager**	The project manager manages the schedule, cost, scope and quality of the project by working with the project team and customer.
8.	**Quality Assurance (QA)**	The quality assurance role assures that the E-Learning developed meets the requirements and specifications set out for the project.

V. RESULTS AND DISCUSSIONS

E-learning Effectiveness

	Comput er Lab	Access to Internet	Use of Elearnin g	Necessit y of Elearnin g Training	Use of VLE	Permissi on to work with other students	Effort of E-learning on student/ teacher relatio...	Improve s Quality Learning	Video Confere ncing Network	Use of EDUSAT
Yes	96	85	30	97	17	12	92	91	16	75
No	4	15	70	3	83	88	8	9	84	25

The questionnaire method has been adopted in this paper to collect the information from 100 colleges, regarding E-learning facilities the colleges are using. From the above table it is evident that, out of 100 colleges 96 colleges are having computer lab. The remaining 4 colleges do not have computer lab facilities. With regard to access to internet, 85 colleges have the facility and 15 colleges do not have. While, 30 colleges use E-learning and 70 colleges don't use E-learning. And 97 colleges say that they need E-learning training and rest 3 colleges say that E-learning training is not necessary. With regard to use of VLE (Virtual Learning Environment), 17 colleges have VLE facility and 83 colleges don't have VLE facility. Whereas, 12 colleges make provision for college students to interact with other students and other 88 colleges do not provide opportunity to interact. With regard to Student/Teacher relationship 92 colleges say that by using E-learning Student/Teacher relationship will be broken and 08 colleges say that Student/Teacher relationship will continue to be cordial. In case of providing quality training through E-learning 91 colleges agree that learning quality will improve and 9 colleges do not agree. In the survey, 16 colleges say that they are having video conferencing facility and 84 colleges say that they don't have the facility. And lastly, with regard to EDUSAT facility, 75 colleges are having the facility and 25 colleges don't have the facility. The following are the challenges and advantages of this process as per the data collection.

A. Infrastructure Snags
* It involves high cost of purchase of hardware for its implementation and deployment.
* It is difficult to measure activity, the results and also its impact.

B. Online Course Evaluation
* Learner support and resources with respect to, course information, online support, content support and channels for feedback on resources and support.
* Online information and design with respect to, completeness, clear syllabus, consistent and functional accessibilities, channels for feedback.
* Instructional design and delivery with respect to, opportunities for interaction, alignment of course objectives to learning outcomes, clearly defined learning outcomes, variety of learning tasks, critical thinking tasks and channels for feedback on instructional design.
* Student learning with respect to, opportunities for self-assessment, alignment between objectives, activities and assessments, comprehensive assessment strategy, opportunities for students to receive feedback, channels for learners' feedback on assessment strategy.

C. Legal issues in E-learning
Copyright of scripts, code, multimedia, consultants, title and protection is done. To protect authentication e-commerce laws can be used. For the protection of data, the concerned Act may be used. The data collection should be fair and lawfully processed.   The appropriate technical and organizational measures against

unauthorized or unlawful processing may be taken. Authentication with regard to student identity, the verification of exam result/course credits, mandatory courses and integrity of data should also be done.

> *D. Advantages of E-learning*

- Reduced cost and saved revenues
- Increased retention and application to job increases over traditional methods
- On demand availability enables the students to complete training conveniently at off-hours from home.
- Learning times can be reduced.
- Consistent delivery of content is possible with asynchronous, self-paced learning.
- Self-pacing for slow or quick learners reduces stress
- Very limited staff is required and the time required for them is also very less
- E-learning is readily available.
- It is possible to get instant feedback.

VI. CONCLUSION

The overall result gives an impression that the knowledge of E-learning is essential for every college student and it plays a very significant role in the life of any student and teachers for improving their level of learning and education. Through this technique, it will be possible for the person to learn very fast and accurately. As a result of this, world has become very small.

REFERENCES

[1] V. Devedzic, Semantic Web and Education, Springer, 2006

[2] R.J. Edling, Information Technology in the Classroom: Experiences and recommendations, Campus-wide info systems, Vol.17, No.1, pp. 10-15, 2000.

[3] M. Ramim and Y. Levy, Securing e – learning systems: A case of insider cyber attacks and novice it management in a small university, J. Cases Inform. Technol., Vol 8. No.4, pp.24-34, 2006.

[4] Oskar, R. Harmon, and J. Lambrinos, Are online exams an invitation to cheat?, J. Econ. Educ., Spring, pp 116-25, 2008.

[5] E. Guzma and R. Conejo, Self assessment in a feasible, adaptive web based testing system, IEEE Trans. Educ., vol.48, PP 688-695, 2005

[6] P. J. Munoz-Merino and C.D. Kloos, A software player for providing hints in problem based learning according to a new specifications, Comput. Appl. Eng. Edu. Vol.17, pp.272-284, 2009

[7] J.P. Henk, E. Harskamp, C. Suhre and M. J. Goedhart, How indirect supportive digital help during and after solving physics problems can improve problem solving abilities, Comput. Educ., vol. 53, pp. 34-50, 2009