E-learning

Divyans Mahansaria[1], Ashish Kalsi[2]
SRM University
E-mail:[1]kunalchamp50@hotmail.com,[2]ashish_kalsi@hotmail.com

Abstract **–Developments in Internet and multimedia technologies are the basic enabler of e learning, which started from PLATO System. This paper deals with various aspects of e learning with main focus on Blending Learning Services and Rapid E Learning. Screen casts, E portfolios, EPSS (electronic performance support system), MP3 Players, web-based teaching material, hypermedia, multimedia CD-ROMs, web sites, discussion boards, Collaborative software, online correspondence, blogs, Synchronous conferencing, educational animation, simulations, games, learning management software, electronic voting systems etal are some of the technologies used in e-learning's classes are asynchronous. Out of all, the Blended Learning Services, where computer-based activities are integrated with practical or classroom-based situations seems more viable. The PowerPoint presentations and streaming video of today are just the tip of the iceberg of interactive learning. Standards will continue to pave the way for collaboration and sharing of content, so that institutions can discover and incorporate the best, high-end learning materials from others into their learning management systems. It also influences how programs will be formed across institutions and the ways in which faculty collaborate. E-college could be an interesting developing area. REL (Rapid E-Learning), a growing trend is particularly well suited for training material that has critical development timelines, goes out of date quickly, and changes frequently. Editing and updating content can be done quickly and painlessly. Traditional development methods have been overcome through it. It is considered to be e-learning that can be developed quickly and inexpensively. REL is most useful for low- to mid-range levels of e-learning complexity in which knowledge and comprehension is the key. Various arguments covered in present paper successfully establish the various advancements of e learning.**

I. INTRODUCTION

Since the Internet was adopted and further developed as a means of communication by educational institutions in the 1970s, academics have been aware of its massive potential as a learning tool. In recent years, governments of both developed and under-developed nations have become increasingly excited about the possibilities of online learning to deliver cost effective, easily accessible and ever-current education to all ages and social backgrounds, regardless of time and geography. In the 'Information Age' where the need for 'knowledge workers' increases as the need for manual workers decreases, 'lifelong learning' is seen as a key to the continued success of modern society. 'e-Learning' is considered by many as the only viable solution to the problem of delivering the resources required facilitating lifelong learning.

E-Learning is made up of several methods of learning, which are enhanced or facilitated by technology. As a component of e-Learning, web-based or online learning is likely to be the fastest-growing method for delivering education and training.

One of the biggest trends affecting the size of the e-Learning market is the astounding growth on the Internet. In the next three years, devices on the Internet are expected to grow enormously. Many giants in the technology world are investing in and providing advanced products for and services tailored to the learning market. Private Institutions may become more involved with on-line presentations as the cost of instituting such a system decreases. Properly trained staff must also be hired to work with students on-line. These staff members must be able to not only understand the content area, but also be highly trained in the use of the computer and Internet.

What is e-Learning?

E-Learning is the employment of technology to aid and enhance learning. It can be as simple as High School students watching a video documentary in class or as complex as an entire university course provided online. e-Learning began decades ago with the introduction of televisions and over-head projectors in classrooms and has advanced to include interactive computer programs, 3D simulations, video and telephone conferencing and real-time online discussion groups comprised of students from all over the world. As technology advances, so does e-learning, making the possibilities endless.

Focusing on the use of the Internet in e-learning, three primary uses have emerged:

A. Non Academic / Corporate

Both small and large businesses are increasingly using e-learning for initial and updating staff training. Both external resources and in house programs developed on company intranets are used.

Benefits

- Information (such as health and safety) can be kept current by updating the intranet site. Staff can be instructed to update their training as and when the information is updated; with out the need to organize trainers and courses, and find the time for staff to

attend them. This is seen as the best way for staff to keep their skills up to date.
- Enables 'just in time' learning. When employees face new challenges in their day-to-day work, they can immediately access a central training resource to equip them to deal with it, on a situation by situation basis.
- Staff can train as and when they want to, and can break the course up into section as they see fit (removing the problem of concentration loss).
- Money is saved by reducing the need to book venues and trainers. Staffs are released from their desks for a minimum amount of time.

Problems
- Staff are resentful, as they feel obliged / are encouraged to do the training in their own time i.e. during their lunch break, or before / after work; instead of being given time off to do it.
- It may be difficult to gage whether or not staff are actually completing the training fully / benefiting from it as much as they would from a classroom based training session.
- Staff may need support to use the technology.

B. Academic – Vles

Universities are increasingly opening up to the possibilities of 'Virtual Learning Environments', sometimes used alongside MLEs (Managed Learning Environments).

VLEs are currently being used more (and more effectively) by new universities. Older, more 'traditional' universities are therefore feeling the need to 'keep up', and are also beginning to invest in this technology. The concept of the VLE is still relatively new, and some institutions are currently only using them on a trial / pilot scheme basis. Some examples of uses are:

Benefits
- Widens access to the course: students can learn from wherever they are and numbers do not have to be limited.
- Can be more cost effective.
- Provides access to more information, and allows students to use their own initiative to find it.
- Simply a 'different' way of learning, which some students enjoy.
- Students imbibe extra computer skills that may prove useful generally.
- Students can study whenever and wherever they want to.

Problems
- Students miss out on the benefits of face-to-face interaction and the knowledge sharing that can arise from this.
- Students find that the system is not sufficiently supported, and have difficulty using it.
- Computer systems can be prone to technical difficulties. Failure of server, client or connection can mean the students are unable to study.
- Students are not motivated to study alone.

C. Academic - Educational Websites

Some institutions (and individual academics) have preferred to develop their own online educational resources rather than use something as structured and pre-determined as a VLE. These are basically individually designed websites that are tailored to a particular audience, often on a particular subject. They are much like an interactive text book, including audio, video and 3D graphics. Some also contain activities and quizzes etc to aid learning. They can make learning more interesting and can help students to visualize situations and objects in a realistic way that they would not otherwise have the opportunity to see. They are often based on a particular resource such as a digital library or collection. Some sites also contain an area for teachers, giving advice on how to use the resources for particular age groups and curricula. Many also include printable material to accompany the web site and to use in class. These sites can also serve to promote the work of the organization and some also contain fund raising opportunities. They are not so much aimed at a select group of students but are available to academics and members of the public alike. A lot of educational content that would be of interest to many people is currently only available to university students on college intranets.It is however, less easy to fully integrate such a site with a specific course or program of study. They are more of a resource for students to draw on and to learn more about particular subject. However, by working with schools, colleges and Government, more institutions are trying to provide relevant content based on their knowledge and collections.

Rapid E-learning

The Need for Rapid Development:

For decades, technology-based training has promised to give corporations, universities, government, and non-profit organizations the power to increase the scale and reach of training. As companies have rushed into e-learning, however, many have found that the time and cost to build excellent content sometimes overcomes these advantages. The "traditional" approach takes many months to build and can cost tens of thousands of dollars per instructional hours. In our research, we find that a revolutionary change is taking place. Many training problems come with urgent development timelines (e.g., get this program out in the next few weeks) and short shelf life (e.g., in three months this will be out-of-date). Often these programs have smaller budgets,

smaller teams, and require the subject-matter experts to share their knowledge more directly with the learners. There's a new training category emerging, which we call "Rapid E-Learning." It is a whole new approach to Internet-based training - one that changes the development model, leverages new tools, and dramatically changes the economics of content development.

The Greatest Challenges in E-Learning: Time and Resources

Long development times and lack of resources (staff and/or funding) is the biggest problem today to e-learning developers. Why is this? In many organizations e-learning programs are being developed with similar techniques to those that are used for instructor-led training. Traditional development methods involve using subject matter experts (SMEs) to pass on information to the instructional designer who, in turn, designs the solution. A developer then builds the interactive solution based on this design, and the quality assurance team tests the solution against the design and test plan. This waterfall approach can lead to long and costly design and development cycles, which can reduce the effectiveness of material with critical timelines or content that is constantly changing.

Rapid E-Learning Defined

Most of these methods are a cross between knowledge management and e-learning. Knowledge management uses collaborative technologies to encourage subject matter experts to share their knowledge and e-learning delivers skills and knowledge in a streamlined and methodical way. The intersection between knowledge management and e-learning seems to hold the solution for creating more e-learning content in less time with fewer resources.

The Rapid E-Learning category is defined by the following criteria:

- Courseware that can be developed in less than three weeks
- Subject Matter Experts (SMEs) act as the primary development resource.
- A well-known tool (e.g., PowerPoint) or user-friendly templates form the starting point for courseware
- Simple assessment, feedback and tracking are usually provided
- Media elements that enhance learning but do not create technology barriers may be included (e.g., voice)
- Learning modules can be taken in one hour or less, often in less than 30 minutes.
- Synchronous (scheduled or live) and asynchronous (self-paced) models may be utilized.

The two major elements in this definition are short timeframes and ease of development. The key to a successful Rapid E-Learning program is having a development process (including tools) that makes it easy and quick for a SME to develop a course.

Tools to develop REL As the popularity of REL grows, the number of development tools increases. Tools on the market include Macromedia Breeze, Articulate, Lersus, and SNAP! Studio, Content Point, WebEx, and mind flash. These tools leverage common business tools and automate applications to accelerate and simplify the development process. This also means that editing and updating content can be done quickly and painlessly.

Alternative process

The prototype development process is another situation where REL tools can add enormous value. Typically, the prototype phase can be a very costly and frustrating phase of development because the client needs to approve the design specification before implementation. Unfortunately, many clients are uncertain of their requirements at the beginning of the design process and continue to ask for changes to the prototype in the early phases. This leads to a costly and time-consuming iterative cycle in which developers must continually tweak the prototype code.

Non-developers fail to appreciate the time that is required for changes that may seem innocuous. In hundreds of line of code, changes and regressive testing can become lengthy. Also, because of the length of design development time, truly functional prototypes are rare. Many companies put together prototypes that merely depict a few screens and have minimal functionality. Aside from being costly and risky, a fully functional prototype that has been developed using traditional methods typically is completed late in the design cycle.

By using REL tools, a true prototype that represents an actual vertical slice of the courseware early in the design cycle is possible. By being able to develop this quickly and inexpensively, courseware designers/developers can get feedback not only from the sponsor, but also from representatives of the end-user group. This allows the feedback on the design, language and metaphors from the end-users, to be integrated into the design cycle early in the process when it is most useful and least expensive to make changes.

Putting REL to work

It's important to keep in mind that the tools and technology used in e-learning need to be appropriate to the instructional objectives of the courseware. As the instructional objectives become more complex, typically the complexity and the cost of development also increase.

REL is most useful for low- to mid-range levels of e-learning complexity in which knowledge and comprehension is key. It's typically considered less effective to use REL for high-end solutions in which evaluation and synthesis are critical. However, many REL tools have the capacity to embed more engaging and rich media for projects that may

need a blended solution. This easy interoperability increases the versatility of the product. By blending REL with other forms of training, it may be considered part of a valid e-learning solution in a wide range of situations.

In traditional courseware development, long design and development cycles that lead to higher costs have usually precluded content that has a short shelf-life, content that needs to be developed quickly, or content that isn't substantial enough to merit the time and cost of traditional e-learning. Institutions with limited budgets have also foregone e-learning as a means of workplace development. But by developing content quickly and cheaply with very little risk, REL processes and tools allow e-learning to be an effective alternative in situations where previously it wasn't considered feasible. As it continues to grow in popularity, REL processes and tools will continue to evolve, making it an even more attractive option for many e-learning solutions.

Blended E-learning

Blended learning combines online with face-to-face learning. The goal of blended learning is to provide the most efficient and effective instruction experience by combining delivery modalities. Blended learning systems combine face-to-face instruction with computer-mediated instruction. In the face of numerous pressures on time, energy and resources one is likely to be more successful if there is a blend between e-learning activities and alongside current learning activities. In the humanness dimension, there is an increasing focus on facilitating human interaction in the form of computer-supported collaboration, virtual communities, instant messaging, blogging, etc. Additionally there is ongoing research investigating as to how to make machines and computer interfaces more social and human. While it is impossible to see entirely what the future holds, we can be pretty certain that the trend towards blended learning systems will increase.

There are many reasons as to why one might chose to design or use a blended learning system. Some of them include:

- Pedagogical richness
- Access to knowledge
- Social interaction
- Personal agency
- Cost effectiveness and
- Ease of revision.

Improved Pedagogy

It is no secret that most current teaching and learning practice in both higher education and corporate training settings is still focused on transmissive rather than interactive strategies. Similarly, distance education often suffers from making large amounts of information available for students to absorb. It has been seen that blended learning approaches increase the level of active learning strategies, peer-to-peer learning strategies, and learner centered strategies.

Increased Access/Flexibility

Learner flexibility and convenience is also of growing importance as more mature learners with outside commitments (such as work and family) seek additional education. Many learners want the convenience offered by a distributed environment and at the same time do not want to sacrifice the social interaction and human touch they are used to in classroom training.

Increased Cost Effectiveness

Cost effectiveness is one of the major goals for Blended Learning systems in both higher education and corporate institutions. Blended learning systems provide an opportunity for reaching a large, globally dispersed audience in a short period of time with consistent, semi-personal content delivery.

Different categories of blended learning systems:

Enabling Blends

Enabling blends primarily focus on addressing issues of access and convenience. For example, blends that are intended to provide additional flexibility to the learners or blends that attempt to provide the same opportunities or learning experience but through a different modality.

Enhancing Blends

Enhancing blends allow for incremental changes to the pedagogy but do not radically change the way teaching and learning occurs. This can occur at both ends of the spectrum. For example, in a traditional learning environment, additional resources and perhaps some supplementary materials may be included online.

Transforming Blends

Transforming blends are blends that allow for a radical transformation of the pedagogy. For example a change from a model where learners are just receivers of information to a model where learners actively construct knowledge through dynamic interactions. These types of blends enable intellectual activity that was not practically possible without the technology. Blended learning can be said to occur at one of the following four different levels:

- Activity level
- Course level
- Program level
- Institutional level

Across all four levels, the nature of the blends is either determined by the learner or the designer/instructor. Blending

at the institutional and program levels is often left to the discretion of the learner, while designers/instructors are more likely to take a role in prescribing the blend at the course and activity levels. For the institution to be engaged in blended learning there must be a concerted effort to enable the learner to take advantage of both ends of the spectrum. It is not sufficient for the institution to have a distance learning division that is largely separate from the on-campus operations. It is been observed that there is an enormous focus on enhancing blends in some traditional university settings. With the widespread adoption of technology equipped classrooms, it is becoming increasingly commonplace for instructors to enhance their courses with some level of technology. There are a growing number of faculties experimenting with innovative technology-mediated approaches to teaching (such as the use of tools for simulations, visualization, communication, and feedback) that are transforming the ways that their students learn.

Medium That Can Be Used For Blended E-Learning

The medium is not limited to technology and can include:

- Stand-alone, Asynchronous, or Synchronous online learning / training
- Performance support tools (knowledge management tools)
- Traditional classroom, Labs, or other "hands-on" experiences
- Reading assignments, CD-ROM or other self-paced learning
- Teletraining / Telereading or other media.

What issues or challenges are faced when blending?

Some major issues that are relevant to designing blended learning systems are:

- The role of live interaction,
- The role of learner choice and self-regulation,
- Models for support and training,
- Finding balance between innovation and production,
- Cultural adaptation, and
- Dealing with the digital divide.

Role of Learner Choice/Self Regulation

Learners are primarily selecting blended learning based on the issues of convenience and access. Online learning components often require a large amount of self-discipline on the part of the learners.

Models for Support and Training

There are many issues related to support and training in blended environments including:

- Increased demand on instructor time.
- Providing learners with technological skills.
- Changing organizational culture to accept blended approaches.

There is also a need to provide professional development for instructors that will be teaching online.

Cultural Adaptation

One strength of e-learning is the ability to rapidly distribute uniform learning materials. Yet, there is often a need for customizing the materials to the local audience to make them culturally relevant.

Balance between Innovation and Production

In design, there is a constant tension between innovation and production. On the one hand, there is a need to look forward to the possibilities that new technological innovations provide, and, on the other hand, there is a need to be able to produce cost effective solutions. However, due to the constantly changing nature of technology, finding an appropriate balance between innovation and production will be a constant challenge for those designing blended learning systems.

Directions for the future

We live in a world in which technological innovation is occurring at break-neck speed and digital technologies are increasingly becoming an integral part of our day-today lives. Technological innovation is also expanding the range of possible solutions that can be brought to bear on teaching and learning. Whether we are primarily interested in creating more effective learning experiences, increasing access and flexibility, or reducing the cost of learning, it is likely that our learning systems will provide a blend. As we move into the future it is important that we continue to identify successful models of blended learning at the institutional, program, course, and activity levels that can be adapted to work in contexts.

E-learning in medicine – Myth or Reality

Technological and social changes taking place in recent years are affecting the way of presenting and transferring knowledge. Medical education, especially in the advances stages of training, has many unique problems such as the temporal and geographic distribution of students, residents, and the physician instructors. Further complications result from unpredictable schedules that are present in most areas of medicine leading to poorly attended or cancelled lectures. The need of easily accessible software programs for both teaching and learning has increased. Compared to other disciplines medicine has a particularly high rate of e-learning use.E-learning adds many dimensions to the educational process and if utilized well, has the potential to enhance both

the students and instructors educational experience. One of the problems with traditional didactic lectures is that they often present information that targets one of the many learning style of the students involved. In addition, the time and resources required to deliver the material is high and often does not completely meet the needs of those who are participating. One benefit of e-learning allows students to access the lectures and other material when they are most attentive. In addition, students have the ability to review the material to the degree they feel necessary. There are numerous modalities available to develop and deliver content over the web. Many of the tools and techniques available fall under the general heading of Web 2.0 technology. With the introduction of the web, many early web pages were static and required a fair amount of work to maintain. With new and improved technology, the web has become much more dynamic allowing for targeted delivery of information as well as an increased amount of interactivity on the part of the user.

Today, Continuous Medical Education (CME) becomes a crucial factor, because the life of knowledge and human skills in the field of medicine is shorter than ever. That causes the increasing pressure to remain at the forefront of medical education throughout doctor's career. E-learning comes with solutions and methods, which can be very helpful in supporting doctors with access to the up-to-date medical knowledge and achievements. It allows creation of interactive model of learning, which stimulates knowledge acquisition. Another advantage is that e-learning provides flexibility in both time and location, while accessing medical curriculum presented online. There is a possibility of collaboration between teachers and students from different universities, which allows exchange of knowledge and experiences? Implementation of e-learning methods in medical education is needed to provide students with new ways of gaining knowledge. However certain steps must be taken to choose the solution, which is the best for the given learning area.

Survey analysis

In order to determine the reaction of the people to the concept of e-learning we decided to undertake a survey. A seminar was given to a group of students on the concept of e-Learning and were given a demo session in a "SMART CLASS". A smart class comprises of a projector, laptops, Wi-Fi enabled class rooms, and intra and internet facilities. In the end of the demo class questionnaires were distributed to analyze their reactions to this alien concept of e-Learning. The results were encouraging and gave a clear indication that the future of e-Learning is bright. Our analysis in the form of graphs shown below further proves our point.

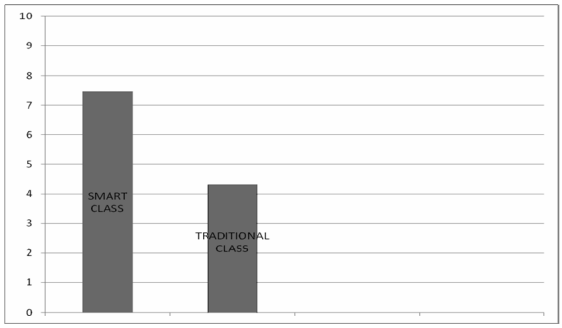

Fig .1. Traditional blackboard vs smart class

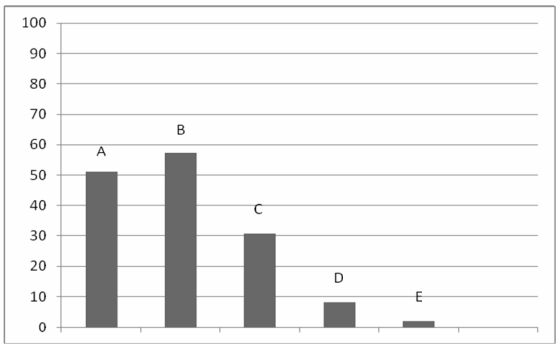

Fig .2 . Advantages of traditional blackboard approach

a) Better student-teacher interaction / understanding.
b) Inexpensive
c) Less complicated
d) None of the above
e) Others (specify)

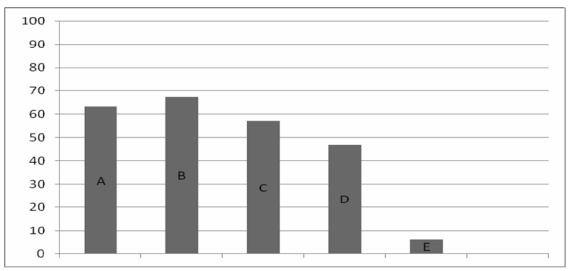

Fig .3. Disadvantages of traditional approach

a) Time consuming
b) Inconvenient (bulky books)
c) Laborious
d) Prone to errors
e) None of the above

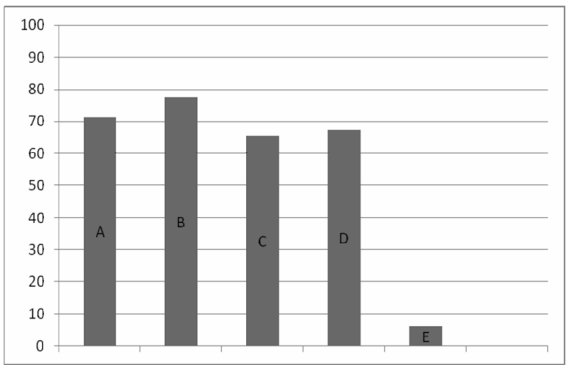

Fig .4. Advantages of e-learning

a) Time saving
b) Easy access of information
c) More accurate
d) Students carry a lesser load
e) None of the above

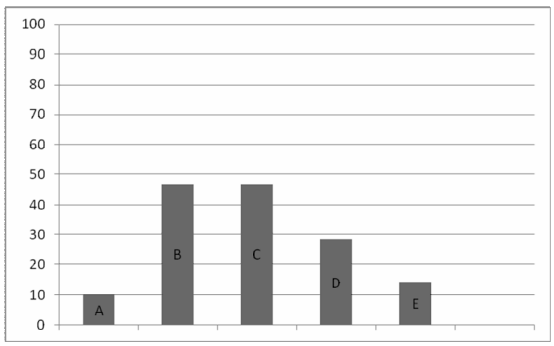

Fig. 5 Disadvantages of e-learning

a) More complicated
b) Expensive
c) Power backup – a must at all times
d) Strenuous to the eyes
e) None of the above

II. CONCLUSIONS

It is clear that the impact of information technology is having profound effects on how we learn throughout our lives. In the developed world we are moving closer to assuming universal access to computers, mobile phones and connection to the internet. The rate of adoption and change in the areas of hardware and software continues to accelerate. However, an interesting anomaly is the pace at which we are evolving new design strategies to make best use of the technology to hand. E-Learning activities are now required to be oriented at "making learning attractive" particularly towards those who are not used to learn.Learners should be made aware of the reasons why a certain learning experience could be enriching, beneficial and suited to their own needs. E-Learning has mostly been used to provide elements of "stable knowledge". However, we believe that e-learning undoubtedly has the potential to develop the skills and capacities of individuals which to a large extent is left – unexplored.

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