A Review of Recent E-learning Trends: Implementation & Cognitive Styles

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Abstract

E-learning refers to the cognitive process of acquiring knowledge or skill where electronic media and Information and Communication Technologies (ICT) in education serve as a medium. E-learning does not require any physical accommodation and can be self-paced. This is known as asynchronous learning. It may also be instructor-led and the user needs to attend various sessions which are scheduled by the instructor. This is known as synchronous learning. Due to this flexibility (asynchronous) and interactive collective learning (synchronous) E-learning has evolved tremendously. Studies have proven that E-learning has the capability to provide quality environment for future education. Certain protocols need to be evolvedsuch that they enhance its quality. Although there are many standards out there but they are not widely accepted and followed. Moreover, there are some gaps in the current E-learning procedure. Work is being done to make it more practicable and systematic. While communicating through chats the non-visual cues may sometimes lead to misunderstandings. E-learners are not able to practice their interpersonal skills and develop self-confidence which can be gained through work presentations while addressing a gathering. Physical resources like libraries and research material like labs and field study are not available to students. Thus, learning in some fields like scientific research may not be possible in fully virtual environment as it may lead to loss in quality of learning. This paper focuses on the current E-learning protocols and recent developments and offers some innovative solutions to better its dissemination.

Keywords: E-learning, ICT, synchronous, asynchronous, cognitive.

1. Introduction

This is the age of World Wide Web (WWW)and we are living in a globalized era, where the world is being connected massively. The E-learning initiatives have connected the whole world and have removed the barrier of age, place, time and socio-economic nature. The technological revolution has created a new dimension in the education scenario. With the amazing development of Internet, the field of education has tried to exploit web as a communication channel to connect distant learners with their learning resources. Information and guidance from experts is just a few keystrokes away from the internet users no matter what the time is or in what geographical location they are. Due to this flexibility in E-learning techniques students feel more comfortable in this new education system. But in some countries like India the digital divide is still prevalent, thus we need both low and high technological solutions. Moreover, certain workshops or training sessions should be made available to people of all age-groups to overcome this digital divide.Content of any E-learning programme is of utmost importance. It is edited from time-to-time for the benefit of learners so that the quality of learning is not degraded. Thus, an interaction between learners and educational content providers is must. This interaction is provided through network technologies. In the coming times, the softwares for teaching would be more immersive and interactive as various organizations consider E-learning as an area of commerce and they are solely based on development of E-learning softwares. For example, *Emantras* is an E-Learning Consultant and Digital Educational Media Company. To keep the learning more interactive for the tech-savvy generation they use animations and games which help in knowledge retention.

2. Current E-Learning Standards

Standards provide safety, reliability and interoperability. Without standards the products that are manufactured would be of inferior quality and may not be compatible with other equipments. Standards provide a logical framework to the learners.There are six widely accepted standards for educational purposes.

2.1 SCORM

Sharable Content Object Reference Model (SCORM) tells the programmers how to code so that their software is compatible with other softwares also. It was published by ADL (Advance Distributed Learning), a U.S. government-sponsored organization that examines and develops criteria to enhance and encourage adoption of E-learning.

Goals of SCORM are:

- *Accessibility:* the ability to locate and access learning content from anywhere and anytime.
- *Adaptability:* the ability to be modified in accordance with organizational and learners needs.
- *Affordability:* the quality of being financially manageable such that it increases efficiency and productivity by reducing the time and costs involved.

- *Durability:* contents will not easily become obsolete and will be preserved even when technology changes i.e. stability in market.
- *Interoperability:* different tools and platforms communicate and work efficiently together.
- *Reusability:* learning contents can be easily modified and used many times by different tools and platforms, so reducing costs.

2.2 IMS

Instructional Management Systems Global Consortium (IMS GLC or IMS) is an international USA association of vendors' universities and implementers who focus on the development of XML-based specifications for learning resources. These specifications describe the key characteristics of courses, lessons, assessments, learners and groups.

IMS has two fundamental goals:
- To define specific guidelines which guarantee interoperability between applications and services in e-learning.
- To support guidelines application in international products and services.

2.3 ARIADNE Metadata

ARIADNE Foundation for is a no-profit Association and is involved in work related to technical specifications, most notably in the area of metadata.

Its goals are:
- Simplicity,
- Understandability,
- Adaptability.

3. Recent E-learning Trends

Latest trends in any industry are defined by the advancement in technology, and the field of E-learning is no different. The current requirements of learners involve:

1. *Adding learning to work*: It involves merging courses and E-learning modules within the activities in workflow.
2. *Embedding learning within workflows:*It enables development of learners in a work environment. This includes using mobile applications where users and staff can interact at any geographical locations.
3. *Extracting learning from work:* It is based upon 'working followed by learning and then improving the way you work' instead of 'learn then work' model.

These three activities are device independent and put the learning and performance context first, then address the implementation question second. They recognise when mobility is a key requirement, for example in evidence gathering on the job. In other contexts, it's more about making access possible across all devices.Some of the significant E-learning tools are:

3.1 Gamification

Learning based games can be implemented quite easily now in many E-learning courses and learning management systems. Properly implemented, gamification has the potential to make learning 'stickier', increase uptake of learning content and also provide a more comprehensive record of learning than is possible using conventional measures in courses.

3.2 Mobile Technology

Over the years tablet and smart phones market has grown exponentially. This due to the flexibility of tasks provided by these products.In short, this is another disruptive technology that is all set to re-shape the learning and education landscape.

3.3 Cloud Computing

Cloud Computing is a technology that has started revolutionizing the way we deliver learning.Cloud Learning refers to learning in a virtual world that is interconnected through the web or mobile networks. Many universities and higher education institutions are moving towards Cloud Campuses – virtual campuses through which they could deliver learning programs in a highly efficient way.

3.4 3D Printing

It is a technology that helps turn a digital design into an actual three dimensional physical product just with the click of a button! This technology is already creating waves in the market with the innovative and immense possibilities it offers for developing consumer models.It is powerful enough to change the learning dynamics of future learners.

3.5 HTML 5

HTML5 is a new version of the Hyper Text Mark-up Language (HTML) from the Web Hypertext Application Technology Working Group (WHATWG) and the World Wide Web Consortium. It is an evolving programming language that could lead the future of mobile web. Its potential is so huge that it is fast becoming the standard for E-learning delivery.

3.6 Tin-Can API

The Tin Can API, now officially known as "Experience API" (xAPI), is an E-learning software specification that allows learning content and learning systems to speak to each other in a manner that records and tracks all types of learning experiences. Learning experiences are recorded in a Learning Record Store (LRS). LRSs can exist within traditional Learning Management Systems (LMSs) or on their own.

3.7 Videos
E-learning videos are an effective way of acquiring quality content. They have the ability to evolve from the present videos to more interactive ones. They bridge the gap of interoperability which is often neglected by some developers.

3.8 Responsive Web
With the advancement in technology we can now open heavy sites on our smartphones. Thus, it is of utmost importance that the bandwidth of your networks is compatible enough to load the websites.

4. Conclusion
E-learning is convenient and has the ability to reach more learners. It is cost effective as compared to other learning methods but still there is a concern in the corporate world that cost would exceed the financial returns. Moreover, there is a need to improve the technology skills of end-users in developing nations like India where the digital divide is still prevalent. The advancement in technology has led to many developments in E-learning market. In recent years, the corporate E-learning market has shown incredible growth due to the increased awareness of benefits of its adoption. The need of the current E-learning scenario involves recommendation and adoption of the best technologies in the inception stage of business.

5. Recommendations
   i.   Active Discussion Forums should be devised for student-instructor interaction.
   ii. Digitization of books &e-libraries should be done that makes them more interactive with graphics & animations.
   iii. Strict legal provisions should be implemented to check the spurt of illegal and low quality contact centres.
   iv. The instructor training modules and course design of curriculum should also be revised and updated regularly.

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