VARIOUS TYPE OF E-LEARNING FOR SUPPORTING INNOVATIVE ONLINE TRAINING AND DESIGN OF A GENERALIZED SYSTEM:AN ANALYSIS

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Abstract

This research is very essential and most powerful tool for progress of the society and mankind. In order to study and solve problem in education, development and learning, the research scholars have to undertake several steps in a regulated manner. The steps must be planned carefully, failing in any step leads to critical lapse in the whole attempt and it ends in unsatisfactory results. Research methodology is the search for knowledge through set objectives and systematically designed method of finding solutions to a defined problem. The aim and objective of research is to discover answers to questions through the applications of unique scientific procedures. The main aim of research is to find out truth which is hidden or undiscovered so far due to various reasons. Research is basically needed to test the hypothesis. The reliability of research study depends on the methodology adopted & followed, therefore the methodology used in this study is being presented as follows. The problem of study here is concerned with "Study and Analysis of various type of e-Learning for supporting Innovative Online Training and design of a Generalized e-Learning system".

1. OVERVIEW

Developed economies, such as Australia; Hong Kong, China; Japan; Republic of Korea; New Zealand; and Singapore, have set their own realistic education standards for ICT, develop content to international standards, and have expert know-how. There are also evolving localized projects in People 's Republic of China (PRC), India, Malaysia, and

Philippines. These localized projects have in common that they generally begin with very good intentions but have very little political commitment to sustainability; also they have inadequate budgets, cumbersome bureaucracies, and inappropriate policy and implementing mechanisms. ICT development will be a long and gradual process in these evolving nations, and it is important that they have an appropriate policy environment.

ICT and education are not a priority in the least advanced nations. This is probably due to the fact that political leaders are generally not sensitive to global developments in ICT. Also, these nations often view ICT as not contributing to wealth building of the country.

Need of e-learning

Need of e-learning is due to various reason. Web Based Training and its newer and more general synonymous term e-Learning are two of today's buzz-words in the academic and business worlds. Decision-makers associate with them new ways of learning that are more cost efficient than traditional learning strategies and which allow students to better control the process of learning because they can decide when, where and how fast to learn. However, two questions immediately arise:

1. What exactly does e-Learning mean and how it differs from traditional learning from the learner approach?

2. Is it really the best way to acquire new knowledge in current scenario?

The first question can only be answered partly and vaguely because it is still under heavy discussion what exactly e-Learning should look like as many of the learner still feel traditional learning as better option over e-learning, and different opinions even exist about what components it consists of. e-Learning therefore can be roughly defined in the following way and focus later some of its aspects in more detail:

Definition: e-Learning

At least one or more e-Learning students who try to achieve a special learning goal in a simulated environment

e-Learning contents which represents or at least describes the learning subject, the learning objectives and guidelines on how to achieve them. E-Learning content can be multimedia based and interactive.

An e-Learning environment which works as an interface between the students and their learning objectives and provides different means to achieve the learning goal. Usually the e-Learning environment can be accessed using a Web browser over the Internet or Intranet and supports several learning strategies and different ways of interaction, communication and collaboration. Additionally, e-Learning environments often include administration and management utilities and interfaces to other systems to support the organizational part of learning as well. Other terms

for e-Learning environments, which are often used as synonyms or with slight variations in its feature-set are e.g. (among many others):

- Computer Managed Instruction System (CMI-System)

- Learning Content Management System (LCMS)

- Learning Management Platform (LMP)

- Learning Management System (LMS)

- Virtual Learning Environment (VLE)

- Web Based Training System (WBT-System)

Preferably one or more e-Learning coaches (or teachers/trainers) that assist and guide students when trying to achieve their learning goal.

Much more comprehensive descriptions of e-Learning and its technical architecture are discussed in IEEE-Learning Technology Systems Architecture. Strictly speaking e-Learning is just one part, the learning part, and needs to be complemented by e-Learning and e-Teaching. Both terms can be summarized under the term e-Education. However, because most people understand e-Learning as the overall process, so the most suitable synonym to use is e-Education.

The second question is easier to answer, because the answer is simply no, e-Learning is not yet the best way to acquire new knowledge, but it has the potential to be the most efficient one for many situations, if it is used in the right way. This can be explained by asking and answering the question "What does the ideal learning environment look like?"

An ideal environment for learning

To answer this question, we do not have to deal with a lot of technology. We just need to look at the roots of learning and teaching as it was probably already practiced in e.g. ancient Greece.

In this ideal learning situation, we have a very qualified teacher who trains and guides one or just a few students whom he knows quite well (their personal background, their strengths and weaknesses, their personalities, how fast they can understand etc.). If there is more than one student then all students should have about the same level of knowledge and agreeable personal profiles, know each other quite well and love working together and helping each other. Direct

face to face communication between teacher and students (and among students) allows to immediately react to requirements of students (questions, speed of teaching etc.). Thus, the teacher can individually respond to each of the students and motivate them. Also, all necessary illustration material is available that the students can use to understand the teaching subject more quickly and there are plenty of possibilities to practice and test the already learnt and use knowledge gained to solve problems with it.

This ideal situation will most probably lead to a very efficient learning process, no matter whether the learning goal is just storing some facts, carrying out processes, or whether they are as complex as finding new solutions for difficult problems of a certain category (the learning subject).

However, although it might be the ideal learning environment in reality it is not usable most of the times for at least one or more of the following reasons:

- It is limited to a very small number of similar students (in a group of 1-3)
- Usually the teacher and the students do not know each other well enough during the starting period of learning
- Generally, c-learning is time and place dependent
- It is very expensive because of the one to one or one to few relations between teacher and students and the enormous investment in time.

Especially the fact that this scenario and all similar traditional learning strategies cannot deliver new knowledge to a large number of students fast enough is the strongest argument which displaces instructor led training in the way described above. Additionally, new requirements such as lifelong learning and just-in-time learning arise out of short development and deployment cycles and continuously changing working profile. That is the reason why we and our economy need a new way of learning to continue to be successful.

3. APPLICATION SCENARIOS FOR E-LEARNING AND PREREQUISITES

With e-Learning it seems that we have a new strategy which meets all demands and still provides an efficient way of learning by incorporating learning theories and combining them with new technological advances. Analysts such as META, GARTNER, Forrester, IDC etc. confirm this when they predict tremendous growth for e-Learning.

Several factors are facilitating this substantial growth of e-learning:

- E-learning growth is caused by large and growing base of installed computers in the home and workplace.
- E-learning is boosted with high Network security, available IT infrastructure, and dedicated bandwidth improvements.
- Advances in the speed of personal computers and modem &xDSL performance.
- With constant growth in cheaper and more reliable access to the Internet.
- Consumer wide acceptance of online commerce.

The most essential requirement and prerequisite for a successful implementation of e-Learning is the change of the learner's and the organizer's mind because the way of learning is so much different compared to traditional learning (e.g. learner cantered vs. teacher cantered) and offers other possibilities to integrate in the overall working or living process. In addition to that there is no single ideal way of using e-Learning efficiently, because there are different application scenarios which require different approaches. Maybe e-Learning alone is not the best way because it might be wise to combine it with traditional instructor led training, so-called "blended learning" (the mixture of different learning concepts and techniques). But at the bottom line we want to stress that e-Learning *can* help to improve the efficiency of learning tremendously if done properly.

3. MATERIAL AND METHODS

The two models of E-Learning are synchronous e-learning and asynchronous e-learning Today's workforce is expected to be highly educated and to continually improve skills and acquire new ones by engaging in lifelong learning. E-learning, here defined as learning and teaching online through network technologies, is arguably one of the most powerful responses to the growing need for education. Some researchers have expressed concern about the learning outcomes for e-learners, but a review of 355 comparative studies reveals no significant difference in learning outcomes, commonly measured as grades or exam results, between traditional and e-learning modes of delivery.

For e-learning initiatives to succeed, organizations and educational institutions must understand the benefits and limitations of different e-learning techniques and methods. Research can support practitioners by studying the impact of different factors on e-learning 's effectiveness. Two basic types of e-learning are commonly compared, asynchronous and synchronous. Until recently, e-learning initiatives mainly relied on asynchronous means for teaching and learning. However, recent improvements in technology and increasing bandwidth capabilities have led to the growing popularity of synchronous e-learning.

4. RESULTS AND ANALYSIS

According to sector and country income in national labor market profiles, low-income workers dominate most Asian countries. Their main source of employment is agriculture. This greatly affects e-learning implementation because public and private organizations and institutions have to find ways to bring e-learning to rural areas. Another concern is that many people are not working, including people who choose not to work and youths who are not in school. Of those in the middle-income bracket, 40% are not working; while in the high-income bracket, 35% are not working and 42% are working in the service sector. This implies that although any high-income people provide services through jobs, many are unemployed.

5. THE IMPORTANCE OF E-LEARNING

In India, globalization of education has generated sudden quantitative growth in higher education, especially professional education like engineering. But to meet this sudden growth in engineering education, there is acute dearth of high-quality trained teaching faculty, especially in most of the private state engineering colleges and private state universities everywhere in India. An effective education system must provide harmonious balance between the theory and practical knowledge in order to understand the technical aspects and applications of various engineering subjects in real life. Most of the universities are having their distance learning program divisions (DLPD) and virtual classrooms. These virtual classroom and virtual institutes are growing at high speed to replace the traditional classroom learning (c-learning) with the emerging e-learning technology.

Unique features of e-learning over traditional learning are

1. 24 x 7 accessibility to allow easy schedules and greater number of participants to attend the virtual classroom

2. Reducing students cost in terms of tuition fee, hostel fee and traveling expenses

3. Lower cost for companies and academic institutions by reducing the salary expenditures of trainers and faculty

4. Making learning self-pacedin line with the speed and grasping power of learners

5. Learners can choose the contents and tools as per their interest, needs and skill levels

6. Enhancement of computer and internet skills even for non-computer savvy persons

7. Eliminating geographical barriers

8. Facilitating great student interaction and collaboration

9. Providing opportunity to learn anywhere, anytime

10. Convenience of reading material online or downloading for later reading.

11. Choice available for wide range of courses as per needs of learner

12. e-learning is a wholesome learning Along ith unique features, various benefits provided by e-learning are

Just-in-Time (JIT) access to timely information:

Online learningsystem provide the flexibility to instructors for uploading the latest materials across the network instantly. This mechanism keeps the content fresh, consistent and up to date and provides immediate access for the learners to the most correct and updated information.

e-learning facilitates fast/slow learning for learners

The grasping power of learners is not same. Some students learn fast while others take considerable time to learn. As per the learning speed of students, e-learning system allow to adjust the output of information displayed on the monitor and its changing frequency as per the required level of the learner providing the flexibility of fast and slow learning. The slow and fast learners can take required time to learn the content. It removes the stress and embarrassing situation felt by slow learners seating with fast learners in the traditional classroom system.

e-learning provides flexibility

In e-learning, playback of recorded sessions are possible, so the absentees can play the recorded sessions and slow learners can listen the recorded session as many time as they want. This is unique flexibility provided by e-learning.

e-learning is economic for learners and institutes/trainers

e-learning is economic from learners' point of view, as it provides best course material and expert lectures with the convenience of anytime, anywhere that too at an affordable rate, which cut down the traveling and hostel expenses, extra cost for learners. Also, from the institutes/trainers point of view, the overall cost is reduced in terms of fixed liabilities like salaries of the faculty/trainers, building infrastructure cost, meeting room rentals, transportation expenses, lodging and boarding expenses, canteen expenses etc. Thus, e-learning is a WINWIN scenario from both the learners and trainers' point of view.

e-learning provides integrity

In India, there are many states, many religions. e-learning provides the integrity of all institutions, research institutions, various regulatory bodies, academicians and professionals, students from various communities. e-learning provides sharing of knowledge, experience, technology, infrastructure and resources for the best utilization

6. CONCLUSION

The collaborative learning theory says that, human interaction is most important in the learning process. The unique feature of c-learning is personal touch, eye contact and face to face interaction with the students of classroom. Body language is one of the most stimulating and motivating factor of traditional classroom learning. The unique advantage of c-learning are the major drawbacks of e-learning. Hence, e-learning cannot completely take over traditional c-learning, still e-learning can bring considerable revolution in Indian professional education system. So, e-learning has tremendous potential in India, but adoption of e-learning in Indian education system has been very slow. Indian e-learning market is at a nascent stage and has very bright future.

For, success e-learning system in India, designing of e-learning packages need to be done carefully. Human interactions are very important in learning, so interaction of human with e-learning tools should be encouraged through audio/video conferencing programs. The drawback of e-learning however can't be completely eliminated, still interactions of students seating in virtual class rooms can be made more frequent with the expert faculty using electronic boards, chats, emails and teleconferencing systems. There should be a fixed time or slot in which teleconferencing / chat sessions can be arranged.

Many of the engineering students are going abroad to pursue the graduation studies and doctorate studies. The demands of these students can be fulfilled in India, by setting state of the art e-learning infrastructure of international standards in India itself. This will not only retain the Indian students in the country but will also attract affordable students from abroad. It will also create employment opportunities in India, for e-learning course material designers. The people who can develop multi-lingual courseware which can address special and complex topics will be on high demand. It will boost the revenue of Indian companies involved in the business of e-learning. As there is high demand of virtual classrooms (trainer free classroom) in India. Virtual classroom can really enhance virtual reality. Basically, virtual reality is a 3D learning environment which provide the learner to explore the learning concept. Modelling and simulations can make more experienced learning environments. To successfully, promote e-

learning in Indian professional education, it is desirable that engineering colleges and universities should prepare virtual reality modules for various subject and the respective topics.

Potential barriers to successful development of e-learning require huge one-time cost in terms of development of educational content, installing large numbers of computers, providing internet facility in the rural areas with cost of installing optical fibre cables as well as training students as well as teachers about usage of computers. Technology is dominant in e-learning, and is also expensive, unpredictable and can become obsolete. So, initial cost of implementation is very high.

In summary, the real limitations to e-learning arehigh bandwidth network connections, which may become as common telephone in near future of a decade. Human contact greatly impacts e-learning. Another limitation is use of audio and video for creating realistic job simulations and accommodating different learning styles. Designing, course content for e-learning in multi-lingual is another major problem.

Future Scope Of E-Learning And E-Governance

e-learning is having wide scope in the present and future scenario as various types of tools in the form of search engines, multimedia technology, modelling and simulations software, computer graphics software, 3D animation software, networking protocols and communication devices are available and are very helpful in e-learning to make a wide success. Multimedia technology is very useful in research, teaching and learning. Search engines can be used to review the contents of related and earlier studies from research point of view. e-learning can be applied in engineering education to facilitate panel discussion on important topics, seminar presentations by students and faculty, presentation of project reports and assignments, presentation of dissertation and thesis of masters and doctorate studies. e-learning can also be used by the institutes to get feedback from the students about the trainer/faculty, to evaluate and performance appraisal of faculty. e-learning systems also used for recording expert/guest lectures for future use, recording lectures of short-term training programs, recording workshops and panel discussions on important topics. e-learning system can be used in the form of CCTV camera, in order to keep continuous watch on activities happening inside the institute/campus. e-learning system can be also applied to traditional examination, which are time consuming for both learners and trainers in terms of invigilation duties, wasting time, effort and resources

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