

E-Learning: Technology Versus Psychology

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This paper offers descriptive elaboration on the following salient points:

- Drawbacks of 'chalk-and-talk'
- Experimental e-learning tool
- Pedagogical Problems
- Learning Models
- Courseware Design
- Virtual Labs
- Personality Types & Learning
- Professor versus Student
- Imparting Expertise
- Web-based Learning
- Technology-assisted Teaching
- Teacher: A New Role

SUMMARY :

1. Web-based Learning to be a competitor to traditional class room, if Teachers' role is confined to imparting bookish knowledge.
2. Need for blending e-Learning technology with Educational Psychology for effective learning.
3. Need for building Knowledge Warehouse for technical material
4. Teachers have to SURVIVE in Darwinian terms.

DRAWBACKS OF 'CHALK-AND-TALK':

A variety of studies are available to classify learners, in order to choose most appropriate style of instruction for each learner, or each group of learners. Teachers, habitually, use a mix of approaches using 'chalk-and-talk' in a class room environment. A concept is presented through one approach, say giving a formal definition, and then elaborated and explained through an example and may be analogies and metaphors.

At times, this elaboration may be in response to a “not understood” signal from some of the students in the class. Some students grasp concepts presented in formal abstract manner like a definition or a formula. Some needs an image to visualize, with which they can relate the concept. We know people who can concentrate better when music is played in the background; at the same time, we also know of people who finds background music to be distracting them from concentration.

It becomes evident from this description that students with varying backgrounds with lack of prerequisite knowledge are not benefited much from the ‘chalk-and-talk’. It becomes a prevalent necessity to ensure that the children should have the required background to attend the class. A mediation of technology may prescribe a development in this regard to overcome the age old drawbacks of the ‘chalk-and-talk’ .

Students with varying grasping power, students with diverse interests because of different personality types and the compulsory attendance at specified time are the measure drawbacks of ‘chalk-and-talk. To weaken these drawbacks it becomes important to ensure the required background to attend the class and ‘let the children learn at their own pace’ be the pieces of technology. Anytime & Anywhere learning mechanism other than the compulsory attendance at specified time with customized courseware design based on the ‘type’ ought to be worked out for reaping the benefits invested in class.

EXPERIMENTAL E-LEARNING TOOL:

The concept of using computer technology to enhance learning experience goes back a couple of decades. Computer Based Tutoring (CBT) systems once flooded the market with the idea that one can buy a tutor disk say, on Mathematics or Biology, and sit in comfort and privacy in front of a PC and ‘master’ the subject is quite charming. However, it turned out to be a failure for most students in most subjects and disappeared from the market.

Meanwhile, researchers in the field of Artificial Intelligence(ITS-Intelligent Tutoring systems-to be more specific) were attempting more sophisticated models of using computer to teach. These systems tried to go beyond the then popular page turners to build better interaction and intelligence in the system to emulate some capabilities and characteristics of a real human teacher. An ideal

ITS would have a detailed model of the domain to be taught, a model to represent a given student's understanding of the domain and associated mechanisms to update this, detailed pedagogical models to choose an appropriate concept or a lesson for discussion using an appropriate style of instruction. Of course, it was too challenging for complete automation, particularly given the computer and networking capabilities of those days. ITS, barring a few stray success stories, blurred away without making a major impact on education.

An intranet based tool for experimenting on effectiveness of Work –Based-Learning (WBL) becomes a upward need to develop a database of modules with prerequisites, topic, module duration etc. Courseware must be fortified with text, audio, video with 'explain-again'/add-on. Linking of Virtual lab to the internet sites experiments e-Learning tools to prepare, exploratory exercise (out of syllabus questions) module for monitoring the time taken for going through a module and correlation of performance in pre-requisite tests, module test and personality type.

PEDAGOGICAL PROBLEMS:

The problems pertaining to the pedagogy are numerous. It becomes important to induce the technology for an academic refinement to solve the shortage of learning models which are to be based on personality types. Complex courseware design distracts the interest but use of Virtual Reality Modeling Language (VRML) may be an advantage. Course content format be modeled using the portable code of Java and XML's data as well.

LEARNING MODELS:

Online learning can be seen to open up a lot of new possibilities in education. With powerful software environment, learning models can be improvised with a skill to demonstrate the subject through games for easy comprehension. The varieties of methods are required to be employed for better understanding of the learners by using the technology embedded with the psychology. Learning through story-listening, story-telling, experimentation and MEMORIZATION has some immediate impact on framing the objectives of learning among the learners.

e-Learning is a combination of learning services and technology to provide high value integrated learning, anytime, anyplace. e-Learning provides a new set of tools that can

add value to all the traditional learning modes-classroom experiences, textbook study. All these have to take care to decide the package materials considering meticulously the personality type of the learners.

COURSEWARE DESIGN:

Some guidelines address the issues faced while creating the courseware which can easily accessible in heterogeneous environments. When considering the barriers within content, accessibility issues differ somewhat for each group to test the knowledge in the prerequisites. The explanation in this regard puts to a test of "Explain-again" and add-on courseware materials. Supportive graphics are to be planned with proper placement of graphics for visualization. To support this exercise the creation of Virtual Labs becomes essential.

Research on Internet and out-of-syllabus help promote exploratory education. Collaborative learning expands the meaning among the virtual learning communities. The courseware design should have a scope for post-lecture testing through objective tests. All these exercise may help create a Digital Library for making the courseware design communicable and effective. This will be a distinct possibility to envelop Multilingual content on the same web page.

VIRTUAL LABS(ACADEMIC):

'A pretty experiment is in itself often more valuable than twenty formulae extracted from our minds' once said by Albert Einstein gives vent the concept of Virtual Labs in modeling the technology aspect of e-Learning. Graphics for visualization, simulation for on-line experimentation, web-enabled virtual labs, Virtual Reality Modeling Language(VRML) are the major content of the pedagogy of virtual labs.

VIRTUAL LABS (TELECOM):

The virtual telecom lab is to demonstrate the telecom modulation techniques with Interactive modules to learn programming languages for simulation of electronic and telecom systems for evaluation of performance studies.

VIRTUAL LABS(COGNITIVE):

The psychological components contributing virtual labs for the cognitive growth that help design on the functioning of brain. Teaching natural languages, teaching computer

languages, graphics and visualization anatomy are the important parcels to design the technology aspect of the virtual labs. There are some specific web designs to be browsed for knowledge gain in shaping a model like www.hazelwood.k12.mo.us.

PERSONALITY TYPES & LEARNING:

The varieties of personality types contributing learning have identified four groups namely Introvert (I) or Extrovert (E); Sensing (S) or intuitive (I); Thinker (T) or Feeler (F), Perceiver (P) or Judging (J) as popularly known Myers-Briggs Personality Type Indicators (MBTI). Psychological studies say that each person belongs to one of the 16 possible types such as ISTP, ENFJ, INTJ etc. A simple description of inherent human qualities on each group will define the psychological attributes in one and different personality types.

Introvert (I) type avoids crowds having a handful of friends. This type gets energy from ideas.

Extrovert (E) type is in much love of outgoing and partying temperaments and gets energy from crowd.

Sensate (S) type, a performer who works with facts and figures. This type is strenuously practical and loyally down to earth.

Intuitive (I) personality type is upwardly imaginative and keeps interest in theory and gives general answers to specific questions.

Thinker (T) types use logic and reason and do not trust gut feeling but dreams in knowing 'How people think'.

Feeler (F) types avoid conflicts but trust gut feeling and develop interest in knowing 'How people feel'.

Perceiver (P) personality type does not take decisions quickly and does not plan things and thus sometimes grow reckless.

Judging (J) types are extraordinarily decisive, not willing to change but prefer scheduled life but organize time & effort.

PROFESSOR VERSUS STUDENT:

It is interesting to derive the traits from the types elaborated in a manner that designates in all activities of individuals considering their personality and corresponding profession. One such important category is Professor versus Student. Majority of Professors are of INTJ type those who have 'Thirst for Knowledge and pursue to be Perfectionists. They have the ability and psychological strength to comprehend the concepts with excellent grasp of abstraction and more importantly they have the ability to explain abstract concepts through logic. But they want the world to succumb to their version of logic and unfortunately most of their version of logic is correct. This rigid personality type struggles to judge things in their way for which they attain academic excellence in the midst of continuous completion. But, most interestingly the Students belong to almost all types.

IMPARTING EXPERTISE:

e-Learning, one of the prominent online learning mechanisms, can be seen to open up a lot of new possibilities in education. With powerful software environment, a student working on a computer, can be provided personalized attention. Multimedia technologies provide for richer learning experiences than what a class room environment provides. It becomes necessary to impart codification of expertise through 'expert systems'. Expert system for very focused expertise is through Software project estimation(1000 chunks) and analysis of diagnostic reports (10000 chunks). To measure the effectiveness of Expert Systems was an issue but no longer a problem. More accurately, 70000 chunks of knowledge is the expertise of a human expert in any given field but present expert systems have just 10000 chunks of knowledge. To develop and make available Expert Systems on the NET would be a great research area.

WEB-BASED LEARNING:

Web based Learning expedites simulation experiments and excellent visualization through graphics and animation (eg. www.cellsaliva.com). Virtual Laboratories may be assessed through www.technoline.com. Tool for teaching courses that "cannot" be taught in class rooms may be a challenging provisions to be put on research, in modern times.

TECHNOLOGY-ASSISTED TEACHING:

It comprises the facility to put information on facts and figures through e-books. Teaching subjects that involve extensive graphics and animation through Computer Based Teaching (CBT)/ Web-based testing. Subjects that involve experimentation should attain through Virtual Labs and assessment be made through on-line testing.

TEACHER: A NEW ROLE:

It is the need and demand of the time to dress a changed role to teachers who should act as a Mentor, Motivator and Counselor. They should attach thrust not on imparting bookish 'knowledge' but act on identifying the strengths and ready to play counseling to put the student in the right path of learning. Other than a guardian they should act as a catalyst to promote the potential creative abilities of the students. The much discussed 'Type' indicators be the basis to act as the guideline to identify strength and weaknesses of the students. They should act as the facilitators to change the "Personality-Type" to upward the homogeneity of serving education in spirit and philosophy.

CONCLUSION:

The latest technology entrant to the arena of Education is the Web. It is a combination of computers and Internet communication technologies. Online learning is being seen as a killer application of Internet. Web and Internet have already affected most walks of life; and it is currently hovering around education. It is being adapted to address many of the problems with traditional education and of the earlier approaches of computer application in education.

Online learning has already gone through the hype and the field is maturing to be able to distinguish the realizable and desirable roles that such technology can play. There is wide spread realization that just by web enabling the Power point slides and lecture notes we cannot suffice to provide a learning environment. A learning environment should be built over a clear model of instruction. Instruction technology, e-Learning design and operational psychology play major roles at this point.

DECLARATION

I wish to declare that this above article is an explored attempt of analyzing the facts & information collected from the references of periodicals, articles on e-Learning and media evaluations. I humbly declare it as an original piece of my own intuitions.