Computerized Learning Environment for Higher Education

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ABSTRACT

Effectiveness of teaching and learning in any subject at any institution is dependent on the instructional strategies used by the teachers. This is a major factor responsible for the level of performance in any subject by the students. Learning difficulties can be solved up to a great extent by using suitable teaching methods with proper utilization of available computer techniques and tools. Different learning approaches can be adopted for instruction in order to induce, promote and direct learning. The instructors can impart knowledge by lecture method, demonstration method, discussion method, audio visual instruction, activity method, and tutoring [1] method. But this can be enhanced up to an extent by computerized learning environment by utilizing available animation and simulation tools [4]. The research is intended to produce pattern of higher education; and a comparative analysis between CBTLM (computer based teaching and learning methods) and traditional mode/method of teachings particularly for higher education in urban area of Varanasi districts.

Keywords

Educator, Tutor, Animation, Instructor, Methodology

1. COMPUTERIZED LEARNING ENVIRONMENT

For centuries, Varanasi is a hub for education, and is reputed as a great centre of education and learning. It's because since the ancient times, people from all over India and many parts of the world as well have been coming to Varanasi to learn philosophy, Sanskrit, astrology, modern sciences and social science. Institutions here have excelled in the deliverance of high quality education in various disciplines to enable students to be prepared for a highly competitive working environment. Varanasi has the pride of having the world renowned University like the Banaras Hindu University, Sampurnanand Sanskrit University, Mahatma Gandhi Kashi Vidyapeeth, Central Tibetan University, Al Jamia Tus Salafiah. City has a number of colleges, which provide a great platform for higher education [5] in the field of science and technology, arts and social science, law, commerce, medical science, journalism etc.

Computer based learning refers to the use of computers as a key component of the educational environment particularly in classroom, the term more broadly refers to a structured environment in which computers are used for teaching [3] purposes. CBTL provide learning stimulus beyond traditional learning methodology from textbook, manual, or classroom based instruction. It offers user friendly solutions for satisfying continuing education requirements. Instead of limiting students to attending courses or reading printed manuals, students are able to acquire knowledge and skills through methods that are much more conducive to individual learning preferences. Also CBTL offers visual learning benefits through animation, simulation [2] or video that is not offered by any other means with capability of get distributed among a wide range of audience at a relatively low cost.

Emerging technology can be an appropriate vehicle [8] for promoting meaningful, engaged learning. Technologies also can be used to promote the mode of teaching the higher education and allow opportunities for teachers to act as facilitators and often as a co learner with the students [11]. In the classroom, teachers can develop a myriad of technology [7] supported engaged learning projects that enable students to solve real world problems, retrieve information from online resources, and connect with experts. Rather than using technology for technology's sake, the higher educational institutes can develop a vision of how technology can improve teaching and learning [5].

With the growing need of computer technology [9] in our traditional education system it require to pin point those areas which will be helpful in enhancing the quality of education in Varanasi. The research is oriented to find such factors which will be helpful in promoting the technical as well as the non technical courses or to find those areas in tradition teaching method / methodology, where the use of CBTLM like computer animation and simulation based teaching and learning approaches will be implemented effectively. Although promotion of education is not dependent upon computers, they can be of great assistance in this task [10]. There are some beneficial impacts of computers on promotion of education [6] on higher education.

- Through interactive programs on computers, learning can be facilitated even for those who are slow. Computers have infinite patience and learning through them would be friendlier and less fearful.
- With their increased memory, computers can teach a variety of subjects and cover more areas than a human teacher. The capacity, speed and accuracy of computers enable students to achieve many things in a short time which would be difficult through human efforts.
- With the help of uniform script and suitable programs, computers can promote communication among different parts of the world. They can be helpful in sending reading material from one place to another on global basis.
- As an aid to intellectual pursuits, computers support and promote creativity [5] [6]. By doing the routine,

dull and repetitive jobs, computers release the mind for other useful things. They also accelerate the learning process.

2. RESEARCH METHODOLOGY

The study is focused on quality education with the help of available computerized learning environment. There are two different and complementary approaches (up to some extant tools) will be used to carry out the study. First one is analytical (analysis of available computerized tools to provide effective teaching); second is physical (study of various available teaching methodology used for education at degree levels and as well as up to post graduates and research levels of institutes). A research has been conducted in 40 different teaching organizations who are offering various courses of technology, science, arts, commerce and agriculture at various levels, where the mode of teaching is in English language.

2.1 Primary Data

- Area of population – Urban area of Varanasi district.
- Sample Size – 40 schools, institutes, colleges and universities with mode of teaching as an English.
    - UG 13
    - PG Colleges 10
    - Post PG (Doctoral Degree) 07
    - Engineering College 04
    - Universities 06
- Pictorial presentation of data analysis

2.2 Analysis

The following facts (Ref. table 1.1) have been laid out during the research analysis; that are given below:-

- It has been found that traditional approach is used at the larger scale than the computer based teaching and learning methods (CBTLM).
- Most of the CBTLM is found to be used in engineering colleges.
- Below the PG level traditional approach is used widely.
- Average use of CBTLM is in Post PG Courses and in Universities.
- Many UG/PG Institutes are upgrading themselves for CBTLM.
- Overall, we can say the use of CBTLM has to be promoted for betterment of our education system.

Based on above research analysis (Ref. chart 1.1) the following are the findings.

- More than 75% of the courses are being taught by using traditional method of teaching and learning.
- Teaching Organizations below PG level are using CBTLM are 92% and TM are 8%.
- In PG level CASBT usage is 80% and TM usage is 20% whereas at Post PG levels 71% against the CBTLM that is of 29%.
- At engineering colleges the percentage is of 25% for TM **a**nd 75% for CBTLM.
- Also at University level it has been observed 67 % for TM and 33% for CBTLM.

Table 1.1: Status of Teaching and Learning

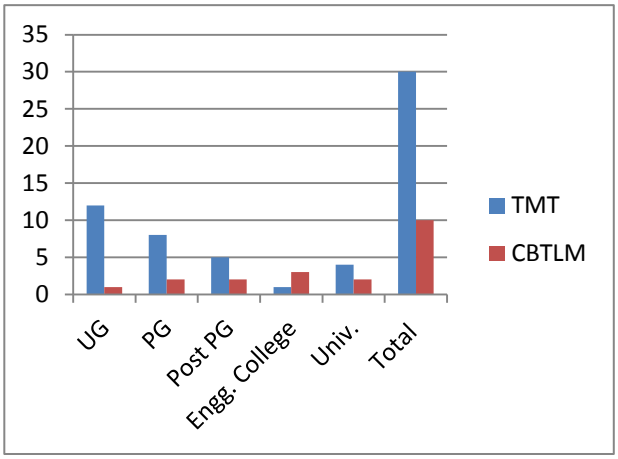

Chart 1.1: Mode of Teaching and Learning

Courses	**Traditional Methods of Teaching (TMT)**	**Computer Based Teaching & Learning Methods (CBTLM)**
UG	12	1
PG	8	2
Post PG	5	2
Engg. College	1	3
Univ.	4	2
Total	**30**	**10**

2.3 Recommendations and Suggestions

Based on the above mentioned survey the following recommendations and suggestions have been made to conduct teaching effectively in our present educational system being adapted in various teaching institutes of Varanasi city.

- Need of a computer laboratory equipped with simulation and animation based software for teaching along with trained instructor is desirable.
- Tutors are suggested [4] to show the principal/mechanism by animation steps, using animation and simulation tools and techniques that will make clear and better understanding in the students mind.
- There is continuous need to update the skills of teachers engaged in teaching [16] by providing them proper training of latest software and tools available.

- In order to achieve effective learning environment these digital classes [13] (simulated / animated) will prepare the students in making easy perceptions, arousing attentions, attractiveness, visual clarity towards the education. Such method can rise up the effectiveness of teaching [15] in the class room, in terms of both the content and style, and provide explanations, hints, examples, demonstrations, and practice problems as needed to the learner.
- Skilled tutors are more effective than class room teaching, given our society's increasing need for higher quality teaching and training.

3. CONCLUSION

Teaching effectively is not an easy task even in a face to face situation with the students. Many additional difficulties must be faced in trying to provide students with effective resources to develop their problem solving skills in a computerized learning environment. Some of these difficulties are being faced by the teachers and overcome as computers tools like animation and simulation used for teaching and learning become more powerful and computerized learning environments become more sophisticated to implement these methods effectively. Also the creation of effective CBTL requires enormous resources. The software's for developing CBTL environment are often more complex than a subject matter expert or teacher is able to use. In addition, the lack of human interaction can limit both the type of content that can be presented as well as the type of assessment that can be performed. In Varanasi It has been observed that facilities for higher education have expanded significantly in the last few years. Also the study itself reveals that more than 75% of the courses are being taught by using traditional method of teaching and learning. And only the engineering colleges of the region are utilizing the CBTLM. There is continuous need to update the skills of teachers engaged in teaching by providing them proper training of latest computer tools and techniques available particularly simulation and animation based software.

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