Applications of Computer Aided Instruction (CAI) in class room to achieve the Universalisation of Elementary Education in West Bengal

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ABSTRACT: *Computer Aided Instruction (CAI) offers copious advantages for education and training when properly designed and implemented. Recent Computer developments in Hardware and Software enhance the effectiveness and reduce the cost of CAI. In the past few decades, enormous enthusiasts have predicted a revolution in education through the adoption of Computer Aided Instruction in many aspects. A variety of Software has been used to build up CAI packages such as Macromedia Director, MX, Macromedia Flash and SWiSH Mex. CAI is an interactive instruction technique whereby a computer is used to present the instructional material and monitor the learning that takes place. It uses a combination of text, graphics & animation, sound and video in the learning process. Sarva Shiksha Abhiyan (SSA) is the Government's flagship programme to provide universal access to Elementary Education for the children 6-14 years old. The scheme aims to improve enrolment, retention and quality of education to enable children to achieve appropriate levels of learning. It also aims to eliminate gender gaps and differences between social categories.*

Sarva Shiksha Abhiyan (SSA) with its diversified motives has reached in each and every corner of our nation, to ensure Universalization of Elementary Education (UEE) and promoting quality education. A wide range of technological possibilities is the most vital support system for enhancing quality education in present scenario as the use of ICT could meet the challenge and fulfill the cherished goals of SSA.

To increase the degree of internal school efficiency as well as to ensure quality education and universal access computer assisted instruction through Computer Aided Learning (CAL) programme under SSA is one of the major tools. This paper discusses the salient features of Computer Aided Learning, its effectiveness and status of implementation under the purview of Nadia district, West Bengal. Again the study reveals that though implemented, but not up to the desired level and quite a long way to go to achieve the goals of the scheme, i.e. towards ensuring Universalization of Elementary Education.

INTRODUCTION:

The National Policy on Education (1986) and the Programme of Action (1992) laid emphasis on achieving Universalization of Elementary Education (UEE) in a time bound manner. Sarva Shiksha Abhiyan (SSA) is a response to the demand for quality elementary education all over the nation. SSA Provides an opportunity for improving capabilities through expanded media and methods.

Constructivists learning theory implies that children bring well off experiences to class room. Teachers can help them construct new knowledge and skills. Information and communication Technology can facilitate both the teachers and the children acquire new knowledge or experiences and thus can enhance and strengthen the learning process.

Computer Aided Instruction (CAI) offers munificent advantages for education and training when properly designed and implemented. Recent computer developments in hardware and software augmented the effectiveness and reduce the cost of CAI.

In the past few decades, enormous enthusiasts have predicted a revolution in education through the adoption of Computer Aided Instruction. While the CAI revolution may still distant in West Bengal, some new developments make CAI a practical and colossal beneficial supplement for education and on the job training in teaching.

Computer Aided Instruction is an interactive instructional modus operandi whereby a computer is used to present the instructional material and monitor the learning that takes place. It uses a blend of text, graphics, animation, sound and video in the learning process. The computer has many rationales in the classroom, and it can be utilized to help children in all areas of curriculum. These programs let students progress at their own pace, assisting them in learning Mathematics, History, Science, Social studies and Language ***(Sharp'1996)***.

It is widely accepted that the integration of modern Information and communication Technology (ICT) with the teaching learning process has great potential. In fact, it could be the most imperative way by which states can meet their educational ambition within reasonable time and available resources. The use of CAI in elementary schools is basically vision as a teaching learning aids besides to develop computer literacy amongst the children.

Elementary Education is a well recognized input essential for sustainable development of a nation. If we need to contend to this race for development in the world, we will have to begin with elementary education. Strengthening of elementary education in terms of access, equality and quality is essential for our sustainable development. In this competitive global race, the survival of societies has itself become a stake where creation, use and storage of knowledge with transparency require education, and acquisition of new knowledge and skills. Since 1990, there has been continuous expansion of the use of media in school education in India especially for teacher training

through computer aided instruction to make learning more interactive as well as lively ***(N.R.Gupta'2005).***

Sarva Shiksha Abhiyan (SSA) was initiated in the year 2001 following recommendations from the State Education Ministers conference in 1998. Although the 86th Amendment to the Indian Constitution enacted in 2002 made elementary education a fundamental right. SSA with its diversified objects has reached in each and every corner of our nation, to ensure the Universalization of Elementary Education and promoting quality elementary education. SSA has been operational since 2000-2001 with the passage of the RTE Act; changes need to be incorporate into the SSA approach. Accordingly the revised SSA Framework for implementation is derived from the recommendation of the committee on implementation of RTE Act and the resultant revamp of SSA. An ample range of technological possibilities is the most vital support system for enhancing quality education in present scenario with the best use of ICT could meet the challenge and fulfill the treasured goals of SSA. The best possibilities of curriculum transaction through ICT could enhance the achievement level of children at elementary stage.

The right of children to free and compulsory education till completion of elementary education in a neighborhood school certifies that "Compulsory Education" means obligation of the appropriate government to provide free and compulsory education and ensure compulsory admission, attendance and completion of elementary education to every child in the 6 to 14 age group. "Free" means that no child shall be liable to pay any kind of fee or charges or expenses which may permit him or her from pursuing and completing elementary education.

Again Computer Aided Learning (CAL) is an important component under SSA to pave the way of achieving Universalization of Elementary Education not even in West Bengal rather the country too. West Bengal school education system is still suffering from low internal school efficiency. To raise the degree of internal school efficiency at elementary level as well as to ensure universal access, retention and quality education computer Assisted Instruction through Computer Aided Learning Programme under SSA is one of the major tools. Different hard spots will be identified under the scheme and Multimedia based educational content will be developed in local languages/medium in different subjects is the salient features of the scheme. This will surely create great impact on teaching learning process which in turn will be the resultant of universal access, retention and quality.

COMPUTER AIDED LEARNING: CONCEPT

Computer Aided Learning is a facet of teaching learning process in which computer and its accessories are used to impart education in more effective method. This facilitates the process of learning and understanding a subject through advanced approach and pace. Again it is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place.

Computer Aided Learning and Computer Education are same?

If a school is equipped with ten to fifteen computers in an air conditioned or non air conditioned lab with a computer instructor having a degree/ diploma in computer science/application with a syllabus including MS. Office, FoxPro, Internet etc., is not Computer Aided Learning. It is better to say Computer Education. In computer education the objective is acquirement of computer skills and expertise. Computer Aided Learning requires one/two computer in classroom/lab along with giant screen, multimedia projector and multimedia software containing relevant knowledge base for the targeted group of learners.

Again in absence of computer in a classroom, a teacher may impart computer aided learning by means of big screen television or other equipment like K.Yan to children.

The teacher imparting training need not be a computer teacher. He/She will be more competent as subject teacher. The subject teacher may be given training about how to use computer aided learning materials in the classroom.

Main Features of Computer Aided Learning:

i. Selected schools having infrastructure facility will be provided with computers and other accessories like printer, CD writer, UPS and multimedia projector.
ii. Identification of Hard sports on different subjects by the academician and subject experts after Focused Group Discussion/study at grassroots level and interaction with the subject teachers and children.
iii. On the basis of Hard spots Multimedia based teaching learning aids on CD will be developed and to be provided at schools.
iv. Computer aided learning materials will be based on graphics & animation and sound by the close monitoring & expertise of professionals.
v. The multimedia contents should be developed as per syllabus and duly approved by the West Bengal Board of Secondary Education.
vi. Minimum one teacher from each subject from each school will be trained for classroom transaction process and on basic operation of computers.
vii. Children from nearest elementary schools don't have the facility may be bring to the school where CAL is being implemented.

Tentative Hard Spots :

(A) In Mathematics: Numbers, Factors, Fractions, Decimal, Geometry, Measurement, Percentage, Algebra etc.

(B) In Science: Air & its components, Living world, natural Resources, Motion, Machines, Properties of solid, Liquid etc.

(C) In English: Simple conversations, Reading, Writing, Grammar etc.

(D) In Life Science: Different human system, flowers, different animal system etc.

(E) In History: Different reign, Historical places etc.

(F) In Geography: Natural resources, Physical geography, seasons, social etc

How CAL improve Quality of Learning:

Different studies reveal that the overall quality of learning improves through CAL due to having the following potentials:

(A) Presentation design :

(a) Animation & graphics help a learner comprehend things/incident and facts easily

(b) Computer Aided Learning is a combination of animation, graphics and sound/music etc.

(c) CAL can be developed with the help of professionals, teachers and educationists huge materials can be stoned on a few compact discs, which may and be replicated at a very nominal cost.

(B) Advanced pace of learning

(C) Attractive and Joyful

(D) Continuous up gradation

(E) Repetitive in Nature

CAL for which subjects & topics?

It is possible to develop multimedia based education CDs on all subjects and topics. There is no doubt that CAL can improve quality of education in great extent and possesses in built up gradation. Excessive use in absence of supervision and monitoring shall make children a computer aficionado. So it is better to start only with hard spots on selected identified areas, strictly not with the areas that are not easily understandable and comprehensible to the children. Once Computer Aided Learning is integrated in the education system, the option of including more topics may be considered in phased comportment.

Indian Scenario:

Madhya Pradesh initiated “Head Start” Project in the year 2004. Head start is computer aided learning with an astute mix of video and animation in interactive mode. In Orissa computer aided education has been implemented

on the principles of BOOT (Build, own, operate and Transfer) model. Similar programme has also been implemented successfully in Karnataka, Kerala, Andhra Pradesh, Gujrat, Maharastra, Rajasthan, Chattisgarh and all other states including West Bengal with different pace and degree.

Contribution to the CAL to Quality in Teaching-Learning:

(a) Cognition: CAL may allow us to characterize in rich and miscellaneous ways and enable us to navigate the boundaries of art, science, language and other domain of human knowledge. According to ***Cole,*** the curriculum is a mind transforming appliance and the school is a culture of growing minds. Hence the best cognitive understanding and practice can be capture and communicated by Computer assisted learning.

(**b) Pedagogy**: As a tool CAL can support informative or facilitative approaches, collaboration and interaction across time and distance, enquiry or interrogation, open or closed research and lock step or mind map. It is argued that CAL can contribute substantially to the improvement of schooling if it is appropriately used ***(Deetya, 1996).***

(c) Alignment : Schools can only be effective in imparting and enhancing teaching learning transaction and helping students to achieve well defined educational objectives when the standards, objectives, teaching, curriculum, resources, use of technology and assessment are all aligned.

Research on Computer Aided Learning:

Different Research & studies have been conducted to examine the impact of the programme on teaching & learning. Most of the studies explained that computers have a positive effect on student's learning.

M.D. Shukla (2004) shows that teaching and learning related various skills of teachers and the students were enhanced and helped educational processes to gain momentum.

S.S. Paramene & S.M. Gokhale found that techniques and applications of Computer Aided Instructions are quite useful and more effective in importing teachers training.

Christman (……year???……) also found that the positive gain in student's academic achievement of the children.

The International Association for the Evaluation of Education Achievement (IEA) conducted a survey on the use of computers in schools in 18 countries. The IEA found that in most countries the amalgamation of computers into school. Subjects were still being initiated by small group of teachers. This

integration also tended to be focused within the higher grade levels. Although students are generally passionate about integrating computers into their learning, teachers may actually discourage the exercise of computers of different personal and professional constraints.

Experience of Nadia District:

Nadia district was covered under Sarva Shiksha Abhiyan in the year'2001 and having better literacy status compared to others. The district is located in well and connected with both railway and road properly. Presently 620 schools are engaged in imparting elementary education to the children. Out of which, 124 nos. of schools have been provided with computers and necessary accessories under SSA to implement the CAL programme. The internal school efficiency system still needs to rise. According to "COHORT STUDY' 2009' Completion Rate in Four Year is 68.23% with Repetition Rate 23.78% and Dropout rate of 4.07%. All the 124 nos. of schools covered under CAL programme have been provided with 4 computers and necessary accessories and projector machine. While visiting it has observed that in most of sampled schools, scattered over the district the computers are still in lock and key condition. Some is being used under computer education programme. Again some computers at different schools have already been damaged as reported by the concerned Head of the Institutions. But subject teachers from each school have already been trained on implementation process and ready to do the some. Interaction with the teachers reveled that only due to non availability of multimedia contents; they are not in a position to initiate CAL in classroom transaction process. It has been observed that some enthusiastic teachers collected multimedia based subject CDs from open market and imparting teaching to the children by self which is highly appreciable.

Again teachers of different schools responded that they are eager to implement the scheme and have diversified concepts towards alignment. But still they are waiting for subject wise; according to W.B.B.S.E syllabus wise multimedia content CDs since receipt the materials. Considering the benefit of the children and introduction of advanced & pace teaching learning process in classroom situation the teachers have already decided to introduce the programme from coming financial year.

Conclusion:

Therefore it may be concluded that it is learning with technology that make computer assisted learning an important tool in the new paradigm of learning. In order to capitalize on the potential of new technology and particularly

digital technology as a teaching tool professional development of teachers is also required. towards importing better and advanced teaching learning process, which will be more readily comprehensive and understandable to the children. Computer aided Learning programme has that potential and provided opportunity to us. Now it is implemented in selected school but possessing in built characteristics to replicate. That will not only provide Quality education, it also ensures universal access, retention and resultant Universalisation of Elementary Education within the desire period.

This paper also discusses the prevailing status of implementation of CAL programme in Nadia district. The scheme has already been launched all over the district, covering selected schools with infrastructural facility, but not in tune as desired. Significant period has already been over and implementation mode is in need of more pace. It also needs more degree of convergence among academician and technical experts in context of development of multimedia based educational CDs on Hard Spots, already identified from various subjects. In addition to that administration should give more emphasis on proper implementation for the save of Universalisation of Elementary Education by means of concentration, effective & intensive monitoring and supervision.

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