Computers Assisted Instruction in Refining the Quality of Teaching and Learning

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ABSTRACT

Computer is one of the strongest tools of information and communication technology. Computers are increasingly being used as CAI, CAL for imparting instruction of the learner at different levels in different subjects. Many efforts have been made to prepare CAI and studies have been conducted to see the effectiveness of CAI of various subjects. Computers plays important role in educational transactions. A teacher can make use of computer as a tool, to assist him/her in making teaching effective. CAI follows a psychological principle of learning so it is good for the slow learner as well for the bright students. The huge number of students in the classroom also hinders the teacher for paying individual attention to each student. These small students need to be explained the lesson in an attractive manner so that they can experience it. The unique combination of tutorial, interacting and visual capabilities enable computers has a beneficial effect in approaching the quality teaching and learning. Through the use of CAI the interest to learn computers can be developed among students from a very small age. A student can use a computer as an efficient tool for disciplining his own studies. He can store his own notes and can check his progress by taking tests through the question paper from the question bank stored in the computer memory. Computer programmes allow students to improve those skills by participating in classroom exercises that closely stimulate real world experience.

Keywords: Computer Assisted Instruction (CAI)**,** Computer Assisted Learning (CAL), Multimedia, Teaching and Learning

"The real danger is not that computers will begin to think like men, but that men will begin to think like computers."

Above said line by Sydney J. Harris appropriately depict that inventions of computers have brought a major technological change in our life. The teacher is responsible for introducing

concepts to students in class and scheduling topics for review and practice, which students will work on at instructional terminals Daily reports, inform the teacher of each student's performance and progress.

Accepted teaching and learning practices have undergone changes of revolutionary proportions in recent years. These changes are evident in situations as diverse as early childhood teaching, university physics teaching and workplace training. They have been underpinned by shifts in psychological and pedagogical theory, the most recent of which fit broadly under the heading of constructivism. Computer is a fast and accurate data manipulating device that accepts and stores data and produces a meaningful result under the stored set of instructions provided in the programme. It is a device which is derived from human intelligence. It is not an extremely fast information processing machine which, neither processes intelligence of its own nor has any thinking, arguing or decision taking power of its own. The development of information and technology enables the application of computers in the language learning process, which is known as Computer Assisted Learning (CAL). But there is still a question whether computers really assist second language learning. Many teachers who have never touched a computer tend to respond with an emphatic no; whereas, the overwhelming number of teachers who give computers a try find that they are indeed useful in second language learning. The responds indeed depend on the teachers' willingness to develop their teaching methods by utilizing the technology.

Undoubtedly, computers make excellent teaching tools, especially in teaching languages in any aspect, such as vocabulary, grammar, composition, pronunciation, or other linguistic and pragmatic-communicative skills.

The aim of this paper is to inform both educators and learners how computers are helping them and analyze the advantages of the utilization of computer in teaching and learning. When the advantages of using computer in teaching and learning understood well by teachers, learners and all stakeholders, it will be very useful to help learners improve their teaching and learning. Furthermore, there is a belief that through the use of it students are going to improve various skills.

The paper focuses on the advantages of using CAI for learners and teachers. Furthermore, there is a belief that through the use of it students are going to improve some skills, such as pronunciation, vocabulary and grammar, listening comprehension, and others on their own.

COMPUTER AS AN EFFECTIVE INSTRUCTIONAL AID

Educators use a computer technology to create a rich environment where students can show their capacity. It provides for opportunities for students in active participation, exploration and research. In this context, one of the ways by which computer technology can be made useful in the classroom is CAI i.e. Computer Assisted Instruction.

Lawrence Sturlow & Daniel Davis (1965) developed a complex model of teaching in which computer can present the instruction in place of teacher. This model is known as Computer Assisted Instruction. "CAI refers to the use of computer and software programmes to assist the delivery of information and students" (Wright & Forcier). Thus CAI refers to the application of computer software with the intention to fulfil the student's needs. CAI, an educational programme, is designed to serve as a teaching tool. It enables students to work at their own pace. It has been found to be very effective in the teaching of basic skills.

COMPUTER ASSISTED INSTRUCTION (CAI)

CAI deals with flexible, rapidly changing and detailed information. CAI functions as a tutor with unlimited patience. When computer used as an instructional tool to impart education and training, it is called Computer Assisted Instruction (CAI). In CAI computer is used as a teaching and learning tool. By using computer, teachers arrange multimedia presentations in their classes. CAI is a set of programming instructions which are used to develop desired mastery and skills among students. It is a result of the application of the principles of programmed instruction or learning. Computer assisted instruction is directly involved in tutorial work, drill and practice and is of greater help in instruction.

When computer is used to develop teaching and learning skills among teachers and students, it is called computer assisted instruction or learning. It is a programme which is designed to provide the instructions. Through CAI information is given about different subjects to the user. Everett (1995) defined Computer-aided instruction (CAI) as the use of a computer and other associated technology with the intention of improving academic performance. Computer assisted instruction has now taken as so many dimensions that it can no longer be considered as simple derivative of teaching machine or the kind of programmed learning that skinner introduced, Hilgard and Bower (1977).

CAI AS MULTIMEDIA TOOL

In 1980's and 1990's the concept of multimedia took a new as the capabilities of satellite, computers, audio and video converged to create new media with enormous potential. Thus multimedia is a judicious mixture of various mass media. "Multimedia is the exciting combination of computer hardware and software that allows you to integrate video, animation, audio, graphics, and test resources to develop effective presentations on an affordable desktop computer." (Fenrich, 1997)

Thus CAI in combination with the technology of multimedia is able to provide enhanced learning facility and with the attention to the specific needs of individual users. To make the CAI material effective, some related to content from different resources has to be employed. While adopting animations, the movements, emotions, visual styles, adequacy should also be

appropriate and according to the content. To highlight the title and heading separate animation can be used. Colour combination should be adequate and natural according to the object. To make the material more attractive audio and video effects can also be added to add value to learning and makes the presentations more convenient to understand.

The CAI material along with the use of multimedia is not so much to replace the teacher but it must be extremely well designed and sophisticated enough to mimic the best teacher, by combining in its design the various elements of the cognitive processes and the best quality of the technology. This CAI material, as a multimedia tool once being designed and built in, can be made flexible by permitting changes and alterations. CAI prepared with multimedia tool allows students to get a 'feel' of it. Learner's can experience their subject in the vicarious manner. They can understand the abstract concepts of Maths & science very easily with the integration of multimedia in CAI material. Thus CAI in combination of multimedia enables learning to become fun and friendly without fear and failure.

CAI IN REFINING THE QUALITY OF TEACHING AND LEARNING

❖ CAI Material make teaching-learning attractive, inspirational and effective.

❖ CAI Material provides teaching according to individual differences of students.

❖ CAI Material contributes to the economy of time, energy and resources of teachers and students.

❖ CAI Material brings clarity and vividness to the subject matter/content.

❖ The proper use of CAI material helps in motivating the students.

❖ Their use helps in developing and sustaining the interest of the students.

❖ CAI Material makes the subject-matter easy to comprehend interesting and lively.

❖ CAI Material provides ample opportunities for students' participation in the lesson.

CAI provides teaching according to the individual differences of the students & enables them to work at their own pace. CAI materials contribute to the economy of time, energy and resources of teachers and students. This computer technology offers a benefit of speed with which it can manage the learning process. Therefore it is a useful tool education and training. This technology of CAI will exert even a greater influence on education in future as it can perform the function of a classroom technology.

CAI material is easy for teachers and the students to understand difficult and education concepts by computer animation, graphics and colour combination. Now developments have resulted in widespread usage of computers for information access, education, training and communication. CAI can enhance the quality of teaching and learning in following areas of education:

(a) **Teaching and Instruction**: From teaching point of view, computer is the only device for presenting a programme that does the instruction. CAI is highly individualized instructional device. The students having varied type of entering behaviour can learn the same content through different forms of instructional material.

(b) **Data Processing for Research Work**: Computer is very economical, speedy and an accurate device for this purpose and has difficult task very simple. Huge data can be easily analyzed through computers.

(c) **Educational Guidance and Counseling**: The students are diagnosed for educational as well as vocational guidance, their weaknesses are identified and remedial instructions are provided.

(d) **Examination System**: Teaching and testing are the two main tasks of education process. The CAI is the used for both the purposes. The use of computer has made this task speedy, accurate and objective.

(e) **Augment in Basic Skills**: Computer-assisted instruction can also be of value in augmenting the instruction in areas where good teachers are already present. This is especially true in mathematics and English. In the case of writing skills, smart computer programs will be able to correct the first level of mistakes that students make in essays. We envision that the teaching of writing in the high school can move to the point where much of the routine that teachers must currently get through will be handled by good computer programs, leaving the teachers free to concentrate on such matters as content, clarity, and style.

We have touched on several of the main possibilities for computer-assisted instruction. Computer-assisted instruction can be used to maintain and even increase the variety of courses offered in order to meet instructional needs now and in the future.

ADVANTAGES OF CAI IN THE PERSPECTIVE OF INTERACTIVE APPROACH

Research and practice suggest that, appropriately implemented, network-based technology can contribute significantly to:

1. **Offers a powerful self-access facility**

   It helps to generate autonomous learners who will experience freedom of choice. The tools that learners find in computers allow them to assume mastery of their own learning experience. Students can call up the programs held by computers whenever they want; besides, computers are sensitive to the learners level of proficiency. This advantage, though, can also be seen as a disadvantage, since many teachers may consider that computers are undertaking functions that should be performed by trained teachers.

2. Compatible Learning Style

Students differ in their preferred styles of learning. Many students seem to learn much more effectively when they are able to use a compatible learning style than when they are forced to employ an incompatible one. Serious conflicts may arise when a teacher employs a style that is incompatible with a student's. In this regard, the computer can be used for adapting instruction to the unique styles of individual students. To cite an instance, the computer can provide an exciting rapid-fire drill for one student and a calm, slow-paced mode of presentation for another. The computer programmes can be chosen based on the learners' level of language mastery. A fast learner can learn faster since the computer itself can assist him to have interactive activities equipped with clear guidance or instruction.

3. Maximizing the Learning Time

Using the computer enables students to use their Academic Learning Time (ALT) more fruitfully. Academic Learning Time (ALT) is the amount of time a student spends attending to relevant academic tasks while performing those tasks with a high rate of success. For example, not all the time officially scheduled for studying a foreign language is likely to be allocated to it. If an hour is assigned to working on a topic, but the teacher devotes five minutes at the beginning of the session to returning papers and five minutes at the end to reading announcements, then only fifty minutes have been allocated to working on the topic. Scheduled time merely sets an upper limit on allocated time. Likewise, allocated time merely sets the upper limit to engaged time, which refers to the amount of time students actively attend to the subject matter under consideration. Even though fifty minutes may be allocated to studying a topic in English class, students may stare out the window or talk to their neighbours instead of pursuing the assigned activity. Therefore, even when they are actively engaged in studying the foreign language, students learn effectively only when they are performing at a high rate of success. This smaller amount of time is the factor that is most strongly related to the amount of learning that takes place (Lareau 1985:65-67).

4. Immediate Feedback

Learners receive maximum benefit from feedback only when it is supplied immediately. Their interest and receptivity declines when the information on their performance is delayed. Yet, for various reasons, classroom feedback is often delayed and at times denied. A deferment of positive feedback, though important to act as encouragement and reinforcement, may not harm the progress of the learners. Nonetheless, any delay in offering negative feedback, the knowledge that one is wrong, will become crucial. A blissfully ignorant student may continue mispronouncing a word or applying a misconception before discovering the nature of this error. In such case, the computer

can give instantaneous feedback and help the learner ward off his misconception at the initial stage itself. In addition to this, the computer can look for certain types of errors and give specific feedback, such as, "It looks as if you forgot the article."

5. **Error Analysis**

   Computer database can be used by the instructor to classify and differentiate the type of general errors as well as errors committed by learners on account of the influence of the first language. And thus determine the most common errors cross-linguistically and more specifically, the particular form of a particular error type within a particular language group. One such study conducted reveals interesting findings, for example, that in subject-verb agreement errors the base form of verb was over generalised incorrectly more often than the -s form by all speakers. Also, Chinese writers typically omitted the articles a/an more often than the (Dalgish 1987:81-82). A computer can thus analyse the specific mistakes the student has made and can react in a different way from the usual teacher–this leads the student not only to self-correction, but also to understanding the principles behind the correct solution.

6. **Experiential Learning**

   The World Wide Web makes it possible for students to have a huge amount of human experience. They can learn by doing things themselves and become the creators not just the receivers of knowledge.

7. **Interest and Motivation**

   It is often necessary, in a language learning classroom, to provide repeated practice to meet important objectives. Because this can be boring, painful, and frustrating, many students lose interest and motivation to learn foreign languages. Computers are most popular among students because they are associated with fun and games and also they are fashionable. Student motivation is therefore increased, especially whenever a variety of activities are offered, which make them feel more independent.

8. **Enhanced Student Achievement**

   Network-based instruction can help pupils strengthen their linguistic skills by positively affecting their learning attitude and by helping them build self-instruction strategies and promote their self-confidence.

9. **Individualization**

   Many students need additional time and individualised practice to meet learning objectives. The computer offers students self-instructional tasks that let them master prerequisite skills and course objectives at a speed and level dictated by their own needs. Besides, additional programmes can be made available for students who master objectives quickly. These additional programmes can provide more intense study of

the same objectives, proceed to higher objectives, or integrate the objectives covered in the unit with other objectives. In this manner, a computer gives individual attention to the learner and replies immediately to questions or commands. It acts as a tutor and guides the learner towards the correct answer while adapting the material to his performance. Learners can learn by themselves anywhere they like.

10. **Independence from a Single Source of Information**

Although students can still use their books, they are given the chance to escape from canned knowledge and discover thousands of information sources. As a result, their education fulfils the need for interdisciplinary learning in a multicultural world.

SUMMARY AND RECOMMENDATION

An ideal CAI course ware remains not an alternative but a complementary tool in reinforcing classroom activities. Apart from relying on the ability of educators to create suitable CAI course ware, the effectiveness of CAI depends on the teacher's readiness to adopt new attitudes and approaches toward language teaching. The teacher should avoid being skeptical about the use of computer in language teaching and begin to re-evaluate his methods in the light of computer's tremendous teaching potential and boldly address to the challenges offered. The computer can best assist teachers if it is seen not as a replacement for their work but as a supplement to it. By the way, the computer, will not replace the language teachers, but, used creatively, it will relieve them of tedious tasks and will enable students to receive individualised attention from both teachers and machines to a degree that has so far been impossible.

The challenges should be seen in the point of view of a developmental stage of computerization of individuals and institutions and as a temporary phenomenon. The next generation of teachers and learners will be part of a computer generation. They will take for granted the skills demanded by computer technology and handle it as coolly as switching on a tape recorder or watching a television. Similarly, the learners will need no readjustment of attitude when faced with a computer in a classroom. Then planning pre-, actual and post-computer activities would be easily possible. The teachers would ensure that they are the ones in control of educational software by becoming involved in the development process and rejecting those programmes which do not serve their needs. Considering the aspects discussed previously, it can be concluded that in the perspective of interactivity and challenges, CAL contributes a lot in the development of English Language learning and computer is so far better than any other existing teaching aid. Analyzing the CAL in enhancing the quality of teaching and learning in term of interactivity leads to the understanding of the effectiveness …………………. All factors that don't support the utilization of computers in learning must be seen as challenges for the improvement in the future.

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