



## COMPUTER IN RESEARCH TEACHING AND LEARNING

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### ABSTRACT

*Computers have become part and parcel of life. All the places in our lives have been occupied by computer. Computer used in research can process the data with greater speed, greater accuracy. Use of computer in teaching learning allows the students make their learning more interactive, interpretative and easier. Teaching process has also become more innovative, easy and concept clearing with the help of computer. Moreover use of computer replaces writing on board. For professional development, an interactive project will be to make networked communities in which Teachers and researchers work in partnership to find learning initiatives. 'Professional development requires people to breakout the set roles and relationships, in which researchers are traditionally seen as knowledge generators and teachers as knowledge translators or users. An attempt has been made to overview how computers are useful in research, teaching and learning. Computer technology offers a lot of flexibility in its use.*

**KEYWORDS:** *Computer, Research, Teaching, Learning etc.*

### INTRODUCTION

As we know computers are found very useful for everybody who handles it. Computers are preferably more useful for teachers and Students (learners). Use of computers has become an inevitable part of research. Use of computers in education for Power Point Presentation, for internet, for distributing notes amongst students etc effects positively on learners' grasping. Computers have become part and parcel of life. All the places in our lives have been occupied by computer. Computer used in research can process the data with greater speed, greater accuracy. Use of computer in teaching learning allows the students make their learning more interactive, interpretative and easier. Teaching process has also become more innovative, easy and concept clearing with the help of computer. Moreover use of computer replaces writing on board. For professional development, an interactive project will be to make networked communities in which Teachers and researchers work in partnership to find learning initiatives. 'Professional development requires people to breakout the set roles and relationships, in which researchers are traditionally seen as knowledge generators and teachers as knowledge translators or users' (Godwin and Sutherland, 2004).

An attempt has been made to find out what is the use of computer in education as well as in what way computer aids in research.

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**OBJECTIVES OF THE STUDY**

- 1) To highlight the uses of computer in Teaching and learning.
- 2) To find how computers are beneficial in research.

**RESEARCH METHODOLOGY AND DATABASE:**

The present research work is based on secondary data, which is collected through published books, journals, reports and websites. A study covers, need, significance and challenges of computer in Teaching, learning and research which can be improved in the present circumstances and should also emphasize on providing more facilities for higher education.

**COMPUTER IN TEACHING AND LEARNING**

Thus computer technology has had a deep impact on education sector. Computer software can mix text, picture, sound and motion to provide a variety of option for learners. Using computers one can get active experience of gathering data and resources having conversation with colleagues, struggling for solving challenging puzzle or application. Introduction of technology into the learning environment can encourage co operative learning and student collaboration. The content expert and fellow students round the globe can be communicated and collaborated with the use of computer networking. Various communication tools are, e-mail list serves, bulletin boards and chat groups. From above benefits, overall it can be said that networked computers aid quick communication and enable web access, storing documents on computers in the form of soft copies instead of hard copies and save paper. The introduction of distance learning has solved all these problems. The distance learning programs or online degree programs provides education at much affordable costs than the costs incurred on fulltime training.

**USE OF COMPUTER IN EDUCATION GIVES THE FOLLOWING MAIN BENEFITS**

- 1) Vast information can be stored in a computer.
- 2) Data can be processed effectively with the use of computers.
- 3) Better use of Audio – visual aids is possible with the help of Computers.
- 4) One can present the information more effectively.
- 5) Access to the internet is possible.
- 6) Very fast communication between students, teachers and parents can take place.
- 7) One can use computer for personal computing.
- 8) Computer can be used in science, research and engineering.
- 9) In education for reference work computers are used.
- 10) Computer–aided design has been made possible with computers.

**COMPUTER IN LEARNING**

The teacher is a mean to transfer knowledge. He remains key to the successfulness of ICT for learning. There should be professional development which will enable teachers to take risks with ICT and learning. Policy makers and senior managers should priorities support for teaching and learning at all levels of education .Technology used in education is in support of learning. Here technology mostly concerns with use of computers except use of smart phones in few cases. Computers can support in the different ways to construct students' own understanding students may work through a computer based activity at their own speed. Use of computer allows independent completion of the work allotted to them.

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**VARIOUS TEACHING AND LEARNING OPTIONS:-**

Use of computers in teaching and learning gives following advantages, Use of Computer in teaching will make the students read what has been written more easily than instructor's handwriting. The taught matter then can be saved as a record for class. Again this matter can be e-mailed to the whole class or passed on the course web page. The use of poster paper or handwritten overhead transparencies can be replaced by notes on their group discussion on laptop, computer. Power point presentation can also be replaced for OHP transparencies and video too. Over head presentation can be prepared for whole class. Thus own presentation can be uploaded to course web page. Presentation can be used which come on with the textbook. Students are prepared to create their own power point presentations in class to present their assignments. One can create Presentation and then print them out to create overhead transparencies. Thus computer is one of the most important ICT Tool which is used in education.

Also computer with and without internet can be used for following purposes in education.

**1) Design Courses Web Pages :**

A syllabus, class schedule, assignments, links to reading, posting of student work, online testing, and online class discussion can be used as a collection of pages for each course.

**2) Use of internet:**

It can be used outside the class. Internet can be used for student research (for various topics and their sites). It is useful to read online journals. Online Discussion Forum can be arranged. Students can continue class discussions outside of the class. Outside lecturers can join in class discussion online. Students can "meet" online using folders within their discussion forum. Distance education classes can be conducted online. Students can create web pages. Students can make online portfolios of their work. On particular topic or class work or task a class can develop "Clearing house". Student's can have their work with peers (for group assignments) or with the instructor.

**3) Class E-mail Communication-**

Instructor can provide updates and reminders to students. Instructor can E-mail copies of work developed in class (instead of writing notes on the board).

**Problems in Using Computer As Teaching and Learning Tools**

1. The place or room arrangement or room size may be trouble full to bring computer cart or for all students to be able to see the screen.
2. Lighting- in bright light screen can't be seen.
3. The Ethernet connection may not be possible for all students, so they cannot access the Internet during class, individually or in a group.
4. Connection to internet may be slow or may not be reliable.
5. Students may plagiarize work from internet.

**COMPUTERS IN RESEARCH**

Computers play important role in scientific research. Scientists, engineers and researchers can compile vast amount of data, and rely on computer to work through the data, making themselves free to focus on another area of research. Computers used in scientific research are able to analyze data in ways and at speeds not possible with human. They can analyze percentages of materials present in a variety of compounds from soil samples to chemicals. The air we breathe also can be analyzed by

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computers. Complex mathematical equations can be solved using computers. Computers programs written by scientists and researchers will be able to model data might manifest itself, in future this ability of computers is useful in predicting climate patterns, simulation of engineered products, predictor anticipation and the absorption rate of redirections in the body. Thus, at present, the computer has been widely used in all winds of fields such as machinery, astronautics, aviator, vehicles, medical device etc. Computers play a major role today in every field of scientific research from genetic engineering to astrophysics research.

Most anthropologists do not look upon the computer as a research tool. Apart from utilizing it to word process document (Journal Articles) or send electronic mail to colleagues, anthropologists generally do not use the computer as a fundamental instrument in their research, unless they are doing quantitative research. As use of computer is becoming flexible computers are becoming less of a clerk or accountant, and more of an active research assistant.

### **COMPUTERS FOR DATA DISCOVERY**

Computers, using internet can be used as a source of data. Also computers can be used as online ethnography. Before startup of WAN (WIDE AREA NETWORK) the data was available on bulky tapes or in the form of storage, many times without index and without sorted out. But with the internet technology quantitative databases (i.e. census data, agricultural information business and marketing data) has grown rapidly. Scans of classic literature renowned books, key documents (such as the U.S. Constitution) not transcribed interviews, speeches, or other informal texts (Hudson and Atkinson, 1990). Mostly anthropologists are interested in cross – cultural comparison; they are now making use of the human relations area files, or HRAF. HRAF are a collection of ethnographies on most of the human societies on earth, coded with a standardized microfiche. A lot of text can be made available on Usenet, bulletin boards, mailing lists, and the worldwide Web, a researcher for text collection may get any possible topic very easily. Data storage for the plenitudes of materials posted to the Net (billions of words appear on the 5000 Usenet newsgroups each day) while inexpensive, isn't tree, and the cost for archiving it could be astronomical.

#### **Computers for Data Analysis and Management:**

Collection of data can be done using online databases or ethnography but, it is also gathered through "low-tech" methods of shorthand transcription tape recording etc. When the data collected is in electronic form, next it has to sift through, and reduce. Also the data has to be sorted, managed and analyzed if necessary.

#### **Computers for data presentation, visualization and simulation:**

Thus Computer can be used for gathering and analyzing quantitative data. The data can be presented on the computer in an effective manner. The presentation may include some diagrams, charts, or graphs generated by other programs, text special effects on texts diagrams etc. They are quantitatively oriented. Thus key conclusions and observation can be included in power presentation along with photos, graphs etc. Visualization is not just an aesthetically pleasing way of presenting data but they suggest way visualization is a representation that a person can interact with through their own terminal perhaps by zooming it adjusting variables to be highlighted etc. Especially in the areas of data models, perception and intelligent agents as applied to computer visualization, will add much towards a well founded mapping process from "bits and bytes" to "understanding"(Gitta, 2005).

Visualization has a number of applications for quantitative researchers. One can use decision trees where viewers can test themselves movement down the tree; flowcharts can be used to test

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behavioral flow; the ever – famous kinship diagrams etc. Simulation can help present a wide variety of quantitative relationships. In physics, the physical laws can be illustrated using billiard ball collisions. Thus a computer simulation is an attempt to model a real life or hypothetical situation on a computer so that it can be studied to see how system works for predictions of process results. Simulation can also be used by changing the variables. According to theoretical computer science, the term simulation is a relation between state transition systems, useful in the study of operational semantics. An interesting feature of computer is an emulator which is a type of simulator which is often used to execute a program that has to run on some inconvenient type of computer (may be newly designed computer which has not yet been built or an obsolete computer that is no longer available), or in a lightly controlled testing environment simulators have been used to debug a micro program .The team referred for educational simulations is micro world. As said earlier simulating in education, can be considered as one of the greatest benefit we get from computer. “Simulation modeling represents a useful tool for analyzing complicated systems where we cannot use standard methods of operational research. This is due to the fact that standard methods of operational research can mostly solve tasks with exactly given structure.” In cases when we are not able to use the standard methods of operational research, we can use simulation modeling. Sometimes simulation modeling as a tool for supporting practical decision-making offers a possible solution for this problem (Tomas, 2010).

Using simulation for project measurement training will improve learning relation and enhances learning process social simulation may be used in social science classrooms to illustrate social and political processes in economics, history, political science or sociology etc. which will make use of fictitious political systems, or be based on historical events-offering and exhausting roles. In a simulated society, or international relations simulations in which participants engage in negotiations, alliance formation, trade, diplomacy etc.

## CONCLUSION

From the above discussion it can be concluded that use of computer is an effective way to teach particular matter. Computers can support in the different ways to construct students’ own understanding. Internet is an enormous base of information. Students are able to search the concept they wish to know. Students may work through a computer based activity at their own speed. Computer has proved to be most supporting and helping friend in research. Computer can be used for gathering and analyzing quantitative data in research. Visualization using computer has a number of applications for quantitative researchers. Simulating in education, can be considered as one of the greatest benefit we get from computer.

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