

Advantages and disadvantages of using computers In education and research

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ABSTRACT

Use of Computers in education and research has completely changed the way of things were made before. For example, a lecture to the students or the presentation of a paper to a congress are completely different with respect to those only a few decades ago, when blackboard, transparencies or photographic slides were used. There are many positive aspects of using computers, for example making a talk very attractive. In this paper an analysis is presented of advantages and disadvantages I experienced and of consequences of using computers.

Keywords: Computer in research, computer advantages, conservation issue.

INTRODUCTION

This paper presents some considerations on the basis of my personal experience and does not pretend to give general results or rules. The advantages and disadvantages are those that I experienced in many years of activity, started when computers for research and teaching were not yet available.

Speaking of computers, from now on, I mean electronic computers. It should be noted that electronic computers were not sudden invention, but they were the (provisional) “end” of the evolution of many different kinds of computational devices that were developed in the past, the electro-mechanical devices used for computations just before the advent of the electronic computers.

Initially, computers, like all previous devices, were suitable just “for computations”. They became useful for writing much later, when personal computers were introduced.

One first question is: advantages and disadvantages with respect to what?

Here I consider several subsequent steps: each one with respect to the previous one:

1. *When computers useful for computations were introduced, with respect to no-computers, in old times.*
2. *With respect to the first computers, during the evolution of them, when user friendly and easy to program software was developed and when larger computers were introduced.*
3. *When sensing and in general measuring instruments for use with computers were built.*
4. *When personal computers were introduced, with writing facilities and use for teaching*
5. *Recent times, internet and so on.*

Advantages of Computer Technology

Educators indicate that the current computer technology has many advantages for second language learning. Computer and its attached language learning programs could provide second language learners more independence from classrooms and allowing learners the option to work on their learning material at any time of the day. Once implemented, it can be expected that the cost for computer technology is considerably lower than for face-to-face classroom teaching, and when used in conjunction with traditional second language classroom study, students can study more independently, leaving the teacher more time to concentrate effort on those parts of second language teaching that are still hard or impossible by the computer.

Lee (2000) further stated that the reasons why we should apply computer technology in second language instruction, include computer and its attached language programs can improve practices for students through experiential learning, offer students for learning motivation, enhance students achievement, increase authentic materials for study, encourage greater interaction between teachers and students, emphasize the individual needs, regards independence from single source of information and large global understanding.

Currently computer technology can provide a lot of fun games and communicative activities, reduces learning stress and anxieties, and provide repeated lessons as necessary. Those abilities will promote second language learners learning motivation.

Today, with the high development of computer technology, computers can capture, analyse, and present data on second language students. As we know, observing and checking students, learning progress are very important activities to help students achieve their second language. When teachers attempt to assess students learning progress, they can get the essential information from a well designed computer language.

Students can get various authentic reading materials either at college library or from Internet. And those materials can access 24 hours a day. In a word, Computer technology provides the multicultural opportunities for students to carry out their independent studies.

In particular, many concepts and cognitions are abstract and difficult to express through language the language teaching area. It seems that computers can make up for this shortage by using the image showing on the screen.

Disadvantages of Computer Technology

Firstly, there are many advantages of computer; the application of current computer technology still has its limitations and disadvantages. Gips, DiMattia, & gips (2004) indicated that the first disadvantages of computer and its assisted language learning programs is that they will increase educational costs. When computers become a new basic requirement for student to purchase, low income students can't afford a computer. On the other hand expensive hardware and software also becomes a big obligation for college and parents.

Second, it is necessary that both teachers and learners should have basic technology knowledge before they apply computer technology to assist second language teaching and learning. No student can utilize computer if he or she lacks training in the uses of computer technology. Unfortunately, most teachers today do not have sufficient technological training to guide their students exploring computer and its assisted language learning programs.

Third, the software of computer assisted language learning programs is still imperfect. Current computer technology mainly deals with reading, listening, and writing skills. Even though some speaking programs have been developed recently, their functions are still limited.

Fourth, computers cannot handle unexpected situations. Second language learners' learning situations are various and ever changing. Due to the limitations of computer's artificial intelligence, computer technology is unable to deal with learner's unexpected learning problems and response to learners. The reasons for the computer's inability to interact effectively can be traced back to a fundamental difference in the way humans and computers utilize information. Blin (1994) also expressed that computer technology with that degree of intelligence do not exist, are not expected to quite a long time. In a world, today's computer technology and its attached language learning programs are not yet intelligent enough to be truly interactive.

Use of Computer in Teaching And in The Laboratory

Use of Computer in Laboratory

Use of computer in laboratory experiments is important for teaching, mainly if the students are involved in the preparation of an experiment. In addition to the need of learning the suitable computer software they are faced all problems found in setting up experiments.

If they use experiments and programs already set up, there could be the risk that they simply learn how to use the apparatus without entering the problematic involved.

Lectures, and in general presentation of subjects to students by computer, can be very nice and attractive, and the students become more interested in learning.

Use in Teaching

When our Institute bought a personal computer (Apple) for the secretariat, the main advantage for teaching that I experienced was redaction of notes. Initially this advantage was mainly felt by our secretary who typed the notes that we are professors, prepared by hands. She was very happy to use the computer, instead of the usual typewriter, because she found it very easy to make corrections or to add parts, as we often required.

Now with internet, notes and in general textbooks can be printed and posted for the students and this is a great advantage. Internet is not a subject of this paper, however mention is to be devoted to courses and teaching through internet largely used everywhere.

Computer And Measurement Instruments

A big step in the computer use for research was when instruments linkable with computers became available. Now in any laboratory this is an obvious facility, but it was not so when we made experiments in the 70's. Here below two examples from our research activity are described.

Measurements of laser intensity fluctuations

Initially, the output signal from an instrument was an analogical signal, which had to be digitized to be inserted in the computer.

Position measurements

An important case of use instruments directly connected with the computer was measurement of positions. We needed position measurement for research on:

- 1- *Angle of arrival fluctuations (often denoted as differential angle of arrival fluctuations) at points of laser wavefront after a path through the atmospheric.*
- 2- *Wandering of thin beams after a short path in the atmosphere.*

Concluding Remarks

In Conclusion, the purpose of this essay was to discuss the advantages and disadvantages of computer technology for applying in current second language learning. With the modern technology development, although the application of computer technology has become a new trend in recently global second language learning instructions, computer technology still has its limitations and weakness. Therefore, when we try to apply computer technology and programs to enhance our teaching and to help student learning, we should realize what the advantages and disadvantages existed in current computer technology in order to avoid for misemploying and get its maximum benefits for our second language teaching and learning.

For the future, there is important problem of conservation, because of the weakness of the support.

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