The Role of Computer in Teaching and Learning Process

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Abstract

It is an indisputable fact that the main objective of teaching and learning process is acquisition of the learner with expertise , including theoretical and practical knowledge for development of his skills and abilities to keep up with the demands of life and address challenges faced by the community. certainly achieving this goal does not come by hopes, but needs taking required measures to activate the process of teaching and learning process and this calls for the use of technology in planning teaching and learning process. The computer is one of the tools which is characterized by technological use in the teaching and learning process. The use of computer in the field of the teaching process goes back to 1950 when initiatives were considered by a number 0f educational establishments in U.S.A , Britain , France and Japan in teaching pure science subjects and also in the process of distance learning as well as e-Learning. Also compact disk and portable computers were used by teachers and students in printing and storing lectures or in updating them for reference whenever it is needed. Besides compact disks were used in preparing and designing programs required by curricular.

In the light of what was mentioned above one can limit the role of computer in the teaching and learning process as follows:

-collection and preservation items of curriculum materials and also updating them for reference whenever the need arises.

-to enable the student and the teacher to exchange curriculum, reports and research between educational institutions within the country or abroad.

-facilitates correction of examination papers especially in the field of pure science exclusively the questions that are answered by"True"or"False" or multiple choices.

- to develop skills of the teachers and students in the field of scientific research especially what is concerned to indentifying the problem of the research and review of literature.

It is our aim to elaborate in this monograph how and to what extent computer can aid teaching and learning process with emphasis on its role in distance learning and e-learning .The coverage of this objective called for review of the previous studies related to the role of computer in teaching and learning process. We refer to the results and conclusions of these studies through our discussion of the related subject in this monograph.

The monograph ends with a number of results which point out that the computer gives teachers confidence in the classroom as they are not looked down by their students as obsolete and old fashion. Besides , the results reveal computer has a notable role in e-learning and distance learning which aim to acquisition of knowledge and skills through

mediated instruction. Also it helps teachers to organize and deliver their course materials to their students.

دور الحاسوب في عملية التعليم والتعلم

مستخلص

ثمة حقيقة لا يختلف عليها اثنان وهي أن الهدف الأساسي من عملية التعليم والتعلم هو إكساب المتعلم بالخبرات المعرفية منها النظرية والعملية لأجل تنمية مهارته وتطوير قدراته حتى يكون بوسعه مواكبة متطلبات الحياة ومعالجة التحديات التي يواجهها المجتمع. ويقينا أن تحقيق هذا الهدف لايتأتى بالدعوات والأماني وإنما يتطلب اتخاذ ما يلزم لتفعيل عملية التعليم والتعلم لأجل الارتقاء بمستوى كفاءة أدائها,الأمر الذي يتطلب الاستعانة بالتكنولوجيا في التخطيط لعملية التعليم والتعلم وتنفيذها .

ويعتبر الحاسوب إحدى أدوات التكنولوجيا الذي يتصف استخدامه بدور فاعل ومهم في عملية التعليم والتعلم, ويرجع استخدام الحاسوب في مجال العملية التعليمية الى عام(1950). حيث بادرت عدد من المؤسسات التعليمية في الولايات المتحدة الأمريكية وانكلترا واليابان وفرنسا باستخدام الحاسوب وشبكات الحاسوب في تدريس العلوم الصرفة واللغات كما تم استخدام الحاسوب في عملية التعلم عن بعد distance learning وكذلك في التعلم الالكتروني e-learning, ولم يقف الأمر عند هذا الحد بل استخدم القرص المدمج CD والحاسبات النقالة من قبل التدريسيين والطلبة في طباعة المحاضرات وخزنها وتحديثها للرجوع أليها كلما دعت الحاجة إلى ذلك إضافة إلى إعداد وتصميم البرامج التي تتطلبها المناهج الدراسية.

وفي ضوء ما تقدم يمكن حصر دور الحاسوب في عملية التعليم والتعلم فيما يلي :

1 -　　　جمع وحفظ مفردات مواد المناهج الدراسية وتحديثها للرجوع إليها كلما دعت الحاجة إلى ذلك.

2 -　　　تمكين الطالب والتدريسي من تبادل المناهج الدراسية والبرامج العلمية والتقارير والبحوث بين المؤسسات التعليمية داخل البلد أو خارجها بشكل موضوعي وبأقل كلفة .

3 - تسهيل إجراءات تنفيذ وتصحيح أوراق الامتحانات وخاصة في مجال العلوم الصرفة وحصرا ما يتعلق بالأسئلة التي تكون الإجابة عنها بـ(صح) أو (خطأ) أو باختيارات متعددة .

4 - يكون بالإمكان استخدام الحاسوب لممارسة نشاط علمي كتنفيذ محاضره على مجموعات من الطلبة في وقت واحد وفي مواقع جغرافية مختلفة أو في مراحل متعددة في مؤسسة أوفي عدة مؤسسات تعليمية.

5 - تسهيل عملية الاتصال بين قطبي العملية التعليمية (التدريسي والطالب) وخاصة ما يتعلق بمدخلات العملية التعليمية الأمر الذي يعزز أواصر الصلة بينهما.

6 - أن استخدام الحاسوب في عملية التعليم والتعلم ينمي مهارات الطالب والتدريسي في مجال البحث العلمي وخاصة فيما يتعلق بتحديد مشكلة أو موضوع البحث والاطلاع على بحوث ودراسات سابقة ذات العلاقة بموضوع بحثه لأجل تحديد مسار البحث.

كما نحاول ضمن هذا البحث توضيح كيف والى أي مدى يساهم الحاسوب في عملية التعليم والتعلم وخاصة ما يتعلق منها بالتعلم الالكتروني والتعلم عن بعد , أن تغطية هذا الهدف استدعت الحاجة إلى الاطلاع على الدراسات السابقة ذات العلاقة بالموضوع للاستفادة منها في بحثنا الحالي , وتشير النتائج التي تم التوصل إليها إلى إن استخدام الحاسوب داخل الصف يمنح التدريسي الثقة بنفسه كما انه لا ينظر إليه من قبل الطلبة بأنه تدريسي من طراز قديم ليس ذو شأن , إضافة إلى إن للحاسوب دور متميز في التعلم الالكتروني والتعلم عن بعد لأنه يهدف إلى إكساب المتعلم بالمعرفة والمهارات من خلال وسائل متعددة , إضافة إلى انه (أي الحاسوب) يساعد التدريسيين في تنظيم مفردات موادهم الدراسية وإيصالها إلى طلبتهم.

1-Introduction:

It is often said that it is not hard to say things, but it is harder to do them. the usage of computer in teaching and learning process is not an easy job. It needs systematic experience, skill, knowledge, and state of readiness concerning the learner and the teacher.

New technologies (in particular the computer) provide teachers as well as students with many tools that can be used to improve the teaching and learning process. The usage of these tools creates attractive activities which make the learning process friendlier for students. As a consequence these activities increase the interest of the students in the study of the prescribed subjects. Teachers, can provide students with a great amount of resources that usually they cannot show in the classroom due to the lack of time, computer allows teachers to provide the students with material of different sorts, as well as to interact with them in real-time.(Hackbarth 1998)

Education clearly provides more than preparation for a career. Education is designed to provide, via teaching and learning process, social and cultural understanding for effective citizenship and the development of intellectual capacity that will allow people to continue throughout life. In some aspects, education replicates a town or small city, there are residential environments, green spaces to preserve, roads and parking areas to maintain, and utilities to be provided, such environment creates challenges and calls for use of technologies such as computer and network in dealing with the teaching and learning process, In order to increase its efficiency. A computer can store information about students, teachers, and curriculum. At the same time it can send or supply such information to administrators, educational planners, it also exchanges ideas among others, and manipulates information based on

the need of teaching and learning situation from the teachers and students perspectives.(Roblyer 2001)

The purpose of this paper is to elaborate to what extent computer can aid teaching and learning process and the advantages obtained from this initiative.

2-Use of computer in teaching and learning process

It is often said that computers make it possible to individualize the teaching and learning process, however the learner working alone is seen isolated and deprived of the many advantages that working with other peers around the computer may offer.

New technologies provide teachers with many interesting tools that can be used to improve the teaching and learning process. The usefulness of these tools makes important for teachers to have more information about the advantages and possibilities of using technology in the classroom as well as about the results derived from their application (Teresa.2008).

Computers have been used in teaching and learning process since 1950 and have become an important tool for students and teachers in achieving their obligations and commitments. They used computers not only for learning and teaching process, but also for communication. Educational technology does not concern itself only with technological aspects, but also deals with the combination of interrelationship of technology in teaching and learning process. Attempts were made to develop projects in computer-assisted instruction. (CAI) attached to learning and teaching process in order to increase external and internal efficiency of education. Consequently a digital speech system was adopted and has been used since 1950 to learn and teach English to native speakers in United States and in some European countries. The

project was influenced by (CAI) in terms of the action research.(Werdelin 2002)

Besides, the computer-assisted instruction could provide effective instruction to lower cost than traditional instruction in institutions of education. In 1980 "DOS"(Disk Operation System) was adopted in teaching and learning process, consequently personal computer became more user devises, therefore more students and families began to use (PCs). The developers of (CAI) simplified the delivery of its material to suit home (PCs).

3-Advantages of usage of computer in the teaching and learning process.

Currently, the education system is undergoing rapid changes. Various new methods are introduced and used. Further, it makes teaching more effective and learning is highly significant. Inevitable, the media has been dominating in all aspects of life. Every individual is surrounded by various media such as books, magazines and computer. Other than parents, it is the responsibility of teachers to help their students to become critical consumers when using the variety of media sources.

The advantages of using computer in the teaching and learning process can be classified in seven categories, these are: Tutorial, problem solving, simulation, inquiry, electronic performance system, testing and programming.

These seven categories help the teachers to choose appropriate computer-based learning materials related to educational goals in a particular learning situation. In other words, if teachers choose inappropriate materials, it will not be an efficient learning experience for their students.

Computers offer great help to students in a learning situation. They can provide them with appropriate syllables, vocabulary and submit questions with appropriate answers quickly and tirelessly while allowing students to pace themselves. (Werdelin,2009)

It must be mentioned here that in tutorial courses, the computer introduces and explains concepts and skills in which it gives practice not only acquiring new concepts and skills, tutorial programs help to confirm user's knowledge about similar concepts and skills. Also tutorial programs present subjects chosen in detail and ask challenging questions.

Students may use the computer as a source of information in order to help them interact. this view of learning encourages a gradual development of student autonomy

3-Computer and e-learning

Over the last twenty years, there has been a change of interest towards usage of computer in e-learning.

Computer technology which is used in e - Learning aims to deliver abroad array of solutions and develop knowledge and performance of the learner, it must be mentioned here that the ultimate goal of utilization of computer in e – learning process is to increase the effectiveness of e- learning, because it would be an easy job, to use computer to update, storage and/or share the information.

It is true that computer can teach anything, anywhere, but it should not be forgotten that, such a goal cannot be programmed according to objectives planned for it. It is the teachers and learners responsibility to select and prepare the contents for teaching and learning process.

Inquiry is another use of computer in learning process. Students can inquire information not only from the computer, but also from outside of the school system via internet or World Wide Web (w.w.w).(Oliver,2009)

Testing is also an ideal use of computer, preparing tests in many forms and scoring. Computer can score enormous amounts of tests. Also it calculates the individual's points and presents the results of tests.

Learning is an activity that controls of what is taught, while teaching is a practical activity or action, to be international and conscious to assist learning.

The computer gives teachers the confidence in the classroom as they are not looked down by their students as obsolete and old fashion. They prove to the contemporary generation that they too know modern technology and are not left behind time.

4-Usage of computer in distanc learning

Distance learning aims to enhance the learners cognitive schema, and help them to construct their attitudes towards discussing and cooperating with peers, therefore it provides a broader and more flexible learning than a traditional course.

Besides, it enables the learner to choose a variety of exercise and questions and also it facilities the learner and the teacher identify problems that often arise during the teaching and learning process

Computer has a notable role in distance learning which aims to acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance.

Distance learning has over hundred years history.in 1840 sir Isaac pitman, Cambridge University, was teaching his short hand system by mail, in Higher Education, Oxford University began offering off Campus lectures at about the same time. Currently distance learning is widely used in Japan not only in higher education but also in preschool children's English programs to lifelong learning programs.(Adam,2009)

In addition to what was mentioned at the previous sections in concern with the role of computer in the teaching and learning process, students can inquire information from a desktop computer or a database a way from where he or she is at via internet or World Wide Web (WWW). This process is considered a notable application of web technologies to the task of educating a fellow human being and/or training him, in 2001, attempts were undertaken to make computer networks more credible. Government agencies linked with university labs to exchange information when working with others or using two or more computers. (Adam,2009)

5-Use of connecting computers

Connecting computers make exchanging or sharing information easy.it can be done using coaxial cables and the newly created system of computers is called Local Area Networks (LAN). It is common for schools or companies to create LAN. The internet has been called the ultimate network because it is a network of networks. Hence internet becomes a main tool not only for exchanging or sharing information about, but also for updating it. It is worthwhile to mention here that World Wide Web (WWW) is an internet service that links sites around the world through hypertext documents. The computers of LAN to use the common text to be interconnected for users, and hypertext document are used for this purpose.(Britt 2010)

Thus, teaching and learning through computer technologies refers to application of such technologies in order to deliver a broad array of solutions that enhance knowledge and performance.

Experienced instructors and students alike emphasize to have a clearly structured and well-planned courses when using connecting computers in the teaching and learning process in order to increase efficiency of the process and to left learners understand and learn well.

It is of interest to state here that efficiency of using computer in teaching and learning process depends thoroughly on capacity of the instructor in planning the courses. Such courses are in particular need a clear organizational structure keep in mind that each student is experiencing the course on his or her on – without the opportunity to turn immediately to a neighbor if confused or unclear about something in the course. In addition, students in distance learning courses do not have the imposed structure of attending classes at a constant time and place. For all these reasons it is important to think carefully how to use computers in teaching and learning process and also how appropriately organize the courses in order to encourage the learners participation and facilitate the learning process.

6-Conclusion

We have mentioned throughout the paper the usage of computer in teaching and learning process.

Broadly speaking computer usage can stimulate effective learning and improve the performance of subjects. Importance of computers as teaching aids need not be overstated. The teacher's role is no longer as a presenter of information but has become a facilitator for learning and teaching process. The use of computers is not intended to replace the role

of the teacher, but actually intended to create an atmosphere of teaching and learning more fun and interesting. Computer is used to facilitate teaching techniques and help teachers in teaching and learning objectives effectively if used in a systematic and continuous, way.

Computer is also a great way for teachers to organize, manage and deliver course materials. From the didactic point, the usage of computer is to create attractive activities which make the learning process friendlier for students.as a consequence these activities increase the interest of students in the learning progress. Besides, computer can provide students with a great amount of resources that usually they cannot show in the classroom due to the lack of time. The computer also makes easier the interaction with the students in the real time and also receiving their opinions and suggestion as a learning community, so they can help each other via forums and chats.

Application of educational technology especially the computer in teaching and learning process helps teachers communicate information of interest to learner as well . the technology aided learning media can provide an experience that is different from conventional learning, because the students participate actively in their learning activities.

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