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# Utilising IT and Computer sciences in Higher Education

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**Abstract:**

It is highly required from the academic institutions to try to put future visions such as IT applications in universities ; the one that is able to respond to the international changes and which sets out from what is given so that people in charge of the educational process can possess the following skills;

Communication skills in reading, writing, listening and conversation, developed skills that contribute to thoughtfulness, criticism and academic evaluation

, an ability to deal with the technical and scientific revolution either in adaptation or practicing, and strengthening the links between the higher education institution and the society by developing special programs like community service programs and playing a role in the civil society movement.

**Keywords:** Academic institution, IT applications, educational process.

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## 1. Introduction

Currently, we are living in the IT age whereby knowledge is bursting out and information is flowing. Academics, educated people, curious- minded and many others are now standing in row to get the most recent up-to-dates each in their own field of specialization. It seems that the whole world has made up its mind to reconsider the concepts of education, teaching and learning in order to be able to keep up with the global changes. The emergence of the world wide web which is also known as the internet, plus the rapid ways and links to transform information from one place to another and the implementation of all these in all the different fields of life can show the importance of information as a merchandise which we can sell and buy and transfer from one place to another to get the best out of them.

This study emphasizes the significance of reestablishing adaptations in both the patterns and methodologies of teaching which form the basics in our higher education policies at universities in the third world in general and in the Arab World in particular; the thing which requires (Khamees,2003):

- Adapting a new university teaching philosophy which has the capacity to catch up with the ongoing accelerating changes.
- Working on new and modern teaching methodology in the abundance of advanced technological equipment the thing which is known nowadays as Education Technology).
- Building up bridges; i.e. following policies which can set up strong loops between the educational process along with its intros, processes and outcomes on the one hand and the economical and sociopolitical atmosphere on the other hand.

This technological advance has led new ways and methodologies of teaching to emerge rather than the direct traditional kind of teaching. These new approaches depend on applying

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all the technological advances including computer sciences, satellites, cable tube, the internet, virtual libraries, ….etc, in order to make learning available 24/7 for whoever and whenever and through a variety of ways supported by multimedia technology with all its components. This will enable the academic structure to be presented in a combination of a written and vocal language, chosen by the users themselves for the particular field, and state and animated visuals, in addition to different auditory and visual backgrounds which will all be projected to the learner through the computer. This will definitely make learning both more exciting and fun and able to be achieved with the best efficiency and less effort in the least of time; the thing which will in turn make a better learning capacity.

The efforts which all the countries are paying to activate a learning strategy involving the modern technologies in order to catch up with the advanced states are now on the top of the priorities for any government (Mohamed Mahmud Al-Heilah 2004)

The technology of education could be defined as the organized epistemological structure of research and theories and the practices related to the educational processes and sources, and how to apply them in the realm of human learning, plus a highly efficient implementation of the human or inhuman elements to analyze the system and the process beside studying their problems. It also includes designing processes and finding the sources to the practical solutions of problems, developing them (assessing and evaluation) and how to use, manage and evaluate them to improve the quality of learning and its efficiency to achieve knowledge.

It is worth mentioning here that the use of IT depends on using the e-tools between the teachers and the students and between teachers-students and the educational institution, i.e. exchanging information among them through a highly advanced technology.

It is also necessary to state that the use of modern communication tools of computers and their links and multimedia tools of audio, vision, graphics, research engines, e-libraries and

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the internet portals help both the teacher and the student to enlarge the network of the teaching and learning process to overpass the limits of the traditional classroom. This can make it easier for the both sides to reach the desired information in the shortest of time and with the least of efforts to reach the largest benefit possible.

This new field of education can create new chances for the both sides of the educational process for a better connection which could represent more flexibility in the teaching line making it more effective and faster as in the adaptation with the needs of this era. This study aims to investigate the level of Utilising IT and Computer sciences in Higher Education.

## 2. E-Libraries characteristics

Virtual libraries, which are based on the objective and materialistic description of the E-documents can help the teacher and the student get organized and chaptered Information.

E-Libraries enjoy the flowing characteristics as they are (Khamees, 2003):

- Indicative:

This can be noticed in the easiness in extracting the general elements off a document like the author, the publisher, etc, in order to refer to them later.

- Analytical:

Which can be depicted through recognizing the essence of a document by its title, contents list, and subheadings, summary or through a mere scanning of the document by means of intensifying its essence in the form of a briefing or a list of keywords?

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- Referential:

This is basically done when using a different document that can refer to the needed one. These kinds of documents hold the referential characteristics of the paper under study, and they generally have the form of bibliographical lists or a references list.

- Teaching by Electronic Technology:

This technology aims at delivering the information to the students with the least effort from both sides in a more exciting and beneficial way. ((Massoun Jibrini 2010)). The significance of these technologies is that they offer:

1- *Easy of Access:* which is the ability to get the needed information at any given time and in any given place through the simple strategies of research of any educational data base available.

2- *Adaptability:* This is the ability to adaptation in order to fulfill the requirements of students and teachers at the same time.

3- *Reusability:* which is the possibility to recompose new educational volumes relying on the contents of previously prepared ones and without the need of any extra effort.

4- *Inter- function ability:* which can be identified as the capability of using the educational content through the various podiums of the e-learning systems.

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5- *Continuation:* this indicates that even within any kind of changing or transformation of the technology dedicated to the construction and evaluation of the scientific or the educational content, it would still be as useable and functional as it used to be.

6- *Productivity:* when there is a chance and an ability to minimize both the chronological and financial expenses, we can then call it a good productivity.

Professor Kaseem Mohamed Al-Shnaq has identified some of the aims that could be attained through applying the e- education techniques; some of which are:

1- *Reaching the point where any lack in the academic and training staff could be substituted through virtual classes.*

2- *E-learning is a major element in publicizing knowledge through any give society plus presenting a wider concept of the ongoing education as a theme.*

3- *E-learning is perhaps the best tool to prepare a whole generation of teachers, professors, academics and students which will be capable of handling the techniques and the skills needed in the current age along with all the unprecedented developments that our world is witnessing nowadays.*

4- *This methodology will undoubtedly provide an enhanced interactive and multi-resourced environment which will be of a great service to the entire educational process.*

5- *Building up the three-phased relation of parents-schools and schools-outer world, and in this particular area we are talking about all pre-university schools of all kinds and degrees.*

6- *Exchanging the educational expertise and points of view in addition to purposeful discussions based on what the modern technology can provide of linking cannels through the*

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*magical www will all lead to the support of the interaction process between teachers, students and assistants.*

## 3.  Additional Benefits for Teaching Using IT:

The additional benefits of utilising IT can be summarised as follow (Al-Mousa, 2002):

1- As students have got the capability of an instant reach to information needless to be at any particular time and place, time and place can both be trespassed in the educational process.

2- A true chance could be available for both the students and the teachers to create a real interaction between them by using the IT tools.

3-  A sense of equality could be raised among students through the application of IT techniques. This is because students using these modern means of communication can speak their minds freely and at any time; unlike the traditional classrooms which prohibit such privileges either due to bad arrangement of the hall itself, the low voice of the students or shyness or many other reasons.

4- Easy of access to the teacher or the trainer even out of the official work-time.

5- Minimizing the managing burdens of the teachers.

6- Using more accurate, multiple various methodologies in the assessment procedures.

7- The individual uniqueness could be highly appreciated and this will at some point enable them to learn through the methods which fit them, their capacities and their personal speed of learning.

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4. Future Higher Education: Practical Recommendations to Develop Education:

a) **Performance Evaluation:**

There is more than one definition that was presented to define performance evaluation, and most studies shows that evaluation as a process doesn't only aim at judging eventually on what does this employee deserve of grades upon which he might be promoted or to give him a bonus or even to punish him for bad performance at work, but rather aiming at further meanings such as:

1. Figuring out the cons and pros in the performance to strengthen the pros and minimize the cons.
2. Looking into ways of improving the performance in the future.
3. Listening to the others' view points and knowing their directions in the practiced job.
4. Creating an atmosphere of transparency and candor to present new suggestions.

Educational evaluation is one of the most important educational elements; for there could never be any effective educational process related to the teacher and the student inside or outside the class unless it objects its programs and objectives to evaluation.

Moreover, evaluation is a continuous process that is based on standards that have been collectively developed and it is meant to measure the performance of the students and the effectiveness of the teachers plus the efficiency of the program. In the light of what was mentioned, the evaluation of the teachers' board members is done in all the important educational fields.

As a matter of fact, the tasks of the higher education evaluation are associated with a number of basic principles; the most important of which are:

▪ The principle of evaluating the university from within its philosophical system and goals agenda. This presumes taking for granted the philosophy of the university as untouchable even by the evaluation itself.

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- The principle of associating evaluation with development project of the university institution because any evaluation of the current situation would be useless unless it contributes to the improving realistic steps towards the university.

  So, the evaluation process, as we have mentioned earlier, must ensure continuity and quality; and this includes several levels, the most important of which are:

1. The Eventual Evaluation: which is an evaluating activity done at the end of the school semesters or at the end of the school year (usually used for a limited period of time).

2. The Constructional Evaluation: which happens during teaching and learning and goes through the educational process to improve and develop it.

3. The Self-Evaluation: it is done reflexively; where the teacher evaluates himself academically through putting measurements of how committed he was to the scientific scale.

4. Methodology Evaluation: here it is important to take into account the feedback that the students show every now and then.

   Institutions of higher education and universities had better take into account the following elements:

- Heads of Departments.
- Scientific and consulting Societies.
- Deans
- Testing the content of decisions and the quality of used choices (specialized in educational curriculums).
- The performance of the students in both the partial and comprehensive exams.
- Attempts and initiatives that the members of the teaching board present to try to improve the quality of the performance.
- Serving the society and building up communication links with the outside environment.
- The educational performance through teaching.

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To make sure that all these will work and that the evaluation of the performance does its best, precise applications should be designed and distributed to the figures under study in order to fill them out and to study them.

**b) Employing technology in research (the internet):**

There is no doubt the tools upon which education was depending have become so traditional when compared to the modern tools and methodologies. The following table shows these differences:

| Learning stuff in the past | Promising automotive learning tools |
|---|---|
| Curriculum books and diaries. | Basic resources and materials are done b the students |
| Students write a direct straight text | |
| Samples and materials: | E-books referred to by multimedia. |
| Direct notes | VR characters and presentation through simulation. |
| Learning dreams about reality | Remote tools for observation and notes. |
| Teachers giving lectures | VR worlds reacting to experience. |
| Students give teachers only what they lea | So many experiences voices in the class |
| | Students give lessons to the others. |

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IT technology and especially the Internet could be employed in researches making them interactive due to what they provide of open learning fields. This is done when some experienced persons organize training lessons dedicated to both the teacher and the student where their contents are surfed on a site that it is free to access without any restrictions to a certain geographical zone or a certain nationality. An example of this is the 21$^{st}$ lessons series organized by the university of (Carolina) where every lesson is not more than 3 to 5 pages and which was entitled (teaching officers to use the internet)*. There are now more than 5000 agent around the world and the increase issue to the growing appetite for such lessons. There are a number of reasons for this; the most important of which are:

- The wide range of advertisement of these courses as they include a lot of countries because the advertisement is spread through the Net.

- The fact that there are no time constraints about the place for the actual training.

- The fact that these exercises contain a lot of practical trainings done by the trainee in the time those suites him the best and in the period of time that he finds suitable without any contradictions between the various levels of comprehending.

- All these training courses, of whatever kind, are accompanied with electronic sites by which all the questions, inquiries or even problems that occur during the training could be sent.
  In addition to this, many countries like The Netherlands, France and Southeast Asia countries practice this open training for teachers and employees as they enable the researcher to benefit from the following services:

1. Access to the intellectual productions through the Net like the sites of the scientific magazines which use the free service system or the remote registration.

2. Applying digital technology in the field of training, simulation and creativity.

3. Contributing in running the mass discussion and providing the ability to participate in the local and international conferences either by actual attendance or online.

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4. Providing information on different sets of devices like digital disks that contain training and educational lessons and lectures.

   The modern IT technology enables the researcher to develop his skills by open online learning, independent freestyle learning, home study style, learning by correspondence, self learning style and virtual university system.

   In the United States for example, some American universities like (Indiana) are organizing programs that are specially designed to teach managers and make the familiar with the recent updates and about the dealing systems of the foreign markets along with teaching them foreign languages.

   The researcher sees that searching through the internet is in need of some coordination that requires certain procedures like:

- Participating in a number of specialized and efficient journals to provide the researcher with the chance to get acquainted with similar fields of knowledge in different countries.

- Taking part in international informatics systems like ESCO which provides scientific, academic and consulting services to the academic institutions.

- Directing the researchers and the students to specialized sites that are accountable in certain competitions for benefit and in order to minimize the time and effort lost due to random search on the Internet.

- Directing the efforts of researchers and those who responsible for evaluation, instructing and training to develop their linguistic skills in the field of living languages and the different methodologies followed in the various kinds of knowledge.

**Conclusion:**

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It can be fairly concluded that using the modern technology in teaching has the ability of making both the students and the teachers interact on a higher level. This utilizing of the modern technology also has the potentials of making all those who are relying on the inventions of the digital revolution able to keep up with all the changes of this speeding modern age where information and data has acquired the speed of light. Much more effort is, therefore required from the both sides of the educational process so that they always step side by side with the unstoppable vehicle of this age.

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