A Proposed Smart System Model to Aid Evolution to E-Learning Environment in Public Education Institutes

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Summary

Field of computer in education is vast and competitive especially between private and public education institutes. An investigation conducted evaluate awareness of lecturers on modern technology in learning process. The diversity of issues related to implementing computer-aided education drive the need to organize such entities into model. A proposed model set to aid public institutes to overcome their difficulties in dealing with contemporary technology in effort to transfer to electronic learning (e-learning) environment.

Key words:

Awareness, Computer-aided Education, Entities, Electronic Learning, Model

1. Introduction

One of the most noticed intellectual privilege in this fast track era is the ever-changing advances in many facet and especially computer industries of hardware and software. The spread of new computer technologies and its applications seems to mark the next decade moveable peripherals. The human civilization effected heavily from the repaid changes and advanced connected directly with serge of computer practice in the field of education. This in turn influence the services produce to enhance teaching methods.

To attain the most advanced computers hardware and different fancy applications in education field is the right step toward achieving teaching excellence, however there is an important part in this formula is to find the skilled teacher how is capable to operate in this challenging environment. Alkhezi, and Alqahtani [1] in order for a teacher to preform and would be able to deliver the required teaching tasks depending on the latest computer technologies, this experience gained from early years in education college and long training programs during employment years. These programs designed to focus on enhancing computers practice based on the use of internet resources, at the same time increasing computers' teaching capabilities.

Many international authorities concerned with the advancement of teaching skills for example "National Council of Accreditation for Teacher Education"(NCATE)

and " International Society for Technology in Education"(ISTE) set many criteria required in education technology for teachers as an indicators of teaching performance and the best education practice based on unconventional learning techniques. From these criteria, understanding the nature of new technologies, planning and designing of learning environments, evaluating and reforming, adhering to codes of ethics, legalities, and humanitarian. Bird and Rosaen [2]

For that teachers need today to learn information and communication technologies, in such away to be employed as an effected learning tools, so that to serve the needs of students which achieve the goals of college curriculums. The introduction of new computer technologies in education became a continuous challenge for teachers to keep up with the fast changing technologies. Based on that analogy the education institutes must prepare highly skilled teachers capable of delivering information based on the use of modern technologies in an efficient way throughout the teaching process. There are a certain working criteria should be possessed by teachers as follows:

. Continually following up the latest advanced computer technologies.

. Capability of understanding modern topics about the forthcoming technologies.

. Capability of understanding the extensive knowledge of new computer equipment.

. The inner sense that the effort to learn new technologies assist students to appreciate studying sciences.

2. Study Investigation

For the many skills needed in the future teachers or trainers an extensive study conducted to probe the actual state for the use of computers in the lecturing process in Kuwait institutes depending on data collected for this purpose. Furthermore to achieve formulating the enquires required for this research a case study where assigned for gathering secondary data which reflects the use of computers as learning technique. Also a survey of random samples of lecturers from different fields and institutes

students where conducted to support this investigation.

Preliminary points raised from the analysis of actual use of computers as a tool in institutes showed the following:

* Many technical difficulties facing the use of up to-date technologies.

* Lack of vision for the role computers in the development of education.

* Minimal use of computers in basic sciences learning processes.

* In-general education have many complications as follows:

    - Weak and out-date curriculums.

    - Drop out students.

    - Unskilled lectures.

    - Privet lessons phenomena.

    - Feeble institute management.

    - Concentrating on only learning computer not as a tool of teaching.

3. Background

3.1 Objectives of use computers in education

There are many objectives for use of computers in education as follows:

3.1.1 Education with aid of computers

In this particular type of education, the learning materials are presented via a computer for students, in such a manner that affect student participation in classroom. Student response reflect what they learn through computer presentation of the intended subject. There are many tools to serve this specific kind of education e-books, training applications, and different multimedia environments. Lecturers must insist that the main aim is to benefit from new technology to serve the needs of learning not the opposite. Also institutes pre-planning and clear vision for using this method of education meet the objectives of subjects and experienced lecturers to achieve this task.

To succeed in implementing computer applications in education, Alqurashi [3]

. Clear learning goals.

Crisp computer learning objectives needed to guide the teaching process.

. Presenting in Divisions

Breaking out the learning material into many parts to ease conveying the intended message this similar to analysis process.

. Learning Competency

Keep in mind that understanding differ between students in this manner the classroom has three divisions of students excellent, satisfactory, and weak. This should produce three programs to accommodate the learning process for each group. Excellent students learn faster

with less time in comparison to the weak mates. Therefore, the design of levels in subject material required to be equivalent for these groups.

. Steady and Programed Subject's Steps

Gradual segments are introduce to students throughout the subject spam. This guarantees that whole students at the same level of learning the subject.

3.1.2 Computer Education Management

The management plays an important role in selecting different and diversify assessment programs. These programs used to rank the result of testing level in many subjects with aid of computers for students in order to help the lecturers identifying the groups of students (excellent, satisfactory, and poor).

Academic advisory is also a management method to keep track of student progress from the actual institutes registers records. In this way, following up report for any student would not be a difficult job.

Scientific research schemes are another approach for teaching student how to seek information in many situations via computer. The benefit gained from this method/methods is to attach student enquires directly with computers in such away broaden their knowledge scenically and technically at the same time.

Alnajar [4] stated that there are for levels of using computers by students in education as follows:

- Evaluating the level of knowledge.
- Focusing on learning weaknesses.
- Describing learning activities to overcome student weaknesses.
- Continually watching student-learning progress.

In addition, there are some routine tasks done through computers for example, generating student tests, correcting exam papers, evaluating grades, and producing many academic reports. Classroom management is another avenue for the use of computers it lets the lecturer organize student attendance; keep students records, managing weekly academic agenda throughout the terms yearly calendar. This is for saving time and effort for the whole learning process in an institute.

3.1.3 Computers as trend for Education

The use of computer as a method of learning considered very effective in education. Many studies and researches conducted showed the computer usage in education field supersedes the conventional old procedure in such a manner saving time and effort in presenting curriculum materials. Nadaaf [5] computer as learning technique help students overcome their phobia of new computer technologies, which reflected on developing their scientific enquiry needs. Some benefits of the use of

computer in education as follows:

- Swift access to huge information database leads to saving effort and time with the capability of presenting these materials in many forms.
- Computer interactive ability through education applications real time feed-in to enhance students learning capabilities.
- Computer as self-evaluating tool analyzed students test results categories their mistakes for future performance improvements.
- Curriculum sectoring based on timeframes for different level of students.
- Creating many education environments depending on the type of subject needed for better explanation for the learning process.

There are unlimited computer functions and capabilities, which enable the lecturers and students to work flexibly in their separate fields to manage the learning methods and evaluating the level of consumed materials throughout many education techniques and well-known goals. The computer interactive specialty between students and electronic learning tools displays utmost advantage of computer use in education rather than the old conventional ways.

3.2 Computer Educational Approaches

3.2.1 Computer Applications in Education

There are many different computer applications in education field. These computer applications can be classify according to its aims and natures as follows:

- Learning materials
- Learning techniques

Faraaj [6] explained computer educational applications in short as:

- Learning materials
  Delivering education materials with the aid of computer. The leaning curriculum transformed into electronic data to teach different levels from elementary to college students. The flexibility of finding information on many subjects and preparing learning lessons makes a computer optimum tool to develop student skills.

- Learning techniques
  Lecturers in a collage or teachers in school during the last decade were using a computer as leaning method. There many purposes computer can do in explaining subjects, solving problems, grading tests, and creating multi-media environments.

Some applications have the ability to interface with the learner so it evaluates student-learning performance. Contemporary technical and scientific advances depended mainly on computer applications. As a result, the field of education affected heavily by this leap of information technology. Therefore, different education systems insisted on importance of using computer-based methods in managing the affairs of institution or as learning tool(s).

3.2.2 Computer-Based Educational Experiments

Many states have indulge in this path to develop their education system and to catch up with the fast track learning methods using computer-based educational techniques as follows:
First: *The American Experiment*
In 1996, the American government started a development plan nationwide to benefit from the modern technology in education. The goals of this plan concerned to achieve the following:

- Training lectures and teachers to assist and to guide students in using computers.
- Supplying classes with computers that have multimedia capabilities.
- Connecting all classes with the internet.
- Availability of well-known education applications and learning sources.

Second: *The British Experiment*
The education reform law came in 1994 with the aim to construct a complete plan to use computer in education. This plan has three phases, developing and producing electronic learning applications, supplying education institutes with the needed computers, and encouraging students toward computer-based learning.

Third: *The Japanize Experiment*
Television network project started in 1994 with the aim to broadcast learning materials via video tapes. These tapes developed specially to give the chance to reach out many education institutes throughout the country launching the distant learning concept to the national education system. Furthermore, in 1995 they started the 100 schools project. The aim of this project is to equip the chosen schools with computers connected to the internet as an experiment to enhance education activities via using the available leaning applications through the net.

Web [7] classified the role of using computer in education into three main parts as follows:
1. As a learning materials to develop some learner skills in solving subject problems with aid of computer

applications, such as word processor for explaining results and spread sheets mathematical analysis.

2. As an assistant to prepare educational material and at the same time a presentation tool for teachers and lecturers in classrooms.

3. As a tool for school management affairs, accountant book keeping, employee attendance log, students records, and employee training programs records.

3.3 Reasons for Using Computer in Education

Computers have unlimited capabilities especially in education field. These capabilities ease the management of many aspects regarding the learning process as follows:

- Handling the schooling of many student levels regarding their learning capabilities.
- Creating ultimate research and discovery environment for eager students.
- Processing different multimedia presentations for the benefit of learners.
- Enhancing log and reasoning thinking for students.
- Swift solutions for many scientific complex problems.
- Huge designing capability especially for engineering student.

Khamees [8] claimed that in order to upgrade the level of education for students, this should be depending on the way which computers were used to acknowledge learning materials by teachers as a result that would be summarized in the following:

- Increasing the level of training for lecturers in preparing class work.
- Providing the necessary information on student academic achievement.
- Improving skills for schooling management.
- Producing many effective curriculums.
- Attaching the lecturers with modern technologies.

However, Abdulmajeed [9] focused on the recipient for the reasons to use computer- aided education for the following:

- Exchanging ideas and experiences between peers.
- Supporting self-learning.
- Improving searching for new knowledge.
- Enhancing teaching and learning procedures.
- Sharing knowledge about modern computer techniques.

3.4 Benefits of Using Computer in Education

Computer aided education offers instant solution to many learning problems and considered as a strategic option in-the-long-run to implement in the education field.

According to Alolamaat [10], there are many benefits of computer usage for schooling affairs as follows:

- Simulating many real life cases in order to find some suitable solutions.
- Improving students learning skills with the aid of educational applications.
- Performing many learning tasks at the same time.
- Offering lots of learning game to increase logic thinking.
- Helping students with special needs to overcome learning barriers.
- Creating different data banks to store a variety of information.
- Evaluating many student education matters.
- Saving time and effort in accessing learning materials.
- Advising students for the best path in accomplishing their degrees.
- Entertaining students for longer learning periods.
- Transmitting many visual information over long distance station.
- Interfacing ability for learning purposes.
- Measuring students learning performance.

3.5 Disadvantages of using computer in education

Although the use of computers in education have many advantages, nevertheless they have other drawbacks, which effect the right practice. Fatah Allah [11] mentioned some of these shortcomings as follows:

* Initial high cost computer aided education.
* Shortage in Arabic computer application.
* Lecturer computer illiteracy, which affect teaching performance in this environment.
* Lack human resources in this field
* Computer phobia by lecturers.

To overcome these disadvantages here are some proposed solutions:

- Building local computer factory.
- Using other alternatives to invest in computer aided education projects for example the private sector rather than governmental agencies.
- Benefiting from experienced and skilled computer lecturers and teachers in programming and fixing.
- Encouraging lecturers and teachers to enroll in specific computer training programs.
- Giving all kind of support for lecturers and teachers using computer in education.

3.6 Preceding Studies

Alhassan [12] started his study to identify the actual use of computer labs in Saudi education institutes in the capital city Alreiyad. The sample selected five deans/Provence, 162 head lecturers and lecturers to formulate the whole body for this study. The result of this study showed that lecturers have little use of computer lab in education because of lack of training programs on advanced technology supported by institute management.

However, a study by Rasras [13] aimed at focusing on the real usage of technical computer applications in teaching different science subjects in Kingdom of Jorden. The main sample comprises of 56 science lecturers. The study findings showed that although there was a moderate usage of some computer applications for science subjects teaching but the main applications were used for preparing school exams, nevertheless there were some drawbacks appeared, for example not enough of number of labs, and lack of ready-made science applications.

In a study by Alhelsah [14] to investigate the effect of job requirement on the quality of computer education for science subjects. The study focused on the experience side of science lecturer based on gender, college degree, and qualifications. The outcomes of this study showed that male lecturers were competing either to gain the computer-license certificate, for the sake of employment or to get a higher position in the institute. The computer-license certificate has little effect on the level of experience science teaching via computer because the main reason for that certificate not to improve learning but for a monetary goal.

Khazaleh and Jawarneh [15] study conducted on some Jordanian education institutes with the aim to discover some obstacles for the real usage of information technology in these schools through careful analysis of lecturer thoughts and predictions. This study sample targeted 61 male and female in the field of information technology teaching in different level in these schools. The result of this study divided into six categories:

- Lack of modern computers and the necessary environment for it in schools.
- Shortage of training programs for lecturers in information technology.
- Weakness of students in computer skills.
- Lecturers have not enough time either to plan or prepare for maximum usage of information technology.
- Difficulty of maintaining computers and the necessary equipment.
- Scarcity of quality learning applications via computers.

Alolamaat [10] also this study concentrated on identifying the level of awareness of modern educational technologies among science lectures and teachers in Almafrok province. The level of awareness measured based on variability degree of experience and subject specialty. The study's sample consist of 80 male and female lecturers and teachers. A survey devised as an awareness measuring tool consist of 25 segments with 3 main parts, firstly concept of modern technology, secondly importance of modern techniques, and thirdly usage of new technologies in education.

The study findings showed that in general over 90 percent (91.25%) of the sample are aware of the concept of modern technology in education and over 85 percent (85.75%) awareness of this concept especially in science lecturers and teachers sector. However, the results of the importance and the usage of modern technologies in education factors revealed modest outcomes. In-the-mean-while subject specialty did not display any important effect what so ever in this analysis, but experience factor came in favored of the ones with shorter periods at work with less than 5 years.

A study conducted by Alzahrani [16] in an attempt to shed the light on the usage of latest technological information systems at science labs in Makka educational institutes. A survey aimed at a sample of 22 female head teachers and 125 female teachers to analyze their point of view regarding the level of usage of modern technologies and the availability of such system in science labs. Unfortunately, the results showed humble usage of new information systems and shortage of such technology in science labs due to variety of reasons for example lack of usage experience, shortage of information systems budge, and deficiency in training programs. In addition to scarcity of qualified and skilled teachers because of the nature of science subject which differ totally in dealing with information system environment.

In study conducted by Ahersh, Mufleh and Aldahoom [17] to reveal causes of not implementing electronic learning (e-learning) system in some local educational institutes. A survey setup for this purpose to cover four areas, infrastructures, lecturers, students and institutes management. The population selected for that survey 47 male and 58 female teachers. The results showed that lectures unwillingness to use computer in education scored first reason, next lack of interest in institutes management, third missing infrastructures and last students' difficulties in usage of computer. As recommendations from this study are to encourage lectures and students enrollment in different computer training programs offered by educational institutes, improve institutes e-learning infrastructures and provide the latest hardware and software technologies in educational field.

Alshanaakh [18] directed a study to identify the actual usage of electronic multimedia in the United Arab

Emirates education system from the point of view of lecturers and teachers. The sample of study contained 154 basic sciences lecturers and teachers. A survey conducted to evaluate the most effective modern technology in education field in the following methods:

- The internet
- Computers
- E-mail
- Projectors
- Mobiles
- Video Conferences

As a result, computers ranked first method used in basic science education second came the internet, projectors derived into third place. However, the remaining three methods did not have real impact as a learning tool due to the poor results achieved via the survey.

In a study directed by Ababnah, and Alqaderi [19] focused on the level of computer capabilities competency founded in science lecturers which ware reflected on their usage of computer as educational tool. The sample composed of 175 male and female science lecturers. In addition, the survey has four divisions, general computer knowledge, use of educational computer applications, usage of the internet as learning tool and computer laboratory as an approach in education field. The results of this survey showed a huge gap between knowing all about computers and using it as learning tool. Lack of educational computer applications came very weak in comparison to general computer knowledge. As conclusion to these results lectures computer capabilities did not achieve the level of computer usage needed to enhance learning process for students.

Alolamaat and Alqateesh [20] study was targeted to discover the obstacles which faces the usage of computer in science education sector in the northern and eastern provinces in the Kingdom of Jordan in the essence of changes in computer practice linked to new training approaches ICDEL and INTEL. The study sample consisted of 36 male and female lecturers randomly selected from different areas of the provinces. An appraisal used to cover three main parts of deficiency concerning science education via computer. Firstly, related to lectures usage. Secondly, students computer learning capability. Thirdly, availability of modern computer lab.

The results of the survey showed that the most obstacle faced the lecturers is the availability of modern computer lab in science education. However, lecturers' lack of computer training especially ICDL training course considered as second hurdle in using a computer in science teaching. Furthermore, it was notice that female lecturers' computer capability surpassed male colleagues.

Shaquor [21] attempted a study to uncover the present usage of technological updates in the field of computer-aided learning at several education institutes in Palestine's South Bank and Gaza strip. A body of the study contains 790 lecturers. They participate in multifaceted survey addressed the effect of several technological changes in education. The outcomes of the survey gave the top deficiency in usage of computer-aided learning is lack of contemporary computer lab. Shortage of computer training affected the capability of lectures toward the usage of computer-aided education. Lastly came the absence of institute vision for computer-aided learning for these education institutes

4. Research

4.1 Topic

There is a new trend in education, which is the use of computer to aid teaching many subjects. This modern schooling method adopted to serve educational environment in developing and enhancing learning process and procedure at the same time. An important objective is to investigate the actual usage of computer and computer applications as an educational technique(s). Furthermore, this study considered an aim to look into the significance of blended computer-aided education in terms of enhancing learning of students. In an attempt to classify the research issue into sub-areas to ease the process of probing for advantages and disadvantages. Trio enquiries to focus this investigation as follows:

a. What is the actual usage of computer in the State of Kuwait educational institutes?
b. What are the type of computer programs and educational applications available for students?
c. What are the difficulties confronting the lectures and the teachers in using a computer in learning process at the State of Kuwait educational institutes?

4.2 Objectives

a. Describe the status of usage of computer for educational purpose.
b. Define the actual educational computer programs and applications available for students.
c. Outline computer difficulties facing lecturers and teachers hindering their schooling effort to use computer in the teaching process.
d. Offer a computer-aided learning framework for educational institutes to enhance the quality of education process.

4.3 Assumptions

The literature review for the past studies regarding the matter of this research emphasize some hypothesizes to stem this study as follows:

- No differences between lectures in the private and the public educational institutes for the actual usage of computer as learning method.
- No differences between students in the private and the public educational institutes regarding the availability of educational computer applications as an erudition tool.
- No differences between difficulties facing lectures in the private and the public educational institutes in terms of usage of computer in education.

4.4 Methodology

The research methodology consist of many factors as follows:

A. Collecting secondary data concerning the concept of computer in education, usage of computer as learning technique, and basic education in the State of Kuwait to achieve research objectives.

The secondary data collected from many sources:

- The past studies that tackled the same approach of this research, the results attained and future recommendations which benefit this forthcoming study.
- Reports produced by Ministry of Education in the State of Kuwait.

B. Field Appraisal

The target of this part of research is collecting and analyzing initial data in preparation to segment the survey intended for the field study. The grouped data arranged in list to serve achieving the objective of this research.

C. Group of Survey

The body targeted for this investigation represented by the total number of basic education lecturers in the State of Kuwait. The entire population of basic education stage for the year 2015/2016 estimated for 4145 lectures according to the ministry of education records and distributed over six educational provinces in the following table:

Table 1: Distribution of total population of lecturers in the six provinces

No	Name of educational province	Total number of lectures
1	Capital	922
2	Hawaly	800
3	Alahmady	745
4	Alfarwania	611
5	Mubark alkabeer	580
6	Aljahra	487
-	Total	4145

D. Research Sample

From the total population, the research sample taken

proportional to the relative importance of distribution for each province from which the sample chosen 474 lecturers.

Table 2: Sample of population relative to importance of distribution for each province

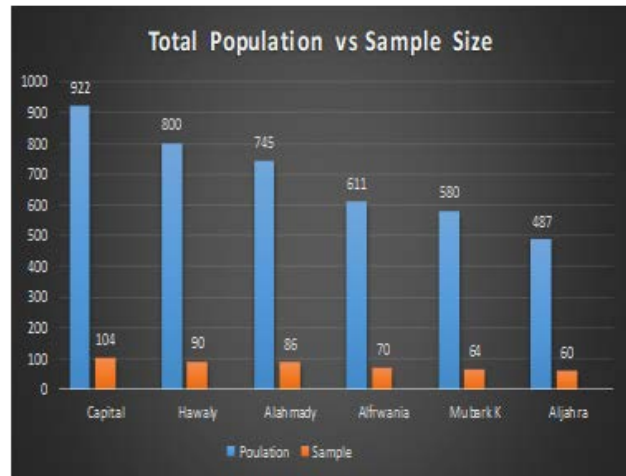| Province	Population	Relative Import. %	Sample
Capital	922	22	104
Hawaly	800	19	90
Alahmady	745	18	86
Alfarwania	611	15	70
Mubark Alkaber	580	14	64
Aljahra	487	12	60

Figure 1: (Chart – 1) * Source: The Ministry of Education, the State of Kuwait 2015/2016

Then the sample size divided equally between the public and the private educational institutes as shown in the following table:

Table 3: A sample of lecturers' distribution in public and private schools

Province	Sample Size	Public institutes	Private institutes
Capital	104	52	52
Hawaly	90	45	45
Alahmady	86	43	43
Alfarwania	70	35	35
Mubark Alkaber	64	32	32
Aljahra	60	30	30
Total	474	237	237

4.5 Assurance of Certainty and Stability of Results

To evaluate the survey values collected from the sample chosen as mentioned in the previous part of this research, a technique used called Alpha Correlation Coefficient, which considered one of the most stabile evaluation method. In addition, this evaluation will disregard any result of Item-Total Correlation between any two variables

less than 0.30. After an evaluation of statistical data from the field's survey conducted in the following table:

Table 4: Alpha Correlation variable values – source statistical analysis results

Variable	No. of enquires	Alpha Correl.	Sq. Rt. Alpha Correl.
Actual usage of computer in education process	12	0.842	0.917
Actual availability of educational computer applications for students	22	0.889	0.942
Difficulties facing lecturers in using computer in learning process	18	0.782	0.884

An examination of results in the above table as follows:
* Regarding the variable actual usage of computer in education process, its result of Alpha Correlation equal (0.842) which is acceptable. In addition to, an examination of Item-Total Correlation did not show any variables in this part of the test that gave a value less than (0.3). Therefore, no action taken to disregard any variable from this part of the analysis. However, the value of square root of Alpha Correlation shows truth of choosing this variable as measure.
* Regarding the variable actual usage of educational computer applications for students, its result of Alpha Correlation equal (0.889) which is acceptable. In addition to, an examination of Item-Total Correlation did not show any variables in this part of the test that gave a value less than (0.3). Therefore, no action taken to disregard any variable from this part of the analysis. However, the value of square root of Alpha Correlation shows truth of choosing this variable as measure.
* Regarding the variable actual usage of educational computer applications for students, its result of Alpha Correlation equal (0.782) which is acceptable. In addition to, an examination of Item-Total Correlation did not show any variables in this part of the test that gave a value less than (0.3). Therefore, no action taken to disregard any variable from this part of the analysis. However, the value of square root of Alpha Correlation shows truth of choosing this variable as measure.

4.6 Results

a. Test of first supposition
This part discusses the statistical analysis for the first assumption of this study regarding the lecturer usage of computer as a learning tool in the basic education process. In addition to cross examining validity that are no awareness difference of lecturer usage of computer as a learning tool in the basic education process disposition between public and private basic education institutes.
The Wilcoxon test applied to measure the integrity of

answers collected from the public and private institutes' lecturer of survey sample. Furthermore, the Man Whitney test used to evaluate the mean differences between the two groups of the used sample of the public and private institutes' lecturers.
The analysis comes into two parts regarding the first hypothesis, the actual usage of computer as a learning tool in the education process. Firstly, the sample of public institutes' lecturers' result of Wilcoxon test shows in the following table:

Table 5: Wilcoxon Test result of the first hypothesis, the actual usage of computer as a learning tool in the education process for public institutes' lectures (Source statistical analysis for field survey data)

The actual usage of computer as a learning tool in the education process	Mean (N=190)*	Wilcoxon (z value)	Delta Level Δ
General Mean	3.16	-12.04	0.00**

* N = Sample size   ** Delta Level at 0.05

Table 5 illustrates that the general mean for the first supposition, the actual usage of computer as a learning tool in the education process for public institutes' lecturers, equal to 3.16 on Lyckert scale of 5 points. This indicates that the result demonstrates a medium level of this particular hypothesis for the public education institutes' lectures. In addition to, the value of delta level set to provide a clear picture in regard the results of the field survey variables inquires for this precise supposition.
  Secondly, the sample of private institutes' lecturers' result of Wilcoxon test shows in the following table:

Table 6: Wilcoxon Test result of the first hypothesis, the actual usage of computer as a learning tool in the education process for private institutes' lecturers (Source statistical analysis for field survey data)

The actual usage of computer as a learning tool in the education process	Mean (N=184)*	Wilcoxon (z value)	Delta Level Δ
General Mean	4.89	-11.02	0.00**

* N = Sample size   ** Delta Level at 0.05

Table 6 exemplifies that the general mean for the first hypothesis, the actual usage of computer as a learning tool in the education process for private institutes' lectures, equal to 4.89 on Lyckert scale of 5 points. This designates that the result determines a very strong level of this particular hypothesis for the private education institutes' lectures. Furthermore, the value of delta level set to provide a clear picture in regard the results of the field survey variables inquires for this precise supposition.
As a final stage for the analysis of field survey data for this particular hypothesis the actual usage of computer in learning process in public and private education institutes, the Man Whitney test used to evaluate the general mean values difference between the two groups for the used

sample of the public and private institutes' lecturers in the following table:

Table 7: Man Whitney test result of the first hypothesis, the actual usage of computer as a learning tool in the education process for public and private institutes' lecturers (Source statistical analysis for field survey data)

The actual usage of computer as a learning tool in the education process	Mean (N=190)*	Mean (N2= 184)*	Man Whitney (z value)	Delta Level Δ
General Mean	3.16	4.89	-4.82	0.00**

* N1 = Sample size of public institutes lectures
* N2 = Sample size of private institutes lectures
** Delta Level at 0.05

The results in table 7 shows a huge difference between the two groups of lectures' response for this hypothesis which comes in favored of private institutes' lectures awareness of the importance of usage of computer in education.

b. Test of second supposition

This part argues the statistical analysis for the second assumption of this survey regarding actual availability of educational computer applications for students in the basic education process. In addition to cross examining validity that are no awareness difference of lecturer regarding the availability of educational computer applications for students in the basic education process disposition between public and private basic education institutes.

The Wilcoxon test applied to measure the integrity of answers collected from the public and private institutes' lecturer of survey sample. Furthermore, the Man Whitney test used to evaluate the mean differences between the two groups of the used sample of the public and private institutes' lecturers.

The analysis comes into two segments regarding the second hypothesis, the actual availability of educational computer applications for students in the schooling process. Firstly, the sample of public institutes' lecturers' result of Wilcoxon test shows in the following table:

Table 8: Wilcoxon Test result of the second hypothesis, the actual availability of educational computer applications for students in the schooling process for public institutes' lectures (Source statistical analysis for field survey data)

The actual availability of educational computer applications for students in the schooling process	Mean (N = 190)*	Wilcoxon (z value)	Delta Level Δ
General Mean	2.56	-10.08	0.00**

* N = Sample size   ** Delta Level at 0.05

Table 8 shows that the general mean for the second hypothesis, the actual availability of educational computer applications for students in the schooling process for public institutes' lectures, equal to 2.56 on Lyckert scale of 5 points. This outcome value describes that the result determines a very weak level of this particular hypothesis for the public education institutes' lectures. Furthermore, the value of delta level set to provide a clear picture in regard the results of the field survey variables inquires for this precise supposition.

Secondly, the sample of private institutes' lecturers' result of Wilcoxon test shows in the following table:

Table 9: Wilcoxon Test result of the second hypothesis, the actual availability of educational computer applications for students in the schooling process for private institutes' lectures (Source statistical analysis for field survey data)

The actual availability of educational computer applications for students in the schooling process	Mean (N = 184)*	Wilcoxon (z value)	Delta Level Δ
General Mean	3.59	-12.19	0.00**

* N = Sample size   ** Delta Level at 0.05

Table 9 demonstrate that the general mean for the second hypothesis, the actual availability of educational computer applications for students in the schooling process for private institutes' lectures, equal to 3.59 on Lyckert scale of 5 points. This general mean value describes that this result determines a high level of this particular hypothesis for the private education institutes' lectures. Furthermore, the value of delta level set to provide a clear picture in regard the results of the field survey variables inquires for this precise supposition.

As a last phase for the analysis of field survey data for this particular hypothesis, the actual availability of educational computer applications for students in learning process in public and private education institutes. The Man Whitney test used to evaluate the general mean values difference between the two groups for the used sample of the public and private institutes' lecturers in the following table:

Table 10 : Man Whitney test result of the second hypothesis, the actual availability of educational computer applications for students as a learning tool for public and private institutes' lecturers (Source statistical analysis for field survey data)

The actual availability of Educational computer applications	Mean (N1=190)*	Mean (N2=184)*	Man Whitney (z value)	Delta Level Δ

	N1	N2		
for students in schooling process				
General Mean	2.56	3.59	-6.12	0.00**

* N1 = Sample size of public institutes lectures
* N2 = Sample size of private institutes lectures
** Delta Level at 0.05

The results in table 10 displays a wide gap between the two groups of lectures' response for this hypothesis which arises in preferred of private institutes' lectures awareness of the importance of availability of educational computer applications for students as part of learning process.

c. Test of Third supposition

This part disputes the statistical analysis for the third assumption of this study regarding difficulties facing lecturers in using computer in learning process in the basic education institutes. In addition to cross examining validity that are no awareness difference of lecturer regarding difficulties facing lecturers in using computer in learning process in the education institutes disposition between public and private basic education institutes.

The Wilcoxon test applied to measure the integrity of answers collected from the public and private institutes' lecturer of survey sample. Furthermore, the Man Whitney test used to evaluate the mean differences between the two groups of the used sample of the public and private institutes' lecturers.

The analysis comes into two parts regarding the third hypothesis, the actual difficulties facing lecturers in using computer in learning process in the basic education institutes. Firstly, the sample of public institutes' lecturers' result of Wilcoxon test shows in the following table:

Table 11: Wilcoxon Test result of the third hypothesis, the actual difficulties facing lecturers in using computer in learning process for public institutes' lectures (Source statistical analysis for field survey data)

The actual difficulties facing lecturers in using computer in learning process in the basic education institutes	Mean (N=190)*	Wilcoxon (z value)	Delta Lev el Δ
General Mean	4.48	-9.04	0.00**

* N = Sample size   ** Delta Level at 0.05

Table 11 indicates that the general mean for the third hypothesis, the actual difficulties facing lecturers in using computer in learning process for public institutes' lectures, equal to 4.48 on Lyckert scale of 5 points. The value describes that the result determines a very strong level of this particular hypothesis for the public education institutes' lectures. Furthermore, the value of delta level set to provide a clear picture in regard the results of the field survey variables inquires for this precise supposition.

Secondly, the sample of private institutes' lecturers' result of Wilcoxon test shows in the following table:

Table 12: Wilcoxon Test result of the third hypothesis, the actual difficulties facing lecturers in using computer in learning process for private institutes' lectures (Source statistical analysis for field survey data)

The actual difficulties facing lecturers in using computer in learning process	Mean (N=184)*	Wilcoxon (z value)	Delta Lev el Δ
General Mean	3.16	-11.42	0.00**

* N = Sample size   ** Delta Level at 0.05

Table 12 displays that the general mean for the third hypothesis, the actual difficulties of using computer in the schooling process facing private institutes' lectures, equal to 3.16 on Lyckert scale of 5 points. This general mean outcome value describes that this result determines a medium level of this particular hypothesis for the private education institutes' lectures. Furthermore, the value of delta level set to provide a clear picture in regard the results of the field survey variables inquires for this precise supposition.

To finish this phase for the analysis of field survey data for this particular hypothesis, the actual difficulties of using computer in the schooling process facing the lecturers in the public and the private education institutes. The Man Whitney test used to evaluate the general mean values difference between the two groups for the used samples of the public and the private institutes' lecturers response in the following table:

Table 13: Man Whitney test result of the third hypothesis, the actual difficulties of using computer in the schooling process facing the lecturers in the public and the private education institutes (Source statistical analysis for field survey data)

The actual difficulties of using computer in the schooling process facing the lecturers in education institutes	Mean (N1=190)*	Mean (N2=184)*	Man Whitney (zvalue)	Delta Level Δ
General Mean	4.48	3.16	-5.28	0.00**

* N1 = Sample size of public institutes lectures
* N2 = Sample size of private institutes lectures
** Delta Level at 0.05

The fallouts in table 13 demonstrates a varied gap between the two clusters of lectures' response for this hypothesis which clearly in favors of private institutes' lectures sentience that they have lesser difficulties of using computer in the schooling process in the private education institutes than the lecturers in the public education institutes.

4.7 Outcomes Exploration and Recommendations

In the previous section, a detailed calculation of the study's data survey based on the answers gathered from the population of private and public lecturers represented an important sector of education system in the state of Kuwait.

* Based on the results found a careful review of the outlines extracted from the three variables used in this study as follows:

1- The actual usage of computer as a learning tool in the education process

In this segment of the study showed a huge difference between public and private lecturers responsiveness in the importance of the usage of computer in education process. Chart-2 views the comparison set between the public and private schools lecturers answers in regards the specific variable of the survey conducted.
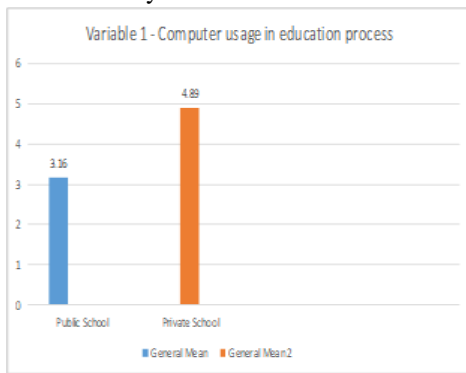
Figure 2: (Chart - 2) Comparison between general mean of the answers of public and private school lectures for the usage of computer in education

2- The actual availability of educational computer applications for students in the schooling process.

This part of the research produced a significant gab among public and private school lecturers' reaction in regards the effectiveness of the actual availability of educational computer applications for students in the schooling process. Chart-3 illustrates the comparison set between the public and private schools lecturers answers in regards this specific variable of the survey led.

3- The actual difficulties facing lecturers in using computer in learning process in the basic education institutes.

At this particular section of the survey results, a substantial contribution noticed midst public and private school lecturers' awareness in the evaluation of the actual difficulties facing lecturers in using computer in learning process in the basic education institutes. Chart-4 demonstrates the gab set between the public and private

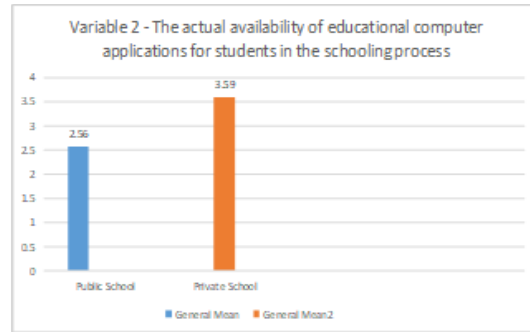schools lecturers outcomes in regards this specific variable of this specific part.

Figure 3: (Chart - 3) Comparison between general mean of the answers of public and private school lectures for the actual availability of educational computer applications for students in the schooling process

To produce the final analysis between the three variables used to assess the significance of computer in education rated on the responses of lecturers from public and private schools in chart 5.
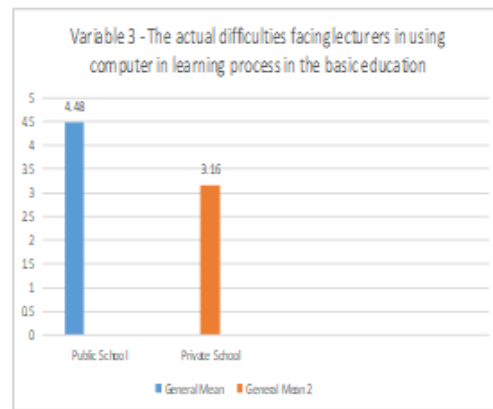

Figure 4: (Chart - 4) Comparison between general mean of the answers of public and private school lectures for the actual difficulties facing lecturers in using computer in learning pro
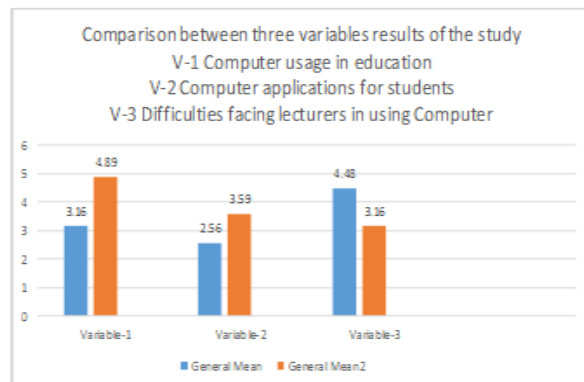

Figure 5: (Chart - 5) Comparison between general mean of the answers of public and private school lectures

Upon arriving to many specific and potential outcomes of the previous analysis of the survey conducted to evaluate the current situation of the issue of using the concept computer in education it is very clear that private schools attained the higher rank over their colleagues in the public schools.

5. Conclusion

In the previous part in this research showed enormous gap in favor of private school lectures due to many entities as follows:

- Management
- Financial
- Training programmers
- Modern equipment and applications
- Planning

A model has developed based on entities resulted from this research to assist the public school management to regain their position as a competitive and leaders in the education field for the benefit of lecturers as well as students.

This model attempt to divide the problem of using computer in education for public school into four main clusters and four sub-clusters as shown in Figure-6. This methodology intended to organize, improve and overcome their e-learning difficulties.

For the purpose of future studies ought to focus on measuring the dependability level of effect of relationship between the main clusters and the sub-clusters using some type of smart expert system enquires, to visualize and concentrate on specific entity that would be essential to ease the process and procedure for future improvement. The fluctuation of results ought to show the real needs for improvement required. In addition, it would aid public school to compete against private ones when it comes in using modern technology in learning process.

A new model to assist management in public school in developing lecturers' computer skills
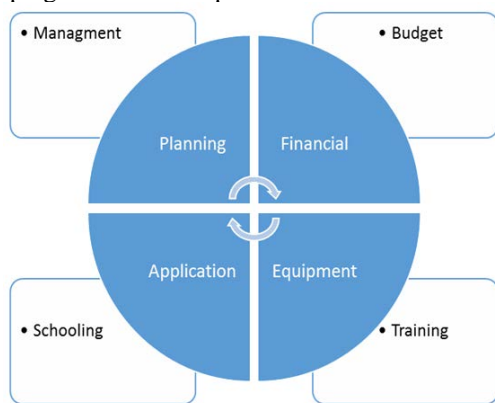

Figure 6: A new model to assist management in public school in developing lecturers' computer skill

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