Electronic learning and high technology education versus traditional face to face one ; 3 years experience (2010-2012) in Alexandria Faculty of Medicine, Egypt

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Abstract: Electronic learning is the future learning that delivers comprehensive contents to students in comfortable time and conditions chosen by learners needs. Faculty members and expert engineers helping them in using recent technologies and to stay informed about the latest developments, and transfer what they have learned to new generations of students. **Aim of this study was:** To establish electronic gate to Alexandria Faculty of Medicine as an alternative or complementary method for teaching both postgraduates and undergraduate medical students. To enhance faculty members and student levels of skills toward integrating e-learning in their teaching. ***Design****: 3 years* Cross sectional descriptive and applied analytical study was used in this study. ***Subjects****:* 150 Staff faculty members, 150 postgraduate students as well as 1200 undergraduate medical students were involved in the study. **Tools:** First year (2010) was stressed on training staff members on online courses by weekly lectures and regular workshops. Second year (2011) was dedicated in creating and applying 21 postgraduate academic and clinical medical on line courses. Third year(2012) was concentrated on online regular exams for 4th, 5th, and 6th medical students together with reapplying postgraduate e-courses after their modification by following the feedback from previous courses. A structured questionnaire was developed by the researchers in four parts: **Part one** included information of participants experience in teaching using recent technologies. **Part two** included participant's attitudes on the usefulness of recent technology. **Part three** included participant's (students and professors) supporting electronic learning. **Part four** feedback (survey) questioner' prepared by technical support and submitted by postgraduate students after each e-course. Lastly an e-course comprehensive contents with was prepared by team of staff members (Professors, Assistants, Lecturers and Demonstrators) in the form of power points, video films, animations, weekly activity(either quiz or assignment) for totally 40 marks i.e. continuous assessment , midterm quiz at 7th week for 20 marks and a final on line exam.at the 15th week for the rest 40%.The on line exams were in the form of multiple choices, true or false and matching. All the resources (contents), quizzes and e-exams were prepared and uploaded by Medical Staff Members with assistance of Technical Support Engineers(Electronic unit team). Our results revealed a high rate of willingness of students(80%) and staff (60%)to use electronic teaching and exams. in terms of convenience, simplicity and saving money of transport and working at the same time of studying (postgraduates more than undergraduates who still need face to face teaching).
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1. Introduction

Electronic learning is also called online education derived from distance education that was established 100 years ago. Online education opens new horizons for ambitious students who want to achieve higher goals in education but their financial or other circumstances prevent them from obtaining this goal. (1)The advantages of online education have persuaded many students to enroll in online programs to pursue their education. The earliest form of distance education was conducted through letters which took a long time back and forth. After that it changed into a form of radio broadcasting. In more recent times, online education took off due to the tremendous advance of communication (2). Many scientists gave different definitions for online education but all of them agree on the main concept which is to obtain education or training without the student needing to be physically present.(3) There are convenient factors of online education that have attracted a lot of students. One of these advantages is flexibility that enables students to take their lessons whenever and wherever they want. This valuable feature gives the students who have a full time job time to pursue their education in their free time without affecting their jobs. (4)The second advantage is the choices that are offered to the students, each student has the freedom to study in any university he wishes. It does not matter where the university is. Each university is reachable by online education. (5)The third advantage is all of the lessons are recorded. Students can repeat the lessons as many

times as they wish if they do not understand. If the students have any inquires or they need further explanations, they can email their teachers or talk to them via a chatting room.(6) Recent researches showed that by the year 2014, most students in the United States will be taking courses fully online rather than on campus .(7) This great growth motivates many universities to compete to offer better education for their students. Online education saves time and effort for both students and universities. Universities need only to film the lectures and put them online for their students. This would be an alternative to preparing many classes and parking spaces for students that cost tens of thousands of dollars. The students can select the proper time and place to take their lessons online, instead of commuting many miles in crowded streets and looking for parking for a long time.(8) We believe that technology has invaded our life and changed the way we think, live, communicate and learn. Furthermore, it has changed the way governments, companies and universities manage their business. One of these changes is online education that was changed from time to time to cope with technology era. Online education eases difficulties for many students and employees who want to improve their skills or achieve higher goals in their life. There are some disadvantages that hamper online education, but these disadvantages are overwhelmed by the advantages that are offered.(9)

The Pros and Cons of E-Learning and Education Technology:

Electronic learning and education technology are currently huge buzzwords in education, as the tidal wave of the internet and the digital revolution, already firmly ensconced in our homes and businesses, marches voraciously on into our classrooms and universities. From class blogs and school e-twinning schemes to scholastic 'apps' and online courses, education is going electronic. For those who have yet to experience the e-learning revolution, there is a treasure trove of rich benefits and exciting advances just waiting to be discovered, but some believe that there are also major pitfalls that must be carefully avoided.(10) **Pros; Engaging Young People:**

The new wave of exciting online learning programs and educational games has brought teaching into children's own territory like never before. Rather than associating school with boring essays and dusty blackboards, pupils are finding ways to learn whilst having fun, in the online world with which they are already familiar. (11) **Social Media:** The use of social media in education has been particularly successful in engaging and exciting young people about learning, allowing them to share and play with their peers and to use sites like Myspace and Facebook to set up and collaborate on projects in an exciting and immediate forum.(12) **Education for All:** The movement of education to the internet has opened up a whole new realm of opportunities for students of all ages and backgrounds, from all over the world. Suddenly anybody with an internet connection can attend a series of world-class lectures at Harvard University using video streaming, whilst online universities and degrees invite pupils from the most isolated backgrounds to study alongside their peers. Thanks to education technology, the opportunity for students from economically disadvantaged backgrounds to self-educate has increased exponentially. (13) **Worldwide Learning:** The opportunity for young people to engage with other schools and students across the world has opened up a hugely rich insight into the lives and customs of different cultures and religions, providing a diversity of experience hitherto unimaginable in the school classroom. E-twinning allows profitable and exciting links to be formed between schools from different countries, sharing information about completely different cultures, lifestyles and traditions.(14) **Sharing Resources:** For teachers and educators, the introduction of personal learning networks and sites like twitter and web 2.0 have enabled the beginning of an exciting worldwide network. Here education resources, tools and ideas can be shared and spread at the click of a button.(15) **Cons; Getting Left Behind:** There is a risk that the boom in online learning and education technology has shifted focus away from traditional teaching methods and classroom practice. While the advantages are enormous, there is also a risk that the injection of money and attention in one direction may leave a vacuum behind. Not all education takes place online, and it is important that we also continue to value and develop our offline teaching practice, to support those educators working in a more traditional environment.(16) **A New Generation:** It has been difficult for some older or less techno-savvy teachers to get on-board with the new media wave in education, with fears that their lack of experience with computers may leave them out in the cold and facing criticism for their 'old-fashioned' teaching methods. It is vital that governments and schools provide training and support to induct teachers into new e-learning programs and train them to use education technology effectively.(17)

Expensive Electronics:

Many well-funded schools and colleges have reported exciting strides in e-learning and fantastically successful conversions to digital courses and iPad-only lessons. However it is important to consider the dangers of excluding schools in more disadvantaged

areas, where tight budgets and over-full classrooms make it impossible for pupils to benefit from access to the same kind of modern technology. In addition it must not be assumed that all pupils are able to access a computer or the internet at home, putting some at a disadvantage outside the classroom too.(18)

2.Subjects and Methods:

Experience of Alexandria Faculty of Medicine (Egypt); 3 years since January 2010 till December 2012 in creating and establishing the electronic unit. The unit was established by team work of expert engineers in virtual learning and moodle (a simple Japanese program in creating electronic on line courses) who created an electronic gate to Faculty of Medicine, University of Alexandria, Egypt.

They did big efforts in teaching and training undergraduates (more than1000 students /year for 6 years, postgraduate students (average30 student /department for 33 departments) and training 150 staff members of the faculty for online teaching and e-exams .They created postgraduate e- courses for all faculty departments. They uploaded all staff resourses, quizzes, regular and final exams. They also together with staff members established the International Electronic high education program in e-Teaching and on line exams.

Starting from January 2010-December 2012 their work in collaboration with the help of experts from staff members of faculty was in the form of :

1. Weekly Lectures on online electronic field, virtual learning and high technology education from beginner level up to expert levels .
2. Workshops face to face to beginners, intermediate and high level grades.
3. Webinars, Teleseminars and online workshops for far workers.
4. Creating electronic online undergraduate and postgraduate education courses through moodle program for both academic and clinical medical departments.
5. Electronic exams to undergraduate and postgraduate medical students.
6. International program of education enhancement and promotion.
7. Surveys (Feedback) were perforrmed after each course to evaluate our performance and improve our negatives in following courses.
8. Analytical grades and electronic reports following each course applied.

3. Results:

Result of three years experience in applying e-courses and e-exams.

Table 1 –Faculty of Medicine Staff members and students attitudes towards the Importance of Using Computers in Teaching and Learning

Attitudes	Staff members% SA	A	Students% SA	A	Sig.
1.Would Computer increase learning productivity ?	50	50	75	25	0.01*
2.Are Computers needed both in education and at work?	55	45	90	10	0.01*
3.CanComputer be useful in almost all subject matters?	60	40	85	15	0.05*
4.Can Computers improve the overall quality of life?	65	35	85	15	0.01*
5.Knowing how to use computers is a worthwhile skill?	55	45	95	5	0.001*
6.Will Access to computers improve general satisfaction?	45	55	70	25	0.01*
7.Using computers will help improving education?	35	65	65	35	0.001*
8.Are you planning to use computer in future teaching ?	50	50	90	10	0.001*
9.Using computer will help saving time and effort?	55	45	90	10	0.001*
10.Can Computers help in creativity courses ?	65	35	85	15	0.01*
11. Should teacher training include using computers?	50	50	75	25	0.01*
12.Is it important to learn how to use a computer?	70	30	95	5	0.01*
13.Is the rate of practicing computers improve learning?	75	25	95	5	0.01*

SA=Strongly Agree; **A**=Agree * Significant at level (p<0.05*)

Table 2–Faculty of Medicine Staff Members and Students Attitudes Towards General Concept of E-Learning

Attitudes	**Staff members% SA**	**A**	**Students% SA**	**A**	**Sig.**
1.Is e-learning an appropriate solution to the problem of overcrowded university classes?	**50**	**50**	75	25	0.01*
2.Is e-learning flexible for females who have family responsibilities or other commitments?	80	20	90	10	0.05*
3.Is e-learning more flexible than face to face education for working women?	65	35	95	5	0.001*
4.Will e-learning enable students to overcome transportation problem of attending face to face classes?	55	45	65	35	0.05*

5.Will e-learning be helpful to students in far areas to continue their higher education?	75	25	95	5	0.01*
6.Will e-learning help students to acquire their educational need for career preparation and advancement?	60	40	90	10	0.001*

SA=Strongly Agree, **A**=Agree; * Significant at level (p<0.05*)

Table 3 –Faculty of Medicine Staff Members and Students attitudes towards the development of New Teaching and Communication for Implementing E-Learning Program

Attitudes	**Staff members%**		**Students%**		**Sig**
	SA	**A**	**SA**	**A**	
1.Teaching more students by using new teaching and communication techniques	55	45	65	35	0.05*
2.Participants were receptive to new teaching techniques in e-learning program	50	50	75	25	0.01*
3.Participants were receptive to computer skills to participate in e-learning program	65	35	95	5	0.001 *
4.Participants were receptive to e-mail and computer to participate in e-learning program	60	40	90	10	0.001 *
5.Participants were able to collaborate with other specialists to design an e-learning course	75	25	80	20	0.05*
6.Participants were able to use the appropriate features of the World Wide Web in their teaching	45	55	85	15	0.001 *
7.Participants were able to use the appropriate features of internet in their teaching	70	30	80	20	0.05*

SA=Strongly Agree, **A**=Agree; * Significance at level (p<0.05*)

Table 4: Survey (feedback) questioners' done by students after completing e- courses and exams

Questioners'	**SA**	**A**	**N**	**Sig.**
1. Did the e-course met your expectations?	90	5	5	0.001*
2. Was the e-course time suitable for studying and doing activities?	80	15	5	0.01*
3. Was the e-learning portal (web site)appropriate and satisfactory?	60	20	20	0.05*
4. Was the e-course materials presented in clear and organized manner?	90	5	5	0.001*
5. Was the e-course content comprehensive?	80	15	5	0.01*
6. Was the e-course content easy to understand?	90	5	5	0.001*
7. Was the e-course well prepared?	90	5	5	0.001*
8. Did the technical support responded to questions in an informative and satisfactory manner?	60	30	10	0.01*
9. Did the activities met your useful learning experiences?	80	15	5	0.01*
10. Was the overall e-course informative and valuable?	90	5	5	0.001*
11. What aspects of the course, if any,(contents, activities, team teacher, technical support team)would you change in the future? Why?	65	20	15	0.05*
12. Do you suggest online workshops, webinars and teleseminars?	75	20	5	0.05*

SA; strongly agree**,** A; agree, N; neutral. Level of Significance (P<0.05*)

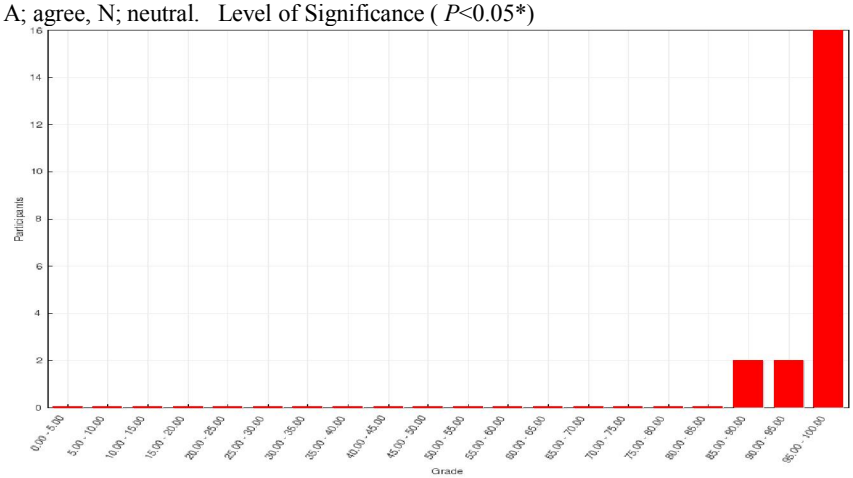

Figure 1:Grade ranges of e-post graduate medical course (>85%excellent)

4. Discussion

A lot of researches has indicated a high degree of access of innovative technology within higher education, as well as a high degree of receptiveness to the adoption of electronic learning technologies within higher institutions (1-3).In the present study approximately 60% of the faculty members and 90% of students using computer many times or at least once a day. Staff faculty members using networking facilities such as world wide web, Internet, Intranet, e mails, compact disk etc. Our study reported that approximately half of the faculty members using networking facilities many times or at least once a day among staff members. Multimedia integration into the online materials helps faculty members to realize that teaching requires different tools that can facilitate the teaching process (4). **Liew *et al.* (2007)** found in his study that the instructors have a very positive perception towards using e-learning as a teaching assisted tool (5). In the present study, faculty members were receptive to develop computer skills in order to participate in e-learning program. They were also willing to use the appropriate features of the World Wide Web and Internet in their teaching.

E-learning shows faculty members that communication and information technology is still being explored and developed(6). As **Abouchedid & Eid (2004)** mentioned, faculty members are in favor of electronic learning because it will improve education and raise it to higher technological level of education (19). The result of present study revealed that computers skills are needed both in education and at work to improve general satisfaction and education. In addition, faculty staff members and students in the current study declared that e-Learning will be flexible for many female who have family responsibilities and/or other commitments and for remote area' students. Moreover, they stated that electronic learning will help students to acquire their educational needs for career preparation and advancement. On the other hand, some researchers as **(Collis & Peters, 2000; Surry, 2000)** declared that faculty utilization of innovative technology in teaching was not at a satisfactory level (20, 21). **Kayte *et al.* (2004)** stated that electronic learning can help and deliver supporting innovations in high technology teaching and learning and developing the work force (22). **Sun *et al.*(2007)** opinions that the instructor's attitude towards e-learning is one of the critical factors affecting learners' percieved satisfaction (23).

To Summarize: Our results revealed that although many of the participants especially Staff members had moderate knowledge of using computers, they still were enthusiastic about the idea of facilitating e-learning program as a complementary but not alternative method to the traditional classroom teaching especially for undergraduate students who still need the help of their professors by contact face to face teaching and support. The findings also revealed that most of the faculty members demonstrated strongly positive attitudes towards the use of computer, communication networking facilities, and willing to adopt electronic learning program that would be more suitable to the educational needs of postgraduate students who work in far areas or females in their childbearing period who need to study at home. Based on the results of present study, it appears clear that medical students have more positive attitudes than faculty staff members towards using E-learning Program.

Finally we can recommend that Faculty of Medicine Staff members should be encouraged to try e -learning programs in their own courses. For example, they could be assisted by expert engineers in preparing e-content and resources as power points, video films and animations for their courses and help them in uploading course contents and support the web site of the faculty. Teachers need the support from the institution in order to make use of new technologies in high technology education and learning processes. Attitude plays a vital role in using technology as a strong tool for positive changes towards better education in comfortable conditions and time preferable to students and researchers. There must be programs at higher educational institutions which could focus on developing a positive attitude among faculty teachers towards e-learning and information and communication technology. We can conclude that from 3 years experience in electronic unit that e-courses and online regular exams. may promote a positive teaching/learning environment for all faculty members as well as medical postgraduate students who cannot attend regular programs for childcare period or those work abroad. The results of this study emphasizes Faculty of Medicine, University of Alexandria Egypt as well as other faculties as Pharmacy, Science and Nursing (the Medical Campus) to consider the development and implementation of e-learning program as supplementary to traditional classroom method of teaching as these e-courses may be one of good financials resources to our beloved Alexandria University .

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