The Role of E-Learning in Facing the Challenges of the Egyptian Higher Education (Review Article)

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Abstract:

In the last few decades, Egyptian higher education has faced many challenges, including a marked increase in students' numbers, insufficient necessary capabilities to develop educational processes, high costs of educational fees in private universities, and emergency circumstances especially during time of national crisis like the COVID-19 pandemic. Moreover, recent undergraduate reforms worldwide have led to a decrease in the teaching of basic sciences including anatomy, despite the great importance of anatomy for clinicians specially surgeons. For these matters, it was imperative to seek urgent solutions to those challenges by developing modern advanced modes of learning in general and anatomy in particular.

Many educational institutions consider E-learning as a possible solution for many educational challenges especially during various crises via its advantages that not found in traditional teaching methods. Furthermore, to engage students fully and focus on what they know and can do and why, modern constructivist learning approaches like flipped learning, project-based learning, problem-based learning, outcomes-based learning, employment-based learning, and peer learning are employed. However, even if online learning has many advantages, it has not addressed the issue of exercising soft skills. Therefore, it is still necessary to improve learning through blended or mixed modes in order to incorporate e-learning into all aspects of teaching and learning.

As a conclusion, the application of E-learning in higher education objectives to:

-   Establish E-learning modules as advanced trends in teaching and learning.
-   Encourage integrating E-learning into all teaching and learning experiences.
-   Adopt the virtual learning experience to be available for each student twenty-four hours a day.
-   Minimize the costs of learning especially in practical sessions.

- Compensate the reduction of contact teaching hours and insufficient teaching staff.
- Implement scientific research to improve learning strategies.

Keywords: E-learning, higher education, review article

Introduction:

Egyptian higher education has faced many challenges, included marked increase in students' numbers, insufficient necessary capabilities to develop the educational processes, high costs of educational fees in private universities, and emergency circumstances especially during times of national crisis like the COVID-19 pandemic. Moreover, *Ghada Barsoum (2016)* declared that the continuous increase of Egyptian population led to massificiation of education which affected the quality of education and the outcome despite increasing learning opportunities.

Most educational institutions in many countries have considered E-learning as a solution for education challenges, especially in emergency circumstances, for its great effectiveness in supporting and continuing learning and the educational process without the full or partial presence of students in places of education especially during time of national crisis the COVID-19 pandemic *(Maspul and Amalia, 2021).* They added that the COVID-19 pandemic effects the development of the teaching and learning process and becomes a huge global challenge for students and teachers. In this case, technology undoubtedly helps and becomes one of the solutions to development implemented by various organizations and institutions to make teaching and learning flexible during a pandemic.

The acceptance and adoption of e-learning in higher education face many complicated and varied challenges. It is crucial to carefully consider the social, economic, and environmental effects of e-learning implementation and to work toward making sure that e-learning programs are equitable, sustainable and long-term accessible **(***Shakeel et al., 2023)*.

E-learning is one of many new kinds and modalities of learning that have emerged as a result of the rapid development of technology *(Fitri A. 2023).* E-learning defines as the use of internet to deliver a broad array of the solutions that enhance knowledge and performance (*Rosenberg, 2001)*.

Koohang and Harman (2005) and *Elsaid (2020)* defined E-learning as the delivery of education (all activities related to extension, teaching and learning) through various electronic media. Educational technology is also defined by *Robinson et al. (2016)* as the study and ethical practice of facilitating learning and improving

performance by creating, using, and managing appropriate technological processes and resources.

Chiappe et al. (2020) suggested a close relationship between 21st-century education and 21st-century skill development. Therefore, there is great emphasis on the development of different types of skills and there is a wide range including the so-called "4C's" concerned with the development of collaboration, communication, critical thinking and creativity skills.

Moore and Fodrey (2018) demonstrated that distance education grows rapidly in higher education, and more students are pursuing training, degrees, and certifications in this format.

Simonson et al. (2015) explained that distance education is a viable option for many learners and is the accepted method for receiving instruction for many of them.

Recently, long-distance learning has become a promising alternative to traditional learning. ***(Zhou et al., 2004).*** When compared with traditional learning, some researchers rate E-learning as more effective than traditional teaching. However, some don't appreciate that due to less social interaction, high cost investment cost, and technical problems in communication. ***(Titthasiri, 2013).*** The main difference between E-learning and online learning is concerned with the amount of interaction. Students-instructors' interaction is greater during online learning, while E-learning is more self-paced.

E-learning provides effective learning modes, like practicing relevant feedback, combining collaboration, self-study activities, and using simulations and games. Moreover, all learners deliver the same quality of education ***(Ghirardini, 2011).*** In contrast to place-based learning, E-learning relies on the functionality of technological tools (laptops, smart phones, tablets) and a persistent Internet connection ***(Linjawi & Alfadda, 2018).*** However, the costs of delivery are much lower than the costs of classroom facilities, teacher, participant transportation and lost work-time ***(Ghirardini, 2011).***

Disadvantages of E-learning:

declared that E-learning can enhance isolation, as the lack of face-to-face interaction leads to occupational isolation (***Kheng, 2008),*** and reduces learning experiences ***(Ghirardini, 2011).***

Any student seeking to enroll in a program needs a minimum set of high-costed equipment like a personal computer, a webcam, and a stable internet connection, in addition to a good level of training and technological knowledge for effective teaching and learning (***Brown et al., 1998)***. Otherwise, the benefits will be limited to those interested in technology ***(Basilaia, 2020).***

Despite all the above-mentioned challenges, E-learning has already experienced rapid growth during the

last few years, and has been shared in solving many problems *(Elsaid et al., 2020).*

Nitin Sharma (2023) demonstrated that E-learning provides many advantages over traditional education, including:

- Greater access.

- Resource scalability (save time & money). Moreover, unlike traditional classrooms, it enables students to learn at the suitable time.

- Better results, this, helps in improving productivity, augmenting focus and thereby, providing better academic results as audio-visual learning coupled with variable media formats, results.

- Improved pace; E-learning provides quick and effective learning anytime, i.e., whenever and wherever he/she wants.

- Cost-Effectiveness.

- Quick lesson delivery; is much more dynamic and quick if compared with traditional methods of lesson delivery.

- Personalization.

- Instant upskilling; E-learning is a helpful tool for regularly updating skills.

- Environmentally sound; it can reduce total energy consumption and lowers carbon dioxide emissions.

- Traceable outcomes: measures outcomes, traces results, and gathers feedback. *Donkers et al. (2010)* correlated the use of software in the learning of

- Traceable outcomes: measures outcomes, traces results, and gathers feedback. *Donkers et al. (2010)* correlated the use of software in the learning of specific knowledge and skills, with supporting communication and team work, and supporting assessment and reflection

In *Prentice Hall Inc. (2001),* the publisher summarizes E. learning SWAT analysis in the following points;

Strengths:

• The capacity to provide instruction to a large number of students from a far-off place.

• Less time commitment from corporate students is required for shorter courses. Lower costs (travel, instructor fees).

• People with limited financial resources can now more easily enter education. Use the best instructors to make the best courses available to all.

Weakness:

• Universities and businesses that offer online courses in education must make a significant technological commitment.

• Don't interact with students in person.

• Low-cost, high-bandwidth, synchronous student-teacher interaction is not supported by current technology.

Opportunities:

• The capacity to instantly share the newest technology and news with everyone on the planet.

- Availability of courses from multiple universities.
- Lower long-term education costs by moving learning curricula online.

Threats:

- The student interest lake.
- Requirements for technology and equipment limit the use of E. learning.
- Lack of personal connection hinders the process of learning.
- In a shorter online course, some topics might not receive as much thorough coverage.

Digital technologies, including infrastructure, digital devices, resources, content, and relevant services, are the foundation of effectiveness. Additionally, information and communication technology, or ICT, has emerged as a crucial instrument for delivering curricula globally *(Atsumbe, 2012)*. Higher education's teaching and learning procedures have recently been significantly pushed by the development of information and communication technology *(Pulkkinen, 2007 and Wood, 1995)*. "The study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" is how the Association for Educational Communications and Technology defines educational technology (*Robinson, et al., 2016*). The Learning Management System (LMS), electronic gadgets, communication apps, and internet accessibility comprise the E-learning infrastructure *(Askar et al., 2021)*. The authors went on to say that the preparation of educational institutions for distance learning also took into account each person's cognitive ability and the infrastructure of e-learning.

Technology availability is not the only factor that determines how well an institution implements methods; the other one is how much the institution and students investigate and create novel approaches to incorporating technology into the educational process. *(Wright, 2010)*.

The Learning Management Systems (LMS): Employees and students can access the Learning Management Systems (LMS), a database that offers course descriptions, justifications, prerequisite data, and courses *(Snehnath,2023)*.

The electronic devices include those used for video conferences, audio and video streaming, redundant storage, computer-based training with interactive educational software, and high-bandwidth Web broadcasting of courses.

The fields of artificial intelligence (AI), augmented reality (AR), virtual reality (VR), gamification, and other emerging technologies will dominate learning and development.

The communication applications (courses);

Asynchronous courses:

• They are self-paced, available at any time, and do not include live instruction.

• Courses should have a simple interface and short, to-the-point information to reduce student confusion.

• Students ought to be able to use message boards and chat applications to interact with one another.

Synchronous courses

• Taking place in real time

• More resources will be needed for audio and video with live teachers in order to guarantee that the technologies work correctly when the courses are given.

Components of E-learning:

For activities to be supported, institutions need to provide a suitable and dependable technical infrastructure. Both educators and learners need to be technically proficient in using tools. To properly incorporate their courses into their pedagogy, educators must restructure their curricula. *(Andreea-Maria and Cătălin, 2014).*

E-learning modules are organized with an introduction to pique students' interest, a task or final product, a process or set of steps to follow (usually in the form of a series of questions), online resources for students to access and study, an evaluation of their performance, and a conclusion to encourage reflection on the lessons learned. *(McCoy,*

2005; Salsovic, 2007; and Calder, 2011).

García-Peñalvo (2021) highlights the following online educational characters:

•The production of course-related content.

•The virtual environment's instructional design and planning, which includes organizing the items and tasks to be completed using the tools and resources offered by the institution's virtual campus as well as other online spaces and resources.

•Videoconference-based synchronous instruction.

•Asynchronous tutoring and interaction and activity monitoring.

•Student evaluation.

Providing the student with individualized follow-up or mentoring to keep them from dropping out (the mentor must be assigned at the start of the degree program and should stay until the conclusion).

The pedagogy and content must be readily available, simple to download, and easy to understand (written in a language suited to the students' level). The course must also be tailored to satisfy the specific learning objectives in order to maximize its effectiveness. There should be enough practical exercises, assignments, and quizzes in addition to "static" learning resources for reading (text/image), watching (video), and listening (audio), as well as "dynamic" (interactive) elements. *(Turker et al.,2006).*

Assessment information from online courses helps teachers identify specific learning problems in their students, determine whether or not they are meeting learning objectives, and give students more credit or focused comments. *(Peterson, 2016).* A range of assessments, including projects, portfolios, peer assessments, self-assessments, and weekly activities with instant feedback, have been suggested by the researchers. *(Gayton & McEwen, 2007).*

Through tutorials with teachers, students can discover and fill in knowledge gaps through blended learning, which incorporates high-quality structured E-learning content. *(Morton et al., 2016)*

Conclusions:

• E-learning is a cutting-edge method of education. It is a comprehensive method of instruction that satisfies the demands of the digital natives of today.

• Educational institutions' preparedness for distance learning is based on both their physical infrastructure and each student's cognitive ability.

• Face to face learning is more personal and interactive, but there are a lot of benefits to enrolling in courses, as most of them are convenient and affordable.

• For educators as well as students, the future of education is exciting. In the future, we can anticipate more individualized education, more interactive learning opportunities, and more remote learning choices.

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الملخص العربي

دور التعلم الإلكتروني في مواجهة تحديات التعليم العالي المصري (مقالة مرجعية)

فاطمة عبدالله السيد، هشام محمد السعيد أمام، ولاء عبد الوهاب باشا، صابر محمد أبوزيد
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يواجه التعليم العالي المصري في العقود القليلة الماضية العديد من التحديات التي تتلخص في الزيادة الملحوظة في عدد الطلاب، وعدم كفاية القدرات اللازمة لتطوير العمليات التعليمية، وارتفاع تكاليف الرسوم التعليمية في الجامعات الخاصة، والظروف الطارئة خاصة في وقت الأزمات الوطنية مثل انتشار جائحة كوفيد-19. علاوة على ذلك ، ومؤخرا ، أدت الإصلاحات الجامعية في جميع أنحاء العالم إلى خفض الساعات التدريسية للعلوم الأساسية بما في ذلك علم التشريح ، على الرغم من الأهمية الكبيرة لهذا العلم من الناحية التطبيقية وخاصة للجراحين.

وفي هذا الصدد، تعتبر العديد من المؤسسات التعليمية التعلم الإلكتروني حلا ممكنا للعديد من التحديات التعليمية خاصة في خلال الأزمات المختلفة من خلال مزاياه التي لا توجد في طرق التدريس التقليدية. علاوة على ذلك ، يتم استخدام أنماط التعلم البنائية الحديثة القائمة على التعلم المتمحور حول الطالب ، والتعلم القائم على حل المشكلات ، والتعلم القائم على المشاريع ، والتعلم القائم على النتائج ، والتعلم القائم على التوظيف ، والتعلم المعكوس ، والتعلم التعاوني ، والتعلم من الأقران لإشراك المتعلم بشكل كامل والتركيز على ما يعرفه وما يمكنه فعله ولماذا.

من ناحية أخرى، وعلى الرغم من أن التعلم الإلكتروني يوفر المزيد من الفوائد، إلا أن التعلم عبر الإنترنت لم يحل مشكلة ممارسة المهارات الشخصية، لذلك عزز التعلم في أوضاع مختلطة لدمج التعلم الإلكتروني في جميع تجارب التعليم والتعلم.

وختاما، فإن تطبيق التعلم الإلكتروني في التعليم العالي يهدف إلى:

إنشاء وحدات التعلم الإلكتروني كاتجاهات متقدمة في التعليم والتعلم.

تشجيع دمج التعلم الإلكتروني في جميع خبرات التعليم والتعلم.

اعتماد تجربة التعلم الافتراضي لتكون متاحة لكل طالب على مدار اليوم.

تقليل تكاليف العملية التعليمية وخاصة الجلسات العملية.

تعويض تخفيض ساعات التدريس التفاعلية ومحدودية أعضاء هيئة التدريس.

تعظيم دور البحث العلمي في تحسين استراتيجيات التعلم.