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An Overview about Students and Staff Members Satisfaction with Integrated E-Learning among the University Medical Students

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Abstract:Background: Staff members who prioritize the development of student comprehension and have richer conceptions of learning technologies, not only integrate e-learning into their approach to teaching, but also emphasize the importance of the integration of learning across physical and virtual spaces. An innovative integrated e-learning paradigm requires substantial effort and time from staff member to acquire technological skills, design technology-based courses, and deliver relevant and customized education.

Keywords: integrated, e-learning, blended learning, staff member, students

Introduction

Staff members who prioritize the development of student comprehension and have richer conceptions of learning technologies, not only integrate e-learning into their approach to teaching, but also emphasize the importance of the integration of learning across physical and virtual spaces. An innovative integrated e-learning paradigm requires substantial effort and time from staff member to acquire technological skills, design technology-based courses, and deliver relevant and customized education (1) (2).

Definition of integrated E-learning:

The term "Integrate" originates from Latin root "integrate" meaning "make whole", means to blend into a "unified whole". The integrated teaching methodology (both horizontal and vertical) is a holistic and deliberate approach. First the Horizontal Integration, basic science departments (Anatomy, Physiology and Biochemistry) concurrently are merged their educational contents. Second is Vertical integration-integration occurs across disciplines traditionally taught in the different curriculum phases. Online learning is an emerging and constantly evolving method/medium that is commonly used to provide synchronous (real time) and asynchronous (not real time) instruction in higher education at the graduate and undergraduate levels (3)

Modern Techniques of teaching and learning:

1. **Case-based learning:** Students are given the opportunity to explore real cases to compensate for the lack of motivation in traditional lectures.
2. **Evidence-based medicine:** based on formulating a question based on uncertain information, 2) retrieving the most relevant evidence, 3) critically assessing it for internal validity, 4) applying the results to clinical practice, and 5) evaluating performance.
3. **Problem-based learning:** students try to solve a problem without receiving lectures on the subject matter to link learning material with the real-world context of students.
4. **Stimulation based learning:** a man-made illustration of a true world to attain instructional motives through experiential learning. The principle behind simulation learning is to utilize simulation aids to mimic real clinical scenarios.
5. **Social media & video lectures (e-learning):** These online communities are helpful to circulate information, thoughts, and various other contents like Twitter, Facebook
6. **Peer assisted learning:** It is a team-based non-professional learning which consists of a group of people helping each other in the learning process
7. **Observational learning:** learning through demonstration, mostly important in the medical field in due consideration of “patient safety first”.
8. **Flipped classroom:** a bridging strategy to connect one unit to another and making a linkage between one's newly acquired information with his existing cognitive structure
9. **Team-based learning:** the in-class TBL activities offer an interactive, expert led teaching session that allows many students to work within small teams to apply content to specific problems **(4)**.

A paradigm shift:

Covid 19 pandemic has forced all many people to immediately adapt and customize into a digital lifestyle **(5)**. The 21st -century is a transition of learning in which the curriculum developed at this time requires the change of the instructional approach centred educator (teacher-centred learning) to teaching approaches centred learner(student-centred learning)**(6)**. Educators are encouraged to serve as facilitators of learning rather than sole distributors of content knowledge **(7)**.Due to rapid changes and challenges caused by new technologies and competitive pressures, universities are trying to innovate their services and increase their public image **(8)**.

History of integrated e-learning:

The history of integrated curriculum (IC) is linked with 1930s and beyond **(9)**. “Integrated curriculum” was not used formally until 1931 **(10)**. In the last two decades, several countries, such as Canada, USA, Netherlands, Saudi Arabia and India shifted their postgraduate and/ or undergraduate medical curricula to the competency-based paradigm (systems of instruction, assessment, grading, and academic reporting) **(11)**.

History of integrated e-learning in Egypt:

Cairo University Faculty of Medicine since its establishment in 1978, adopted an integrated curriculum with problem-based and community-based strategies **(11)**. then a collaboration between Mansoura University and The University of Manchester that began in 2006 aimed to expand Mansoura's medicine program **(12)**.However, until 2008, most medical schools in Egypt still adopted discipline-based curricula taught via didactic large-group lectures and apprenticeship approaches as a result, there was a deterioration of the quality of education **(13)**. In 2017, the Supreme Council of Egyptian Universities (SCU) approved radical reform, mainly converting the 6-year academic and 1-year internship program into 5 years and 2 years, respectively.The new curriculum model started on September 2018, for the first-year students **(11)**. Additionally, the discipline-based curriculum was changed to a modular integrated model.Most of the schools

introduced an introductory module, in year one, preparing students for further undergraduate studies. All schools added elective module(s)(Informatics & Health education) **(11)**.

Research methodology was introduced into all curricula. Assessment policies witnessed a dramatic change, getting away from knowledge recall and using objective, structured methods. In 2021, Manchester has formed a partnership with Alexandria University, to establish a joint award medical program **(11)(12)**.

Egyptian knowledge bank:

In June 2007, the Egyptian E-Learning University was established. **(14)**. In preparation, a faculty development program under the title of teaching excellence in medical education was conducted by the Egyptian Knowledge Bank (EKB) in collaboration with the Medical Military Academy. From the year 2017 to 2020 the EKB organized 48 workshops of 430 hours in total **(11)**.

Harden ladder:

It is ladder with 11 steps in the level of integration. It's designed for planning, implementing and evaluating medical curricula it has 11 steps from subject-based to integrated teaching and learning **(15)**. The initial steps on the ladder mean individual subjects or disciplines. As we ascend, the focus shifts toward integrating knowledge across multiple fields. In the final step, students assume greater responsibility for this integration **(16)**. In the first four steps (called Isolation, Awareness, Harmonization, Nesting) study disciplines are specified. While rising along other six steps (Temporal coordination, Sharing, Correlation, Complementary, Multidisciplinary, Interdisciplinary), integration of several individual subjects is stressed, and interdisciplinary connections are intensified. When on the last, is the "Transdisciplinary step", the students take greater responsibility for the integration process **(17)**.

Staff member satisfaction with integrated e-learning:

With the beginning of integrated learning application, several participants of the program were hesitant about the curriculum reform. They thought that decreasing the traditional didactic lectures and turning into small group discussions may hinder the delivery of important topics that students will not learn and that will affect the quality of graduate medical students **(18)**. During course planning meetings, there was extensive "faculty development." Faculty members from basic biomedical science and clinical backgrounds for each new course met regularly to review and revise all materials intended for advanced preparation and in-class use **(18)**. Some of them agreed that a new system came with new requirements. Without enough and reasonable income, it would be impossible to fulfil the needs of implementing it **(19)**.

Student satisfaction with integrated e-learning:

Integrated teaching is valued for its ability to enhance conceptual clarity, promote better understanding, and reduce fragmentation. By connecting related concepts across subject areas, it minimizes repetition. However, some students do find it time-consuming **(20)**.

Our students become aware of their active roles in global management affairs. We prioritize integrated learning, allowing learners to gain perspective on global issues, cultivate empathy for others, and develop insights into the challenges faced by different individuals **(21)**. From their perspective, the integrated curriculum focus on the importance of small group learning, problem-based learning, self-directed learning, enquiry-based learning, use of e-learning, and hands-on training in clinical skills lab, as well as practical work **(22)**.

Advantages of integrated e-learning:

Staff members used to rely on didactic lectures and conducted by individual disciplines. In this isolated discipline lectures, students fail to see the relevance of different disciplines and cannot develop the required skills such as critical thinking, problem solving, and decision making **(23)**.

The advantages of integrated teaching over traditional didactic lectures are: **(3)**.

- Integrated teaching reduces fragmentation of medical courses
- Prevents repetition and time consuming

- Students apply their knowledge to clinical practice
- Promotion of interdepartmental collaboration
- Rationalization of teaching resources

The advantages of digital learning over with traditional teaching: **(24)**

- Digital learning provides learners with the flexibility to choose when and where they engage in their studies, without the constraints of traditional classroom settings. Through online interaction with instructors, learners can overcome time limitations.
- Rich network resources: The Internet covers rich and wide range of information that learners could get data simply by searching key words
- Reduces the cost of investment for academic institutions, so a large number of participants can join the virtual classroom **(25)**.

Blended learning:

Interestingly, e-learning is viewed by learners as a complement not a substitute for the traditional educator-led teaching method **(26)**. Accordingly, practical teaching strategies could be developed by combining with current traditional teaching and the digital learning to achieve the best teaching effectiveness **(24)**. It serves as part of a blended learning system that combines e-learning technology with traditional educator-led teaching **(7)**.

Content & language integrated learning:

Content and Language Integrated Learning (CLIL), coined by David Marsh and Do Coyle in the mid-1990s, involves studying a subject while simultaneously learning a language (such as English). The key idea behind CLIL is the seamless integration of language learning and content development **(27)**.

TBL:

Team- based learning allows medical staff members to provide students with effective resource & experience of working in teams to solve real life clinical problem. During the clinical problem-solving activities, teams use their collective knowledge, clinical reasoning, ethical views, skills and values to solve complex clinical problems that apply to real life situation **(28)**. However, negative aspects of the students' TBL experience included limited time to complete problem solving activities they find it has reduced effectiveness and efficiency when compared to didactic learning, causing students to feel less satisfied and feel they haven't gained sufficient knowledge as they had wanted **(28)**.

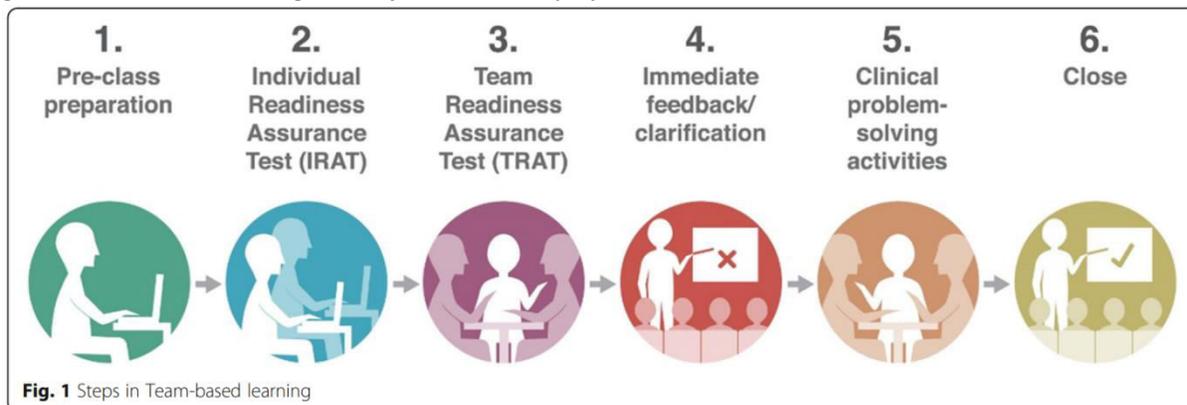


Fig.: Steps in Team-based learning **(29)**.

Challenges & Barriers of integrated e-learning:

- Scepticism and resistance were found from some faculty members who felt that such young students would be unable to adopt self-directed learning.
- Some students ignore subjects that contributed a small share in some modules scoring system in the integrated curriculum, which assigned scores to learning outcomes rather than disciplines.
- Students in the modular system would not provide a good base of the required knowledge in all disciplines.

- Integrated system requires that staff member to change the way of teaching, which they had been adopting for a long time.
- Collaboration with colleagues from other departments to plan classes required to make an extra effort that they used to do in the original curriculum.
- Many students complained of overload in the content of many modules.
- Early clinical exposure could not be satisfactorily achieved in some medical schools because of the imbalance between students and training places.
- In some medical schools, the level of horizontal integration wasn't satisfactory due to synchronization without actual exchange of material and educational plans to ensure proper sequencing of educational activities.
- Lastly, the COVID-19 pandemic caused an extra burden in the implementation **(11)**.

Conclusion:

Faculty members generally appreciate integrated learning approaches. They find that it fosters collaboration, enhances interdisciplinary understanding, and promotes critical thinking. However, some may express concerns about additional workload or the need for effective training. Students' experiences with integrated learning vary. Many appreciate the holistic perspective it provides, linking different subjects and real-world contexts. However, some find it challenging due to increased complexity or time demands. In summary, while integrated learning has its benefits, addressing faculty workload and ensuring effective student support are crucial for overall satisfaction

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