

Comparative Study between Integrated Curriculum and Traditional Conventional Curriculum in Faculty of Medicine – October 6 University

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Abstract: Background: conventional departmental traditional medical teaching is the classic way for medical teaching. However, teaching basic sciences alone gives less chance for students to correlate the basic background with clinical diseases. The integrated method of medical teaching evolved to help students to correlate and integrate the knowledge they gained and make maximum benefit of it. **Aim of the work:** to compare the effect of integrated medical teaching method versus the conventional traditional medical teaching method among students and staff of Faculty of Medicine - October 6 University. **Materials and Methods:** A prospective study was done on 100 October 6 university medical students and staff. (40 students of the traditional method, 40 students of the integrated system and 20 staff members who teach both methods). A questionnaire about the efficiency of teaching was filled out by the participants. **Results:** The mean marks given for the integrated teaching method were statistically highly significant than that given for the conventional traditional method (54.42 ± 2.41 versus 48.27 ± 1.97). Most of the results were in favor of the integrated system except for the teaching hour's sufficiency which was reflected on the increased stress of the students. **Conclusion:** Integrated teaching was found to be an effective method of teaching than the traditional conventional method as for students and staff.

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1. Introduction

The main target of medical education is to help students to assimilate knowledge and skills in different subjects to apply it the right way for the benefit of the patients and the society (Custers & Cate, 2002). The undergraduate students among the traditional conventional method of medical teaching gain their knowledge especially the basic sciences in isolation as each subject is taught independently. This method gives little chance for students to correlate and integrate the information they gained. The students are not going to master the part taught as a whole, and some of them will find the subjects boring and lose interest to study (Huber & Hutchings, 2009). Some students try to study only the taught parts just to collect exam marks without being able to perfectly practice or apply what they have learned. The lectures given to students among the conventional traditional method depends mainly on the ability of the professor to simplify, summarize, and reoffer the information to students in an easy and palatable way (Beane, 1997).

An integrated curriculum is a non-compartmentalized approach to learning. The types of

integrated teaching include horizontal integration and vertical integration (Shimura et al., 2004). If the departments teaching concurrently in a single phase of curriculum, then it is a horizontal integration, and when integration occurs between subjects taught traditionally in different phases of curriculum, then it is called as vertical integration. However, both horizontal and vertical integration go hand in hand in an integrated course (Vyas et al., 2008).

The Medical council in Egypt stressed on the need-based curriculum to create interest among students, remove excess unnecessary information that are easily forgettable and may not be used or applied, in addition to avoiding repetition and duplication of lectures on identical subjects by different departments. In Egypt, all the medical schools were obliged to follow the integrated method for medical teaching since the year 2018.

The integrated learning method applied on Faculty of Medicine - October 6 University is student centered. Beside lectures and the usual clinical

sessions, it depends on the small group teaching in which integrated clinical case scenarios are constructed by sharing departments in each module. Students practice brainstorming and problem-based learning to find the objectives, team-based work to collect and summarize the needed data as well as presentation skills. Other integrated learning methods -mainly flipped- are used on October 6 University as interactive screen, SECTRA table, and the robot talking patient ALEX, the aim is to increase students engagement in collaboration, discussion and peer review.

Assessment of students in the integrated system is carried through electronic exams using Moodle platform. For most professors, the electronic exams are preferable in their accuracy and faster results, its efficacy and cheating prevention is still a matter of controversy. The questions vary between multiple choice questions, matching, short answer questions, objective specified practical exams (OSPE), objective specified clinical exams (OSCE), beside the assignments, presentations, and portfolios.

The Aim of the present work was to compare the effect of integrated medical teaching method versus the conventional traditional medical teaching method among October 6 university medical school students and staff.

2. Subjects and Methods

The study was carried out on 100 participants; 80 students and 20 staff members, all related to Faculty of Medicine - October 6 University. The study was performed between March and August 2020. The staff members included in the study was chosen to be among those teaching students in both the traditional system as well as the integrated one (physiologists, anatomists, surgeons, gynecologists, pediatricians,

and community medicine). The students were divided into two numerically equal groups.

Group I: included students who were studying the conventional traditional teaching system.

Group II: included students who were studying among the integrated system.

A questionnaire was constructed to easily collect a total mark after analysis of the results of each system, reflecting the opinion of the students and staff about the methods of medical teaching and how much it benefits students, affects their lifestyle, led them to correlate the information they gain, and become efficient medical practitioners. It consisted of 16 questions (6 general, 6 for non-traditional methods and 4 for exams) and each question was evaluated by a maximum of 5 marks (80 marks total). The questionnaire was made on Microsoft forms and the link was sent by mail to all participants to fill it then submit their answers. The data collected were analyzed statistically using unpaired "t" test (SPSS version 17).

3. Results

According to the results obtained, the overall recommendation was in favor of the integrated system. The results showed that integrated handouts give more benefit to students, help to simplify the information, and made studying easier than the traditional ones. The ability to recall the main points of the lecture information was also higher in the integrated method. On the other hand, significantly higher values were obtained in conventional traditional method in regards to the students stress control during studying and its related reflection on their normal lifestyle. The marks given for the teaching hours required to reach an objective were also higher in conventional method (Table 1 and Figure 1).

Table 1: Different items comparison between traditional conventional and integrated systems

Questions	Average rating (of 5)		Sig n.
	Traditional	Integrated	
I generally recommend the system	3.13± 0.21	3.76± 0.36	HS
Handouts are sufficient for studying & help to make studying easier	3.32± 0.35	3.36± 0.29	S
I can recall most of the lectures after attending it in the system	2.63± 0.33	3.29± 0.26	HS
The system decreases stresses of medical students through studying	3.25± 0.22	3.10± 0.16	S
The system hinders normal exciting life of medical students	3.34± 0.35	3.26± 0.29	S
Teaching hours are sufficient to understand curriculum	3.02± 0.1	2.40± 0.23	HS
Non-traditional methods			
Small group teaching is efficiently practiced in system	3.21± 0.29	3.41± 0.38	S
Brainstorming is efficiently practiced in system	3.26± 0.34	3.68± 0.38	HS
Problem-based learning is efficiently practiced in system	3.09± 0.12	3.59± 0.32	HS
The system increases the student's research skills	3.07± 0.16	3.42± 0.27	HS
Team-based work is efficiently practiced in system	3.19± 0.25	3.62± 0.41	HS

The system increases the presentation skills of students	3.33± 0.38	3.86± 0.43	HS
Exams	Paper (traditional)	Electronic (integrated)	
The method is more accurate & results are quicker	3.06± 0.24	3.48± 0.37	HS
The method prevents cheating to great extent	2.50± 0.32	3.57± 0.39	S
The method added more computer skills to students	2.11± 0.14	3.40± 0.26	HS
OSPE in the method is efficient	2.76± 0.18	3.22± 0.31	HS
Total marks	48.27± 1.97	54.42± 2.41	HS

Unpaired "t" test; HS = highly significant = <0.001 S = significant = <0.05 NS = non-significant

As regards the non-traditional methods used (small group teaching, brainstorming, problem-based learning, research skills, team-based work, and presentation skills), the obtained results showed significant to highly significant increase in the marks given for the integrated system compared to the conventional traditional system (Table 1 and Figure 2).

The accuracy, faster results, cheating prevention, computer skills obtained and OSPE efficiency of the electronic exams was reflected on the higher values given for the integrated method compared to the conventional one (table 1 and figure 3).

The total mark in conventional teaching method was 48.27±1.97 and in integrated teaching method was 54.42±2.41 (out of 80). The difference between both was 6.15% which was considered statistically highly significant (Table 1).

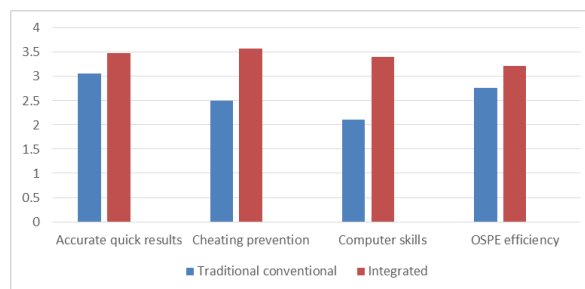


Figure (1): exams evaluation comparison between traditional conventional and integrated systems.

4. Discussion

The results obtained from the present study were in favor of the integrated teaching approach in comparison to the conventional teaching method. According to the results analysis, the integrated system allowed the student to practice brain storming, team-based learning, problem-based learning, presentation skills and develop more clinical and research skills than the traditional system, this is consistent with the results of **Kreitzer et al. (2003)** who stated that the integrated system improved the team-based learning among medical students than the conventional traditional method. **Hirsh et al. (2007)** also concluded that the integrated system allows student to brainstorm, get contacted with clinical cases from the early beginning and early practice team-based learning and case-based learning. It is also consistent with the findings of **Obi et al. (2020)** who found that the integrated system greatly urges students to self-learning parts of the curriculum where they study and summarize by their own and present them in front of their colleagues.

The obtained results pointed that the teaching hours required to reach an objective were more satisfying in conventional method than the integrated system. This was a major complain for the physiologists, anatomists, and surgeons. This issue was previously reported by **El-Naggar et al. (2007)** who stated that the fragmented approach to teaching is the sole disadvantage in this system of education. This was reflected on the conventional student lifestyle and decreased the hours needed for studying and led them

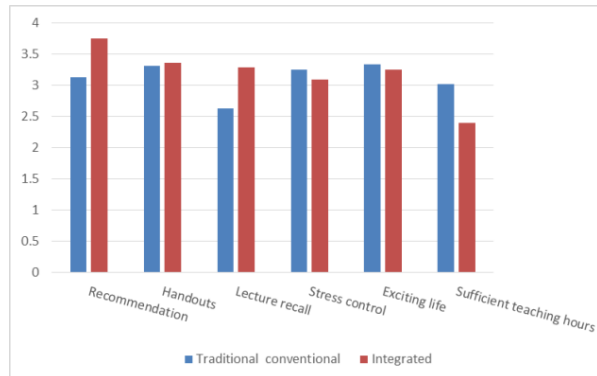


Figure (1): general comparison between traditional conventional and integrated systems.

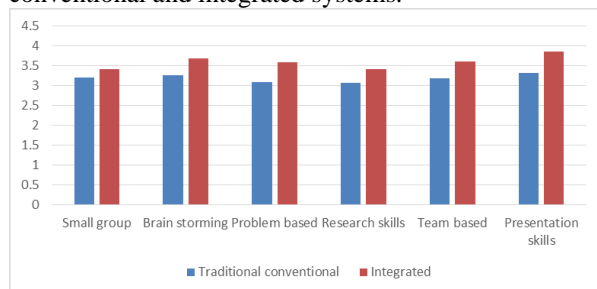


Figure (1): non-traditional methods evaluation comparison between traditional conventional and integrated systems.

to live normal life with less stress added. In order to overcome this disadvantage, the curriculum development committee revised the contents of the curricula, rearranged the objectives included, and carefully cancelled the duplicated parts of different departments. Also, some of the easy objectives were shifted for self-learning and problem based.

The results showed that the integrated handouts significantly simplified the information and helped students to study and correlate the basic and clinical information given than in the discipline based traditional textbooks. The results also showed a better performance in recalling the main points in the integrated system than after the ordinary traditional lectures, this may be due to the previous reading of the objectives before discussing them and solving examples in the flipped classroom that is frequently used in the integrated system. Studies all over world have confirmed that the performance of the students after integrating is better than the performance after conventional method (**Federal Ministry of Health of Nigeria, 2012**). Integrated teaching improves the cognitive and psychomotor skills of the students and creates interest in topics and eliminates the fear toward the subject (**Uma et al., 2015**). Students trained with integrated curriculum were more accurate in diagnosis of clinical disorders than those trained in a conventional curriculum (**AlBuali & Khan, 2018**).

The results showed that the electronic exams were significantly more accurate, showed results much quicker, prevented cheating and added more computer skills to integrated system students by far more than the traditional paper exams.

In general, we agree with the conclusion of **Al-Damegh & Baig (2005)** who described the integrated teaching method as an innovation in the medical curriculum that could change the outlook of teaching-learning process. The medical education specialists recommended such a teaching-learning method decades ago (**Jonas et al., 1989**). The integrated system of education follows a building principle to achieve the best results (**Pokhrel et al., 2016**).

The present study was limited to the first two years on Faculty of Medicine - October 6 university and the authors recommend further studies in the coming years and after the students finish their undergraduate degree. And with larger number of participants.

Conclusion:

Integrated teaching is an effective method over the conventional teaching method, it is welcomed with great enthusiasm both by students and faculty staff.

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References

- [1]. AlBuali W, Khan A, Challenges facing the shift from the conventional to problem. *High Educ Stud*, 2018;8(1):36
- [2]. Al-Damegh SA, Baig LA, Comparison of an integrated problem-based learning curriculum with the traditional discipline-based curriculum in KSA. *J Coll Phys Surg Pak*, 2005;15(10):605-8
- [3]. Beane JA, Curriculum Integration: Designing the Core of Democratic Education. 1st ed. New York. Teachers College Press, 1997;4.
- [4]. Custers, EJ, Cate OT, Medical student's attitudes towards perception of the basic sciences: a comparison between students in the old and the new curriculum at the University Medical center Utrecht, The Netherlands. *Med Edu*, 2002;36(12):1142-50.
- [5]. El-Naggar MM, Ageely H, Salih MA, Dawoud H, Milaat WA, Developing an integrated organ/system curriculum with community-orientation, for a new medical college in Jazan, Saudi Arabia. *J Family Community Med*, 2007;14(3):127-36.
- [6]. Federal Ministry of Health of Nigeria, Undergraduate Medical and Dental Curriculum Template, Available from: <https://www.hfgproject.org/nigeria>. Published Jan 2012.
- [7]. Hirsh DA, Ogur B, Thibault GE, Cox M, "Continuity" as an organizing principle for clinical education reform. *N Engl J Med*, 2007;356(8):858-66
- [8]. Huber MT, Hutchings P, Integrative Learning: Mapping the Terrain. The Academy in Transition. 2nd ed. Association of American Colleges and Universities, Washington, DC, 2009;2.
- [9]. Jonas HS, Etzel SI, Barzansky B, Undergraduate Medical Education. *JAMA*, 1989;262(8):1011-9.
- [10]. Kreitzer MJ, Disch J, Leading the way: The Gillette Nursing Summit on integrated health and healing. *Altern Ther Health Med*, 2003;9(1):3A–10A.
- [11]. Obi CO, Onosogbe M, Ehimen AG, Olamide O, Toluwalase TV, Esther O, Joshua DA, Aborode AT, Comparison of the integrated

- organ/systems-based curriculum with the traditional subjects-based medical curriculum: short communication. *Ann Med Surg (Lond)*, 2020; publish queue.
- [12]. Pokhrel R, Tandon A, Bhatnagar R, Integrated Versus Traditional Method in Basic Medical Science Education: A Comparative Study in an Indian Medical College, *Medical Journal of Shree Birendra Hospital*, 2016;15(1):32
- [13]. Shimura T, Aramaki T, Shimizu K, Miyashita T, Adachi K, Teramoto AJ, Implementation of integrated medical curriculum in Japanese medical schools. *J Nippon Med Sch*, 2004;71(1): 11-16
- [14]. Uma P, Rajani K, Usha P, Student's perception about integrated teaching in an undergraduate *Indian J Basic Appl Med Res*, 2015;4(2):47-52
- [15]. Vyas R, Jacob M, Faith M, Isaac B, Rabi S, Sathishkumar S, Selvakumar D, Ganesh A, An effective integrated learning programme in the first year of medical learning program in the first year of medical course. *Natl Med J India*, 2008;21(1):21-6.

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