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Editorial

Integrated Teaching In Medical Education

Introduction

Traditionally the subjects of MBBS curriculum are taught separately with an emphasis on the basic science in early years and clinical experiences in the later year. Hence current medical education imparts knowledge in a disjointed manner and does not allow students to develop the skills to investigate, analyze and prepare to perceive the patient as a whole.[1] later, it was realized that fusion of knowledge from different subjects was very much needed, and to the concept of integrated teaching was evolved. Integrated teaching is a relatively new teaching–learning method which cuts across the subject matter lines and brings focus on broad areas of study, which is interactive and motivates the students to learn how to solve the real problems.

Beane[2] first reviewed integrated curricula in the general education literature and the term soon there after appeared in medical education. McMaster University in Canada was one of the first to implement a progressive, trans-disciplinary curriculum structure across all years of its curriculum (the ‘‘McMaster approach’’), which has been developed, revised, and copied over the past several decades.[3] Designed to be repetitive yet progressive, the “integrated curriculum” has rapidly risen to popularity with the belief that breaking down the barrier between the basic and clinical sciences improves connections between these disciplines and enhances graduates’ retention of knowledge and development of clinical skills.

In order to provide health care for the ever-changing society, various international workforces, such as a global independent commission on education of health professionals for the 21st century and the Carnegie foundation, published various articles focusing on the needs and recommendations for medical education reform.[4-6]Today’s medical education system aims at imbibing new teaching learning methods so as to keep up with the requirements of and to match the international standards. For any system to progress and achieve excellence, it has to be subjected to suitable changes. The field of medical education, being an increasingly demanding and competitive should also be subjected to timely changes. Over the years, a lot of new teaching methods have not only evolved but also made a mark for themselves as far as teaching methodology are concerned. Thus to improve the quality of students and to have effective understanding, diagnosis and also a better treatment of the patients, integrated teaching is need of hour. Integrated teaching aims to provide knowledge to the students in a complete organized and wholesome manner thereby enabling the students to have a more clear view of the topic, while on the other hand it takes a toll on the students themselves. Study findings reported that students trained within an integrated curriculum made more accurate diagnoses than did students trained in a conventional curriculum.[7]

Harden, one of the prominent pioneer in medical education suggested in 1984 that “integration is the organization of teaching matter to interrelate or unify subjects frequently taught in separate academic courses or departments”.[8] In 2015 Association for Medical Education in Europe (AMEE) published AMEE guide number 96 suggesting an updated definition that “integration is a fully synchronous, transdisciplinary delivery of information between the foundational sciences and the applied sciences throughout all years of a medical curriculum.”.[9]

Integration based on the time period when subjects have been weaved together, can be categorized into horizontal, vertical and ultimately spiral integration.

Horizontal integration (concurrent) integration[9] is defined as integration across disciplines but

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within a finite period of time. For example, an integrated urinary system course for the preclinical medical students is a result of weaving related topics that once separately taught in various subjects such as physiology, biochemistry and anatomy.

Vertical (sequential) integration[9] refers to an integration of various subjects across time periods, especially across the boundary between preclinical and clinical years. In other words, the vertical integration enables an introduction of clinical experiences to medical students earlier in the curriculum and promotes integration of basic or functional sciences throughout the clinical years.

Considering the boundary between preclinical and clinical years, applying principles of vertical integration will transform 'H-shaped' into 'Z-shaped' curriculum (Fig 1).[10] Successful vertical integration will motivate and engage preclinical students to course materials. On the other hand, it will provide opportunities for students in clinical years to revisit the foundations underlying clinical knowledge.

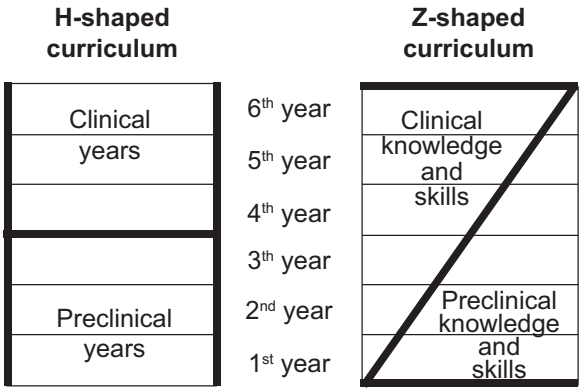

Fig-1: *A 6 year medical curriculum in H-shaped and Z shaped format*

Spiral integration (Fig 2) results from the successful implementation of both horizontal and vertical integration. Integration enables an evolution of concepts regarding foundational sciences, clinical sciences, clinical skills, health promotions and ethics all along the curriculum including the planned opportunities for students to revisit the previous knowledge and to advance the current knowledge to the higher levels of learning.

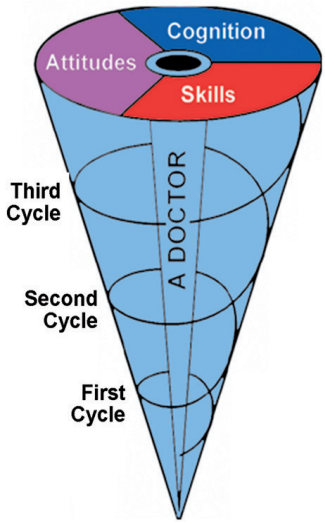

Fig-2: *Spiral curriculum*

An integrated teaching offers several advantages. Basic sciences are simplified without needless details and taught along with clinical disciplines. Learning is abbreviated without repetition in different subjects giving a composite picture with simultaneous clinical demonstration. There is a need to the students by correlating the various subjects to create interest and promote active learning. This can be achieved by teaching the same topic in sequence manner from different faculty members of different departments. This concept may not be relished by the teachers of both basic and clinical sciences who may feel their interests to be in jeopardy. Integration involves all subjects and therefore should be an official policy applicable to institution as a whole and cannot be implemented by individual subjects. The shifting of the teaching from independent to interdependent is very much required and medical education all over the world recognizes that the integration in medical education is one of the major education. reforms required.

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