

Medical education – competency based medical education - how far, how near - moving from rote learning to artificial intelligence – part 1

N.K. Gupta^{1*} and Uma Gupta²

¹Department of General Surgery, Hind Institute of Medical Sciences, Thasil: Sidhauri, Dist: Sitapur-261303 Uttar Pradesh, India and ²Department of Obstetrics & Gynecology, Era's Lucknow Medical College, Sarfarazganj, Hardoi Road, Lucknow-226003, Uttar Pradesh, India

Received: 22nd October 2022; Accepted: 12th December 2022; Published: 01st January 2023

Introduction

Education has been important in human life since time immemorial. It has witnessed and assimilated changes with time. Word education is derived from Latin word Educatio, consisting of two words "e" (from, out) and "duco" (I lead OR I conduct) – which has many meaning like – I lead forth, I take out, I raise up. Education encompasses many fields so defined accordingly. From process to product. It ranges from an improvement in the learners to not assigning any value to it. At present, it means multiple changes may be multiple times to make it learner centered and outcome based, to make competent Indian medical graduate

Education

General definition of education is – to bring in desired changes including new ideas, technology of the time, freeing of learners - neither caging nor cocooning but at his/her pace in appropriate environment, at appropriate time by their preferred methods . Skills should match and meet current problems of society, attitude, communication and empathy and technical and professional skills which are usually complex, added are ethics and enforcement of legal issues. In spite of various needs, there are some common methods of education which include – teaching, training, storytelling, discussion, reflection and relevant research.

Education reforms, as per need of the hour will also continue in future, currently focus is on problem based learning and problem solving

learning, depending on needs. In this direction basic step is right to learn to meet sustainable development goals. It is more productive when every stage and step achieved at proper time, also de-loads burden at later stages [1].

Medical Education

Medical education has kept pace with time – it has added too much information and many more fields/issues are added, which has taken a heavy toll on human mind to learn all, apply all immediately in patient management, therefore each activity should be relevant, concise, precise, contemporary approach, feasible considering economic aspects of country and medical and health facilities including trained and skilled workforce (Human Capita). If not followed this leads to loss of interest, concentration and focus and frustration leading to failures.

Competency based medical education is one such approach which is comprehensive, learners centered and focused approach to the problems of medical education. However it needs time to acquire, infrastructure, technology to develop proper learning and teaching methods and assessment that fits to these planned learning methods. Most important is "Human Factor" that is Learners which include students as much as teachers, in my opinion teachers need to be receptive and be good role model. All hesitation, lack of interest in new technology, dedication and sincerity from teachers has to be removed.

The learning process in ancient times started from rote learning and at present reached to robotics, simulation, telemedicine and artificial intelligence – to solve learning crisis (enrolled in teaching institutions but not learning) developed due to multiple factors. We will discuss merits, demerits in each area and suggest practical solutions to meet the objectives in global context.

Sustainable capacity development requires complex interventions at the institutional, organizational and individual levels that could be based on some foundational principles national leadership and ownership should be the touchstone of any intervention [2].

- Strategies must be context relevant and context specific;
- Plans should employ an integrated set of complementary interventions, though implementation may need to proceed in steps;
- Partners should commit to a long-term investment in capacity development while working towards some short-term achievements;

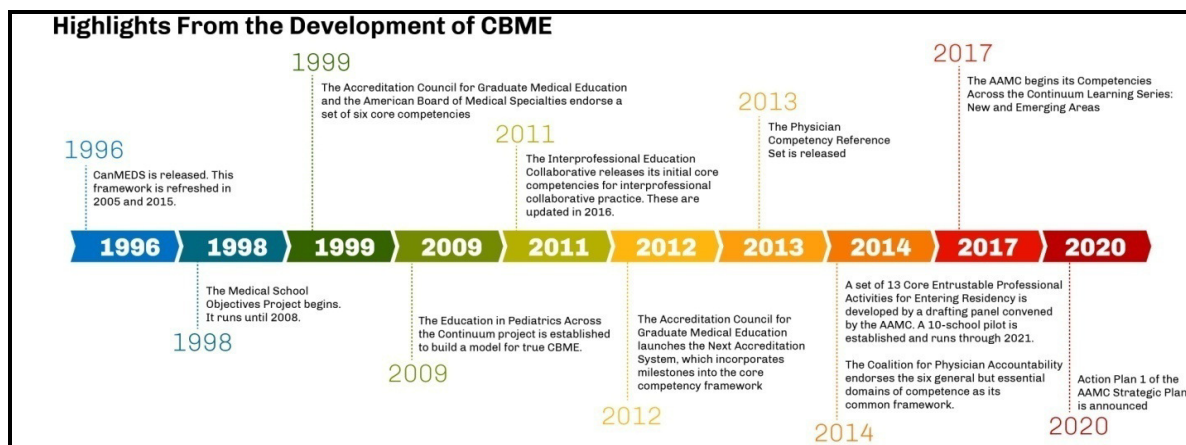
- Outside intervention should be conditional on an impact assessment of national capacities at various levels;
- A certain percentage of students should be encouraged for improvisation of academics (usually practiced in schools, after 10th grade).

Competency-Based Medical Education (CBME) [3]

Medical education is changing to meet the demands of our evolving health care system. One of these changes is the development and implementation of competency-based medical education (CBME).

CBME is an outcomes-based approach to the design, implementation, and evaluation of education programs and to the assessment of learners across the continuum that uses competencies or observable abilities.

The goal of CBME is to ensure that all learners achieve the desired patient-centered outcomes during their training.



For the purpose of convenience, explanation and understanding, this is divided into following issues, to be discussed in forthcoming parts;

1. Learners including student and teachers – changing scenario, solutions to some of problems – like change in attitude and learning crisis. Role models. Importance of Leadership, mentorship and facilitators.
2. Learning environment.
3. Teaching and learning methods including media, problem based learning, integration and role of peers. Role of flipped teaching

and credit based system. Role of priming to make learning easy.

4. Management of contents – General and specific (depending on needs – meeting the target) and management of time – prioritizing priorities (learning to fix priorities).
5. Assessment and evaluation
6. Role and significance of improvement methods - including innovations and research - Learn, unlearn and Relearn and Up-skilling and re-skilling; New problems

- New diagnostic methods and new treatments (Like Corona 19 and monkeypox, new malaria in human being), changes in work place, international collaboration and cooperation etc

7. Legal, ethical, professional, Global changes and medico-legal issues.
8. Prevention and management of conflicts, stress , administrative problems at work place and life style problems

Financial Support and sponsorship: Nil

Conflicts of interest: There are no conflicts of interest.

References

1. Wikipedia. Education (Cited on 22-10-2022) Available from: <https://en.wikipedia.org/wiki/Education>
2. de Grauwe A. (2009). *Capacity development strategies* (Report). Paris: UNESCO-IIPE. Archived from the original on 5 May 2010. Retrieved 1 October 2010. Available from: <https://web.archive.org/web/20100505082915/http://www.iiep.unesco.org/en/capacity-development/capacity-development-strategies/synthesis.html>
3. AAMC. Competency-Based Medical Education (CBME), (Cited on 22-10-2022) Available from: <https://www.aamc.org/about-us/mission-areas/medical-education/cbme>

Cite this article as: Gupta NK and Gupta U. Medical education - competency based medical education - how far, how near - moving from rote learning to artificial intelligence-part 1. *Al Ameen J Med Sci* 2023; 16(1):1-3.

This is an open access article distributed under the terms of the Creative Commons Attribution-Non Commercial (CC BY-NC 4.0) License, which allows others to remix, adapt and build upon this work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

*** About the author:** Dr. N.K. Gupta is a noted expert in General Surgery at Hind Institute of Medical Sciences, Thasil: Sidhauri, Dist: Sitapur-261303 Uttar Pradesh, India. He can be accessible by E-mail: drnkgupta2000@gmail.com