

Medical education – competency based medical education - how far, how near - moving from rote learning to artificial intelligence – Challenges in medical education and preparing faculty to meet current and future challenges - part 3

N.K. Gupta^{1*}, Ayesha Ahmad² 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: 25th November 2023; **Accepted:** 13th December 2023; **Published:** 01st January 2024

Introduction

In last two manuscripts we discussed, Medical Education - competency based medical education – How far and how near - moving from rote learning to artificial intelligence part 1 [1] and Medical Education - competency based medical education – How far and how near - moving from rote learning to artificial intelligence part 2 – Preparing learners to meet future changes and challenges [2].

In this concluding article we will discuss challenges faced by faculties and ways and means to meet them for comfortable and reasonable achievements.

The world is changing at fast pace, changing old or previous entities and creating new challenges and developing new ways, means and methods to meet them to solve them. Medical education and practice is also affected by such changes. As faculties or teachers, onus lies on us to prepare our own physicians of futures who are lifelong learners. This will happen only if we practice same and present as role models – as academicians, trainers, mentors and lifelong support to solve their oncoming problems.

Challenges faced by teachers or faculties: Major challenges faced at individual and institutional levels by faculty can be broadly divided into old/previous and new/current challenges.

Old/Previous Challenges

**Shortage of faculty:* On reviewing the literature of last few decades, there has been shortage of faculty almost at all levels worldwide and it seems that in near future it will not match or fulfill the required number as more colleges/schools and institutions are opening and to some extent solution lies in integration of subjects (across the discipline) and topics (Related and similar parts of different subjects) [3-4]. This has been accepted by Government of India for many times for long time [5-6].

Academic dishonesty: Integrity is a necessary attribute expected in practitioners of medicine. Unfortunately there is evidence on hand that academic dishonesty is widely prevalent in many Indian medical colleges and that a proportion of students seem to think that there is nothing wrong in participating in such acts and needs to be discouraged as those indulging in unethical acts during student days are likely to indulge in similar practices while dealing with their patients. It is, therefore, necessary that teachers in medical colleges show 'zero tolerance' to such acts. A milieu of transparency, fairness and student awareness will go a long way in minimizing this pervasive malady [7]

Stagnant and static medical syllabus and teaching methods

A) *Calls for curriculum reform:* The first issue confronting medical education in India is curriculum reform, with many calls for curriculum change having been made in the last 30 years. Various committees and commission were made but recommendations never accepted and implemented [8].

B) *Curriculum structure and recent reforms:* Regulations for medical school curricula were substantially revised in 1997 in an attempt to promote small-group learning, greater emphasis on health and community, problem-based learning approaches, and horizontal and vertical integration, vertical and horizontal integration but discipline-based teaching remains the predominant mode of education. Competency based medical education which is better approach, is implemented since 2019 for undergraduate and postgraduates and to give weightage for internship training, NEXT is advocated and will be implemented in future [8- 9].

Patient shortage and clinical training problems

There has been multiple reports of inspections, stating repeatedly in most of medical colleges and same was raised even in Rajya Sabha by Dr.Shantanu Sen (Dy No.185 dated 09.12.2019). Hindrance even in developed countries as challenges of clinical teaching include - Time pressures Competing demands - clinical (especially when needs of patients and students conflict); administrative; research; Often opportunistic – makes planning more difficult; Increasing numbers of students; Fewer patients (shorter hospital stays; patients too do not cooperate with students) ... Patients too are our Teachers - Sir William Osler's dictum that "it is a safe rule to have no teaching without a patient for a text and the best teaching is that taught by the patient himself" is well known.

New Challenges

Learning crisis, unprepared, underprepared and disinterested, forced/ compelled in medical profession and unmotivated learners, fast changing medical information and aware but incomplete and out of context knowledge of patients, change in attitude and expectation of patients – from service seeking to consumer and

too many litigations. The students do not attend classes, as they are not prepared to meet rigors, stress and challenges, there are many cases of long absenteeism, suicides and psychic problems. This is creating problems and conflicts in patient management. This is reflected in cutting down on NEET scores, every year to find students to fulfill seats in various medical colleges [8].

Approach to meet challenges faced by teachers or faculties

There is always a possibility of improvement in every situation and let us start change from self and start small changes – move from nothing to anything to something. Over time this something will be converted into everything. Remember we are preparing our own physicians of future, in whose skills and competence we have faith and confidence, otherwise situation will be "from Home to Homage" in future if current scenario of medical education is not changed.

In brief these issues will be discussed and rest we can elaborate to meet our challenges and problems. Every individual is different in many qualities, competence and characteristics as there is no panacea so you have to find your own specific, feasible and suitable solution. Remember it is easy for faculty to meet challenges as for us it is only a subject and all the more only a topic in a week or month. It requires ownership, change in attitude and quality use of time.

"If They Don't Learn the Way You Teach, Teach the Way They Learn" advocated by Jacquie Mc Taggart [10] is deriving factor to prepare our best future physicians. Remember old saying, still relevant – necessity is mother of invention and we must realise this. Most difficult is to change self but it is easiest to start with self. 'The Objective of Education Is Learning, Not Teaching' Prepare the learners as teachers, leaders, managers, mentors and facilitators – it will be one time investment which may look tedious and you have to toil to achieve this aspect and prepare them as enabler.

"Education is an admirable thing, but it is well to remember from time to time that nothing

that is worth learning can be taught.” — Oscar Wilde

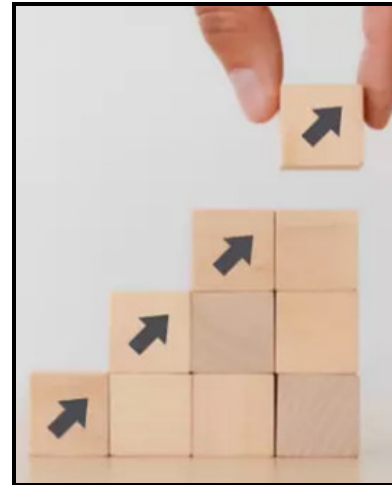
Teaching graph includes – Intentionality, responsiveness and iteration (Repetition)

Inclusive Teaching: It involves using teaching methods and strategies that are designed to accommodate and support the needs of all students, regardless of their backgrounds or abilities. The goal of inclusive teaching is to help all students succeed and feel valued and supported in their academic pursuits. Inclusive teaching approaches vary widely, and can include concrete strategies such as: Using clear and concise language accessible for diverse and multilingual learners; Providing multiple ways for students to access course material; Creating a safe and welcoming environment for all students; Actively working to make learning culturally relevant for all learners; Modeling cultural humility and openness to diverse ways of knowing; Helping students communicate and engage in dialogue with each other; Incorporating learning materials and activities in their courses that engage students with diverse perspectives. Inclusive teaching helps to prepare students for success in a diverse and rapidly changing world. By promoting diversity and inclusion in the classroom, inclusive teaching helps students develop the skills and perspectives they need to work effectively with people from a variety of backgrounds and cultures [11a and b].

Small Steps Method: Refrain from trying to change everything all at once to avoid stress, overwhelmed and feel too much to be done, taking small steps means less likely to be discouraged and to give up on using the strategies, tips, and tools for inclusive teaching. Choose a few strategies with which you feel comfortable and/or strategies that you think are the most relevant and urgent. Then, implement them, ask for feedback, make any necessary adjustments, and apply them again. Gradual changes will make things easier and that they will have a lasting and measurable impact on the inclusivity. A key realization (is) that small changes could have an important impact. Faculty who initially (feel) overwhelmed by the prospect of redesigning their whole course structure (become) enthusiastic about making small revisions based on (inclusive teaching) principles

within the context of their own course content and teaching styles [Fig-1] [12].

Fig-1: Small steps method [12]



***Encourage peer assisted learning, strategic blended learning and flipped learning methods:** These are time tested methods and if used selectively, give wonderful learning success and is easy to implement and at the pace of learners – it can be used in small groups (Usually 10 students) and large group (Usually 25 students)

***Use of student hours:** When students have time, from their routine activities, organize various learning activities – one of the best method is to prepare question papers, answer questions and even evaluate assignments and question papers of their junior batch – as independent but separate procedure without compromising quality. Let it be at their own pace and comfortable with flexible time schedules.

Mentoring and facilitator

Mentors are not just ordinary people truly, they can build unique relationships, lift up others around them, and cultivate ways to connect. Today, learning can be achieved through multiple means rather than relying on only face-to-face exchanges. Engaged listening is a key component to student development. There are Seven actions for effective mentoring;

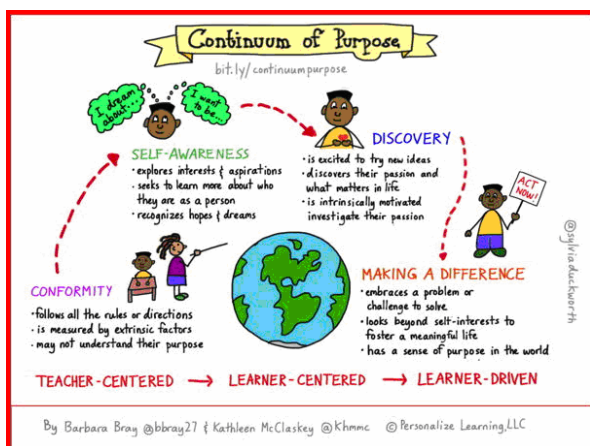
1. Ask questions and be receptive.
2. Make time to develop unique and authentic relationships.

3. Learn what motivates a person.
4. Tailor your strategies and aims.
5. Make time for fun moments.
6. Recognize and celebrate growth along the way.
7. Continue modeling success.

One final takeaway: Remember our mentees become mentors [13].

The purpose of learning is about learners being prepared for their future and reaching their fullest potential as lifelong learners. This means that they have a voice with the confidence to express their ideas and opinions so they are heard and taken into account in any situation (Fig-2) [14].

Fig-2: Learner Driven education [14]

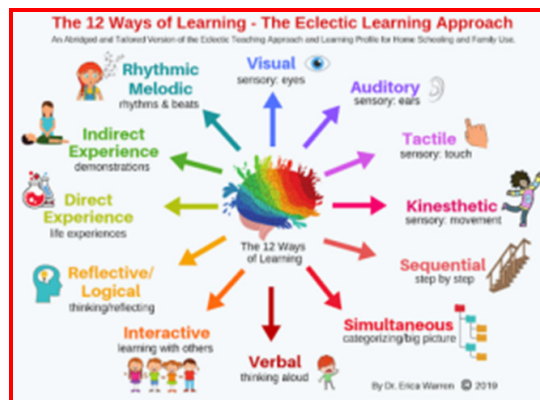


There are large numbers of teaching and learning methods and different methods can be use for specific learning needs for learner and topics and

Financial Support and sponsorship: Nil

subjects. In future more methods will be developed to meet learning needs of that time. Conventional methods are shown in diagram below (Fig-3) [15].

Fig-3: Learning methods [15]



Use of Artificial Intelligence and GPT (Generative Pre-trained Transformer): In 2004, Edusat was launched by Indian Space Research Organisation for Indian educational needs. Ministry of Human Resources has developed library having books on every subject [16-18].

Integration: This is old method but forced to use as essential part of competency based medical education. It saves time for all, provides comprehensive precise knowledge to the learner and makes it easy to understand in patient management. Various steps and modalities can be learned from sources cited here [19-20].

Conflicts of interest: There are no conflicts of interest.

References

1. Gupta NK and Gupta U. Medical education – competency based medical education – How far and how near – moving from rote learning to artificial intelligence – Part 1. *Al Ameen J Med Sci.* 2023; 16(1):1-3.
2. Gupta NK and Gupta U. Medical education – competency based medical education – How far and how near – moving from rote learning to artificial intelligence – Part 2 – Preparing learners to meet future changes and challenges. *Al Ameen J Med Sci.* 2023; 16(2):109-111.
3. Smith JL, Perez MA. (2021). Interdisciplinary Faculty: A Tool to Address Faculty Shortages in Baccalaureate and Graduate Nursing Programs. *Academia Letters.* 2021; 1-5.
4. American Association of Colleges of Nursing Washington DC. Faculty Shortages in Baccalaureate and Graduate Nursing Programs: Scope of the Problem and Strategies for Expanding the Supply. *American Association of Colleges of Nursing.* Updated June 2005. Available from: <https://www.aacnursing.org/Portals/42/News/White-Papers/facultyshortage-2005.pdf>
5. NMC biometric attendance rule: Problem of faculty shortage in HP Medical colleges escalates further. *Medical Dialogues.* Published on 28-07-2023. Available form: <https://medialdialogues.in/mdtv/healthshorts/nmc-biometric-attendance-rule-problem-of-faculty-shortage-in-hp-medical-colleges-escalates-further-113603>

6. Revu S. MP: Government medical colleges face shortage of faculty. *Medical Dialogues*. Published on 04-09-2023. Available form: <https://medicdialogues.in/news/health/doctors/mp-government-medical-colleges-face-shortage-of-faculty-116804>
7. Gitanjali B. Academic dishonesty in Indian medical colleges. *J Postgrad Med*. 2004; 50(4):281-284.
8. Supe A, Burdick WP. Challenges and issues in medical education in India. *Acad Med*. 2006; 81(12):1076-1080.
9. Shamika R. Gupta D, Williams J. Restructuring the Medical Council of India. *Brookings India IMPACT Series No. 082017*. August 2017.
10. McTaggart J. If They Dont Learn the Way You Teach, Teach the Way They Learn. *Booklocker* August 11, 2009. Available form: <https://assets.booklocker.com/pdfs/4221s.pdf>
11. Inclusive Teaching. *Simon Fraser University*. Accessed on 18-11-2023. Available form: (a)<https://www.sfu.ca/cee/teaching-resources/inclusive-teaching.html> & (b)<https://firstliteracy.org/wp-content/uploads/2015/07/How-Learning-Works.pdf>
12. Inclusive Pedagogies. Strategies and tools. *u Ottawa*. Accessed on 18-11-2023. Available form: <https://saea-tlss.uottawa.ca/en/course-design/inclusive-pedagogies/strategies-and-tools>
13. Brevetti M. The Art and Science of Mentoring Students. *Faculty Focus*. Published on 12-7-2023. Available form: https://www.facultyfocus.com/articles/teaching-and-learning/the-art-and-science-of-mentoring-students/?st=FFdaily%3Bsc%3DFF230714%3Butm_term%3DFF230714&mailingID=5182%20-
14. Continuum of Purpose: Fostering a Meaningful Life. *Make Learning Personal*. Accessed on 18-11-2023. Available from: <http://kathleenmcclaskey.com/purpose-2/#:~:text=The%20purpose%20of%20learning%20is,in%20account%20in%20any%20situation>
15. Warren E. The 12 Ways of Learning - A New Approach to Empower Students. *Good Sensory Learning*. Mar 24, 2021. Available from: <https://goodsensorylearning.com/blogs/news/different-ways-of-learning>
16. Dattani J. Can Chat GPT write health and medical content?. *Medical Dialogues*. Published on 31-01-2023. Available form: <https://medicdialogues.in/articles/can-chatgpt-write-health-and-medical-content-106367>
17. Yu KH, Beam AL, Kohane IS. Artificial intelligence in healthcare. *Nat Biomed Eng*. 2018; 2(10):719-731.
18. Ferryman K, Mackintosh M, Ghassemi M. Considering Biased Data as Informative Artifacts in AI-Assisted Health Care. *N Engl J Med*. 2023; 389(9):833-838.
19. Husain M, Khan S, Badyal D. Integration in Medical Education. *Indian Pediatr*. 2020; 57(9):842-847.
20. Harden RM. The integration ladder: a tool for curriculum planning and evaluation. *Med Educ*. 2000; 34(7):551-557.

Cite this article as: Gupta NK, Ayesha A and Gupta U. Medical education–competency based medical education - how far, how near - moving from rote learning to artificial intelligence - Challenges in medical education and preparing faculty to meet current and future challenges - part 3. *Al Ameen J Med Sci* 2024; 17(1):1-5.

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