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Original Research Article

The need of creative thinking in Indian medical education

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ABSTRACT

Background: Creative thinking provides an innovative and imaginative way to solve complicated problems. It has the potential to be widely used in medical education, especially early in a first-year medical student's career as part of their foundation course. Creative thinking participants develop crucial life-long learning skills to cope with varied ideas and collaborative teamwork.
Methods: A survey of first-year students who took the course revealed that they need more creative ways of teaching. They require their minds to be ignited by their thoughts and teamwork rather than general theories taught monotonously. For this, creative thinking modules should be taught to the students necessarily. Two modules on creative thinking that should be implemented have been briefly described.
Results: This paper stresses the importance of introducing creative thinking modules in the foundation medical course to reinforce the principles taught for practical understanding and implementation by the student in their career. Projects that failed throughout history in science and technology did so not because of flaws in technique or methodology, but because people were locked in their preconceptions, set attitudes, and old habits. To thrive and prosper, science, technology, engineering, and math (STEM) industries require innovation.
Conclusions: It is of a strong opinion that in the Indian context, creative thinking modules should be implemented in the foundation course for first-year medical students. This will positively impact attitudes, ethics, and communication skills, which will be the foundation of their entire medical education and career.

Keywords: Foundation course, Attitudes, Ethics, Communication, Creative thinking, Medical education

INTRODUCTION

"If you want to build a ship, do not drum up people to collect wood and do not assign them tasks and work, but rather teach them to long for the immensity of the sea."

Similarly, undergraduate medical students need to be trained, nurtured, and groomed in an environment of high academic standards while being made aware of the professional qualities expected of them in the future. It is crucial to teach them the art of communication, as it will be the most integral part of their day-to-day practice and conduct. In addition, the current approach of teaching attitude, ethics, and communication (AETCOM) modules in their foundation course should be revisited with novelty.[1] The current foundation course is a year-long program with time allotted for each level. Medical Council of India (MCI) has designed five modules (34 hours) to impart AETCOM abilities. The modules are taught during the course and include an assessment component.[1]

Role modelling and mentoring associated with professional apprenticeship are powerful tools. However, for medical professionals, throughout their undergraduate program, the attitude and communication domains must be explicitly taught with an emphasis on ethics. Throughout the curriculum, clear instruction of cognitive foundations and stage-appropriate opportunities for experiential

learning, creativity, and reflection are two important aspects of teaching professionalism.[2]

The foundation course and AETCOM modules were created as a roadmap to assist medical schools and faculty in developing a program to help students develop necessary abilities in the areas of attitude, ethics, and communication. They provide various approaches to teaching-learning techniques. However, this is just a proposed framework; schools can come up with their own ways to teach these skills.[3] A hybrid problem-oriented approach can work effectively to confront various facets of "real-life issues". Case discussions can foster collaborative learning, teamwork, and self-directed learning in addition to problem-solving skills.[4]

The undergraduate medical education curriculum was created to produce an "Indian Medical Graduate" (IMG) with the necessary knowledge, abilities, and values to practice medicine effectively. To achieve this purpose, the IMG must be capable of doing the following tasks: a compassionate clinician who provides preventive, curative, promotive, palliative, and holistic care; capable of collecting, analysing, synthesizing, and communicating accurate and relevant data as a leader and member of a healthcare system; a good communicator with patients, families, coworkers, and the community; a lifelong learner who is dedicated to improving their abilities and knowledge; and a professional who is dedicated to quality, ethical, responsive, and accountable to their patients and own profession.[5]

The importance of ethical values, responsiveness to patients' needs, and acquiring communicative abilities will be emphasized by allocating dedicated curricular time based on the students' AETCOM competencies. Collaboration and inter-disciplinary teamwork, altruism, and professionalism should be prioritized, with adequate consideration for differences in thinking, socioeconomic status, and gender.[6]

The ability to see things in new ways is known as creative thinking. Nurturing creative thinking ability in medical students helps to resolve conflicts of thought process by using a new approach.[7] Creative thinking is a process that can be learnt systematically. A shift from a conventional strategy in solving a problem depending on the current circumstances makes a person creative. Thus, thinking critically is crucial for medical students to make quick decisions.[8] Creative thinking allows for the brainstorming of innovative ideas without any initial practical guardrails. The guardrails can be developed at a later time point, but thinking should initially be undisciplined to explore the edges of possibilities. Creativity instigates attitudes and actions that provide invaluable mental support needed to succeed in highly competitive and risky environments.[9]

The two main aspects of creative thinking are: changing perspectives and creative collaboration.

Changing perspectives

Thinking differently provides a novel and complex inspiration to communicate ideas and values, and to solve problems. Thoughtful incorporation and activation of differing perspectives allow students to see the full picture and generate more creative and sustainable solutions. However, when it comes to changing a student's perspective, integration and activation are crucial. Changing perspectives activates team collaboration and collective action.[10]

Creative collaboration

A partnership between two or more people with the common purpose of developing new ideas/objects while exchanging opinions is referred to as creative collaboration. It helps to develop leadership qualities and teamwork spirit among medical students.[11] Spreading social wings would help to generate new ideas by working effectively with diverse people and evaluate by lowering our uncertainty.[12] Working in teams helps us to understand how others might perceive and adopt our ideas.[13]

In this work, we will focus on analysing how important creative thinking is in medical education and how to implement it effectively among Indian medical students to enable them to confront real-life situations.

METHODS

Study participants

In this retrospective study, 76 first-year medical students from different Indian medical colleges participated in the survey conducted on the current foundation courses and the AETCOM modules. There were no inclusion or exclusion criteria. This study was conducted between September 2020 to October 2020.

Study design

This retrospective study was designed based on a set of multiple-choice questions asked in a survey with options ranging from negative to highly positive to understand where the current foundation course and the AETCOM modules stand in Indian medical education. The answers have been represented as percentage figures and analysed to know the current status of the modules. The survey also helps to deduce how well can it be improved in the future.

Survey questions

The undergraduate medical students were asked the following questions using google forms and data analysed by using pie charts. How useful is the foundation course? Did you know that the foundation course and the AETCOM modules are meant to help you lifelong? How well the AETCOM modules are helping at the end of the first year of MBBS? According to you, were the AETCOM

modules well structured? Were the modules made interesting or monotonous?

Ethical approval

Approval was not required since it did not involve any experiments or studies on human or animal subjects.

RESULTS

According to the survey conducted on the foundation course and the AETCOM modules, the following observations were made.

The foundation course was found to be extremely beneficial for only 11.84% of the first-year medical students, very beneficial for 32.89%, and somewhat useful for 38.10%. On the other hand, 13.10% of students found it not so useful whereas the rest reported it to be not at all useful (Figure 1). It is a very positive indication that the majority of the respondents (81%) were already aware that the foundation course and AETCOM modules should be helpful for them lifelong; however, 19% did not have any idea how these courses would affect their future (Figure 2).

After a year of medical education, when the students were asked how the AETCOM modules were helping them currently, only 6.67% of the students reported that they were a great deal to them. While 21.33% said that they have been very useful and 46.67% revealed that the courses were just moderately useful, 25.33% of the students stated that the modules were either very little or no use at all (Figure 3). When it comes to the structure of the modules, the majority of the respondents (61.33%) said that they were averagely structured, while 29.33% reported that they were above average, and the rest said the structure was below average (Figure 4). To the question about whether the modules were impressive or monotonous, 39.19% said they were just okay, whereas 13.51% and 36.49% students responded positively stating that they were extremely interesting and very interesting, respectively. However, around 10.81% reported that the modules were not exciting and very monotonous (Figure 5).

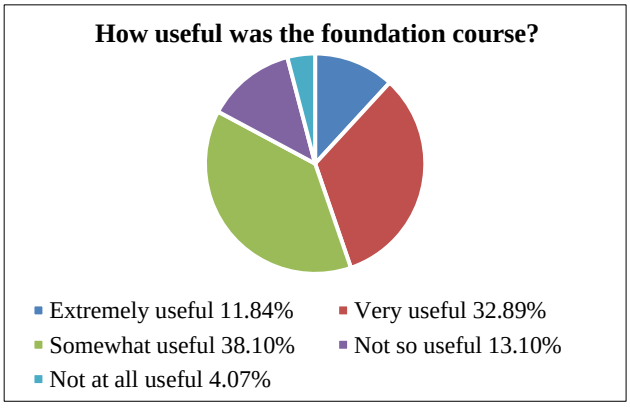

Figure 1: How useful was the foundation course?

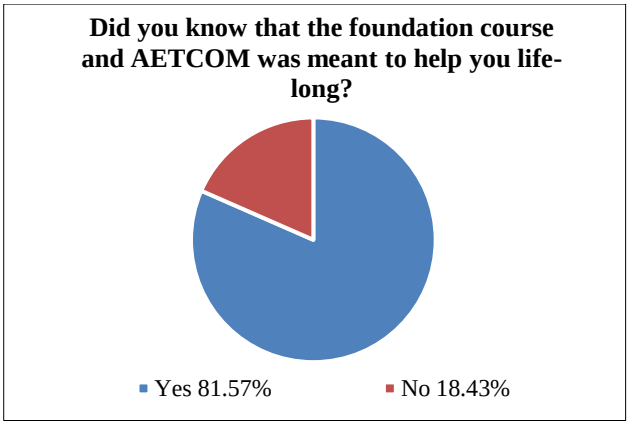

Figure 2: Did you know that the foundation course and AETCOM was meant to help you life-long?

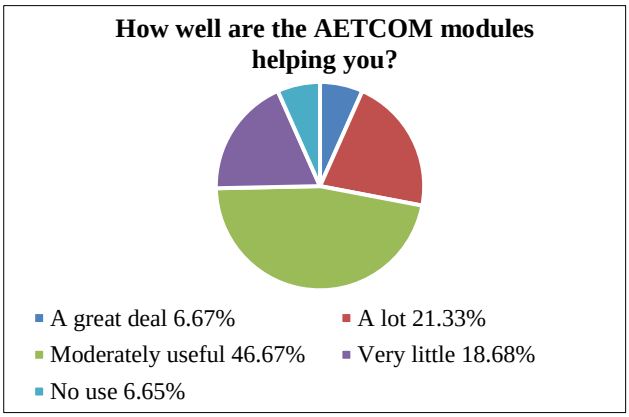

Figure 3: How well are the AETCOM modules helping you?

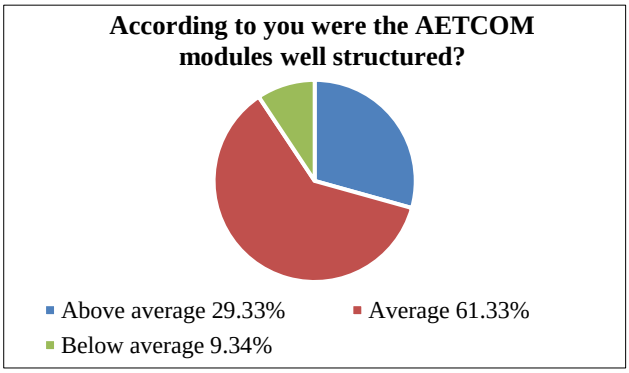

Figure 4: According to you were the AETCOM modules well structured?

A few sample answers to a survey question about what was lacking in the teaching approach for these modules are listed as: the AETCOM modules would be more awesome if the sessions were taken with a maximum of ten students; they became repetitive after a point; the teaching was only theoretical; more interest from both teachers and students could make the way of teaching better and make the students motivated; new concepts and teaching methods should be employed to avoid monotony; proper timings are

needed to be dedicated to these modules; they should be made exciting and ensure everyone participates; encourage volunteers and avoid being judgmental; and proper guidance should be in place in terms of how to make use of these modules to the fullest in future.

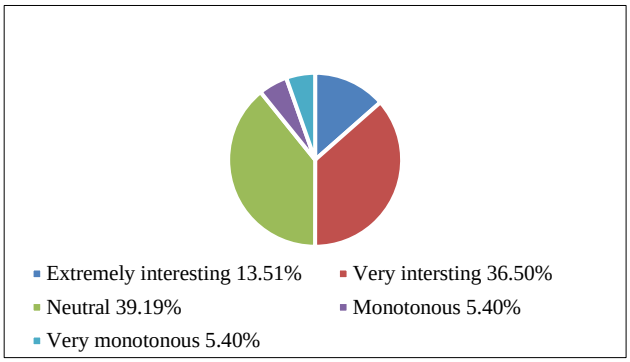

Figure 5: Were the AETCOM modules made interesting or were monotonous?

A few typical answers to another question about how the respondents think these modules could have been made more interesting are listed as: interactive sessions between faculty and students should increase and; the modules need to be taught in a more analysed way; there should be diversity in teaching methods and practical approaches should be incorporated; short classes with regular intervals and conduction of activities related to the topic amongst the students should be introduced; role-plays should be employed; small group discussions among students would motivate them to self-resolve problems at hand; attractive case presentations and videos yet simple to understand should be included to ensure better learning outcomes for students; learning should be made in the form of activities and games or through videos and plays, some cool scientific facts should be given and discussed as examples rather than discussing the same known facts; and monotonous one-way interactions should be avoided, teaching modules should be made more interesting with fun activities.

The results from the survey suggest that improvements in the foundation course and the AETCOM modules should be made to help students confront challenges in their medical profession lifelong.

DISCUSSION

From the above results, it is very clear that about 50% of the medical students have found that the foundation courses and AETCOM modules are not beneficial. Although the students are aware that the AETCOM modules are included in their syllabus as they are meant to guide them lifelong, they currently found them not very effective. The majority of the students reported that there is a need for a better structure and the addition of interesting elements to these modules to improve efficacy.

Moreover, the results reiterate our fundamental observation that the current format of the foundation course and the AETCOM modules needs to be supplemented with two modules of creative thinking: changing perspectives (2 modules) and creative collaboration (2 modules). Each module should be divided into two 1-hour sessions (total 4 hours). These modules would encourage the students to engage in creative thinking individually and collaboratively.

The majority of medical practice is based on a physician's capability to integrate and arrange information quickly during a patient visit and their extensive knowledge. Making a diagnosis and devising a treatment plan, on the other hand, is not always a simple task. Only a few exceptional physicians are able to think from alternative angles. According to the job search expert, Alison Doyle, the capacity to approach each task in a unique way is known as creative thinking; whether it is the resolution of a conflict or the analysis of a dataset result.[14] The incorporation of creativity in STEM is undebatable as these fields have to flourish extraordinarily in a developing nation.[15]

Furthermore, medical schools and practitioners must actively stimulate innovation through numerous medical gatherings and conferences. Medical education must also encourage exploring new things while learning medicine to stimulate lateral thinking. These creative experiences may result in physicians that discover new therapies for challenging diseases. When this approach is widely applied in medical education, participants acquire essential transferable lifelong learning skills.[16]

Recently, the National Academy of Sciences criticized the state of scientific innovation and competitiveness in the United States. Although academic medicine provides informal training in creative thinking, it has yet to be incorporated as a formal program in medical education. Evaluations of some of the established creativity training programs have been shown to improve participants' skills in thinking, attitude, and performance.[17] In fields other than medicine, several thoughtfully constructed and evaluated creativity programs already exist which can provide a pedagogical basis for developing the same for the health sciences. Generally, the training programs include the application of divergent thinking, problem-solving, and creative production which have been shown to elicit the best outcomes.[17]

Interestingly, a recent editorial published by Kelly insists on the concept of creativity in medicine.[18] Kelly argues that promoting creativity as a daily routine in the practice of medicine may open up a whole lot of new possibilities and allows healthcare providers to reach new levels of collaboration and productivity in the treatment of novel diseases.[18]

According to Maslow's theory in education and pedagogy, creativity is a facet of self-actualization which comes with

the need for development, creativity, and growth. He observes that there is no correlation between psychological health and productive achievement but psychological health and ordinary creativity are correlated.[19,20] Even after the implementation of improved creative thinking modules in medical coursework and appreciation of student-generated creative ideas, it is important that future medical professionals are able to communicate ideas effectively. The Kalamazoo consensus statement has suggested seven key elements of communication in clinical encounters: build the relationship, open the discussion, gather information, understand the patient's perspective, share information, reach an agreement, and provide closure.[21]

Intriguingly, the currently available opportunities for higher medical education in India focus more on learning experiences for students which are built on an interlocked base of research, theory, and philosophy.[22] Research shows that inculcating creative thinking in higher education gives a holistic approach to education as well as lifelong work satisfaction.[23] Many psychosocial theories emphasize on the development of life skills for students. Perun and Bielby's integrative theory (1980), the life events and transition theory of Schlossberg, Waters, and Goodman (1995), and the life course theory of Elder (1995) all have implications to develop creative skills for lifelong learning.[24] As these theories suggest, the modules of creative thinking can help medical students to successfully employ these skills with confidence in any circumstances in their professional life.

However, there are concerns about including creative capacity in medical education, as creative doctors might seem high-risk for the profession. Creative capacity always has its basis in sufficient expertise in the field. A doctor with fundamental knowledge and competence to adapt to any new situation can exercise it successfully. Thus, creative capacity should be viewed as significant in the field of medical education.[25]

Limitations of the study however, is the number of study participants being only 76. However, we expect the trends to be similar in larger group of participants also.

CONCLUSION

The primary aim of the foundation course for medical students in India is to create an IMG that fosters exceptional attitudes, ethical values, and communication skills with a creative perspective on a routine basis despite being a clinician. Although conventional medical education has not relied much on creative thinking, we must sincerely consider changes in the current method of training Indian medical students.

Doctors must possess assertive knowledge and the ability to integrate ample data relatively quickly. Their ability to perform under pressure is due to years of repetitive training. However, physicians who challenge stereotypes and can think beyond the obvious are vital to society. Promoting a culture of creativity in medical sciences may allow doctors to reach their full potential.

We firmly believe that the creative thinking modules discussed in the results and implementation sections should be incorporated into the foundation course for medical students along with the AETCOM modules. These will have a significant positive impact on students' attitudes, ethics, and communication skills, which will serve as a foundation for their entire medical education and profession.

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