Perspective

Learning in medical colleges: then and now

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Abstract

Great changes have taken place in medical education in India over the past 50 years. In the medical colleges of yesteryears, pioneers and inspiring teachers made the study and practice of medicine meaningful. The competition for post-graduate studies was far less intense and students spent substantial time in the wards, and with patients. In contrast, the intense struggle to enroll in desired specialties has resulted in great importance being placed on the development of short-term memory. Deeper understanding of the subject is given short shrift. The implications of these trends on patient care are obvious. Students are not exposed to the humanities for "want of time" due to massive syllabi and this in turn leads to physicians who are trained with very little or no exposure to the discussion of human suffering that accompanies disease.

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Harking back to the prehistoric era when I was a medical student (1957 – 1961), to the stage when I did my residency in a variety of disciplines, and then the period when I taught post-graduate students, I brought myself up to 1998 when I retired on superannuation at the ripe old age of 58 years. There were many changes between 1957 and 1998. When I chat to students –undergraduate and postgraduate – in medical colleges today, many more changes are apparent.

British India was blessed when far-sighted persons with wide fields of interest were appointed to positions of power. They proved excellent physicians and did much more besides. Many of them set up enduring institutions in other fields. I provide three examples.

William Roxburgh, a surgeon's mate, progressed to become assistant surgeon in the Madras General Hospital in 1776. Posted a full surgeon in the hilly regions 200 miles north of Madras, he set up experimental gardens where he grew coffee, pepper, cinnamon and breadfruit. By 1789, whilst

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continuing his practice as surgeon he had 1,00,000 plants in his gardens and employed two Indian artists to produce around 500 drawings of his botanical treasures. He was eventually appointed Superintendent of the Calcutta Botanical Gardens in additional to his duties as medical officer.[1]

Robert Wight, a Scottish surgeon, spent the years between 1819 and 1853 in India. He was promoted to full surgeon with the 33rd Regiment of East India Company's Native Infantry. His botanical studies on specimens collected from Madras, Vellore, Samalkota and Rajamundhry soon gained him renown and he was appointed naturalist to the East India Company and given charge of the Madras Botanical Gardens. In 1831, on sick leave, he took back to Scotland over 100,000 specimens consisting of 3000 or more species. He also wrote on the medicinal plants of India.[2]

Francis Day entered the Madras Medical Service in 1852 and was promoted Surgeon-Major in 1872. He developed a keen interest in ichthyology and endeavoured to learn more on the local fauna. He was eventually appointed Inspector-General of Fisheries, honoured internationally for his work on fishes, made Companion of the Order of the Indian Empire, and awarded an Honorary Doctor of Law degree by the University of Edinburgh.[3]

They could do so as they were not blinkered by the constraints of an unbending, rigid and restricted form of education, and teachers who could not see beyond their noses.

I wonder how many such polymaths India has produced since independence and whether this number will grow in times to come?

School and pre-medical college

In the 1940s and 1950s, the scope of our forays into academia were limited to what we could learn from our teachers and what was available in school and college libraries.

Lectures

Our school teachers were graduates but restricted their instruction to the syllabus. We were 'taught' but not stimulated to question or discover by ourselves. Information was imparted and it was expected that the students would assimilate it. I do not recall any teacher telling us of the wonders to be discovered by tuning the radio to the BBC broadcasts or those from the Voice of America. There was no mention even of choices to be made to our benefit from what was offered on All India Radio.

Lectures in college consisted of teaching by rote. The professor would enter the lecture hall, deliver his talk, draw diagrams or write formulae on the blackboard and, having completed his session, leave. There was little by way of question and answer. I do no remember any attempt being made to assess our current understanding on the subject on which the teacher would build. There were no recommendations on where we could find stimulating essays or concepts on the subject. Neither school nor college teachers told us about the British Council Library or the one at the United States Information Services (as it was then called).

Left thus to our own devices for the most part, we learnt from our parents, the parents of our school-friends and senior relatives. I shall never forget the thrill when an uncle showed me his copies of the National Geographic Magazine bound in brown rexine and the hours I would spend in his lovely home in Juhu studying the contents of this journal and other magazines on photography.

Whilst we learnt enough to gain a grounding in the subjects taught to us and managed to pass our examinations and sail through the Secondary School Certificate Examination, we were intellectual pygmies unskilled in the art of investigation and discovery. There were a few exceptions. A co-student in my class, Victor Gaikwad, impressed by what was taught by our French teacher, went on to discover the Alliance Française and become a highly accomplished expert in French.

Libraries

School libraries were usually primitive and contained books of cultural interest but little that could inform or instruct us in such subjects as history, mathematics, the languages and the sciences. They did provide access to abridged works of literature for young minds – Tagore, Dickens, Austen, Brontes, Shakespeare…

College libraries were better equipped and contained standard texts and some elementary works on the subjects taught to us. I do not recall stimuli for entering the library or any attempt made by the librarian to entice us to sample treasures housed within it. I have no recollection of the books in my college – the Ismail Yusuf College in Jogeshwari, Mumbai. Certainly, we had no exposure to scientific journals in school or college. I do not recall

seeing any issues of Scientific American or National Geographic Magazine or even Indian journals such as Current Science or the magazine produced by the Times of India group.

Medical College

Entry into Grant Medical College led to a sudden maturation as we commenced dissection of a dead fellow-human. Death was brought into sharp focus from the first day in the dissection hall. Entry into the wards resulted in more than a nodding acquaintance with pain, suffering and death as well.

Lectures, demonstrations, experiments

Dr. P. S. Dastur, who had retired as head of the Department of Anatomy just before we joined, had set up an anatomy museum then considered by experts as the best in India. He had prepared a series of printed booklets that described groups of specimens in great detail. Armed with these booklets, the student could enter the well-designed and lit museum, seat himself before a set of dissected specimens preserved in formaldehyde in glass jars and learn intricate details without any other assistance. This was the first time we encountered an attempt at enabling us to learn on our own and we loved it.

The other outstanding example was during the last lecture on surgery to undergraduates given by Dr. Shantilal J. Mehta, the day before he retired from the Grant Medical College and Sir Jamsetjee Jejeebhoy Group of Hospitals. In his inimitable style, he talked of how it was necessary to question anything taught to us, no matter how eminent the teacher. He told us of his encounter with Dr. Samson Wright, whose book on physiology was our preferred text (in contrast to the more turgid work by Dr. E. H. Starling). Dr. Mehta was seen shaking his head in disagreement during a lecture by Dr. Wright in London. On being asked why he did so, Dr. Mehta explained that what Dr. Wright had just stated differed from what he had written in his text book. 'Don't be silly,' exclaimed Dr. Wright. The book was brought into the lecture room. As the relevant paragraph was read, Dr. Wright turned red in the face. 'The book is right and so is Shanti,' he confessed. Dr. Wright befriended Dr. Mehta thereafter. (Narrated in Milestones. The life and times of Shantilal J. Mehta privately printed by his family.)

In this last lecture he also talked of the 'story books' ('You call them text books', he explained) that needed to be scrutinized carefully and the information in them cross-checked.

In parting, he recommended three books that were not part of the curriculum but were, in his opinion, required reading for any student of surgery.

1. The dramatic in surgery by Gordon Gordon-Taylor
2. On the therapeutic value of rest and the diagnostic value of pain by John Hilton
3. An introduction to surgery by Rutherford Morison.

It is salutary to note that no other teacher has recommended any of these books though they are every bit as important as Dr. Mehta had promised us. I do not see them referred to as recommended reading at any centre of learning in medicine. I am fortunate in having a copy of each of these works and treasure them.

Another exceptional teacher was Dr. Samuel J. Aptekar. He was an honorary consultant surgeon at the Goculdas Tejpal Hospital affiliated to the Grant Medical College. Since his Jewish faith disallowed practice on Saturdays, he took clinics for postgraduate students on those afternoons. He taught us surgery but he also taught us the history of medicine, ethics and much more. He befriended several of us. He emigrated to Israel after we had completed our undergraduate studies. My wife and I were fortunate in being able to continue a dialogue with him by letter and telephone till his final illness and death.

Most professors continued along the pattern to which we were accustomed in school and undergraduate college. They came, delivered their monologues and departed with little attempt at learning of our capabilities, current state of enlightenment or the development of the spirit on enquiry in us. Lecturers were more easily accessible and were friendly, answering queries readily and with enthusiasm. I recall the excitement sparked off among those in the department of anatomy when a student asked about what happened when we cracked or popped our knuckles. The particular lecturer confessed to ignorance but promised to find out and inform us. He, in turn, asked other lecturers and then the professor. The creation of vacuum, breakage of the continuity of synovial fluid, release of a bubble of nitrogen from the synovial fluid causing the pop and eventual resorption of nitrogen and restoration of synovial fluid continuity was later explained to us.

An early attempt was made to correlate structure with function in our anatomy department. Our far-sighted professor of anatomy, Dr. B. B. Sethna, had obtained the willing services of radiologist Dr. P. E. Billimoria. A fluoroscopic x-ray unit was placed in a darkened room on the first floor of the anatomy department. Here, Dr. Billimoria placed a volunteer – usually an anatomy department attendant – behind the screen as he showed us the components of the chest wall, movements of the lungs and heart and other similar physiological phenomena. Unfortunately, a few years later this was discontinued and students were exposed to radiology only during their clinical terms.

Experiments too were preset exercises. In the physiology laboratory we were expected to produce standardized tracings on the soot-coated paper drums named after Sir Charles Sherrington and Dr. E. H. Starling. I do not recall being told about the life and work of these distinguished inpiduals as an undergraduate student. Much later, we learnt that the kymograph on which the drums were placed was invented by German physiologist Carl Ludwig (1816-1895) in 1847 [4]. The Sherrington-Starling recording drum was used with a kymograph and it visually recorded body activity such as heart beat and other muscle activity. A pen attached to the kymograph recorded the movement as a continuous scratch on smoked paper wrapped around the rotating metal drum.

We used these drums to record muscle contractions produced in the frog by electrical stimulation of their motor nerves. The cursory manner in which these experiments were conducted is evident from the fact that after the lecturer had gone out of the laboratory, many students asked the technicians to produce the requisite curves on the smoked paper for them as they were unable to do so themselves. After the experiment was completed the paper was varnished to preserve the tracing on it.

We were fortunate in having staff members in the pathology department who realized the teaching value of autopsies and made full use of them during office hours and when autopsies were performed on accident victims at all hours of the day and night. Added to this was the advantage of having Drs. Noshir Wadia as the chief of neurology and Dr. Gajendra Sinh as chief of neurosurgery. They knew full well the crucial lessons to be learnt from post-mortem studies of the brain and spinal cord and used every opportunity to obtain permissions for removal of these organs at autopsy, to be studied at weekly brain-cutting sessions presided over by our neuropathologist, Dr. Darab K. Dastur.

Clinical teaching

This was of high order throughout the hospital. Our first medical term was under the supervision of Dr. W. D. Sulakhe. Unassuming to a fault, dressed in simple working clothes, he taught us the art of medicine. I shall always remain indebted to him and other teachers who drilled into us the need to obtain a detailed medical history of the patient and family, carrying out a meticulous and painstaking clinical examination and recording these findings. These were to be followed by an analysis of symptoms and signs and the making of a clinical diagnosis. We had few tests available to us then but each of these had to be justified. 'Diagnosis must precede treatment' was a commandment never to be broken, not even in an emergency.

Dr. Hiralal K. Doctor, one of our professors of surgery, had an unique method of focusing attention on details. After the clinical evaluation was complete he would put up a relevant x-ray film – an antero-posterior view of the abdomen for example. He would ask the student to study it. Once the student turned away from the film, Dr. Doctor whipped the film off the viewer and asked the student to describe the findings. Woe betide the student who wanted to see the film again to check a feature or, worse, in response to a query put to him by his teacher. 'You had the opportunity to study the film. Why do you need to see it again?' was the reprimand. You can imagine the discipline this induced in all his students. We had to extract all the information available on the film during the first and final scrutiny.

Library

We were fortunate in being in a college that had been established in 1845 by professors who were exceptionally far-sighted. They and their successors often donated their collections of books to the college when they returned to Britain thus enriching the library greatly. We had an unique and rich heritage. The library had treasures for the connoisseur. The history of medicine came alive as we read the original books on electro-cardiology by Einthoven and Augustus D. Waller and other such medical classics. More recent classics included the book on clinical medicine in India by our first principal Dr. Charles Morehead, those on cardiology by Sir James Mackenzie, the works of Jean-Marie Charcot,

the texts by Sir William Osler and many others.

We had full runs of many medical journals. I especially remember British Journal of Surgery, which we had from Volume 1, no. 1 to the latest issue. These were easily accessible.

It is unfortunate that the library is today a pale shadow of its previous self. The undue emphasis placed on new books has resulted in neglect of the classics.

Current practices and trends

The evils of unhealthy competition, witnessed now even when a child is to be admitted to a primary school with the crescendo being reached at the 12th standard, are here to stay.

The goal of the student today is not education in the highest sense of the term but the amassing of marks. The formidable development of short-term memory – to be emptied at the end of the examination to permit entry of items needed for the next examination – has occurred at the cost of questioning, understanding, analysis and contemplation. Swallow-and-regurgitate has replaced slow and steady development of the intellect.

The ease with which documents, notes and even books can be photocopied; data mined on the internet and transferred through the electronic cloud has meant a disappearance of the art of searching for relevant essays, papers, chapters or books; the delightful accidental revelations as we browsed shelves and volumes and the occasional exclamation of surprise when we chanced upon a hitherto unknown classic. The art of writing and the development of callosities on the index and middle fingers of the dominant hands have also suffered. The sheer volume of available information on the internet drowns inpiduals. The capacity for discriminative absorption is declining. Many now consider a visit to the temple of learning called the library a waste of time.

The consequences are obvious. The art and science of medicine have been given short shrift. The skills of observation and rational analysis have atrophied. There is maniacal adherence to proforma testing and therapy without the application of mind. Tests must be ordered because they have been listed in the procedural document and not because their need is justified on the basis of clinical assessment of the given patient.

Shotgun tests are followed by shotgun therapy using the logic that at least a few of the pellets must strike the target. Fallacies in this logic are scoffed at and the mounting costs from such a policy are ignored. A simple example is the use of antibiotics. We do not start with the simplest, least expensive antibiotic that is known to be effective in a given disease but proceed to the latest and most expensive antibiotic. Should the fever remain stubborn, the antibiotic is changed over 24 – 48 hours. The catastrophe in terms of the development of strains of germs resistant to the antibiotic is ignored. I find it of great interest that when an infection fails to respond to the latest and most expensive antibiotic, it is eradicated by a relatively inexpensive drug such as nitrofurantoin simply because the latter is rarely used. I wonder whether some day we will have to return to prontosil, the early sulphonamides and crystalline penicillin in antibiotic-resistant infections.

The humanities

Concentration of attention on the need to obtain huge totals of marks has led to the neglect of the humanities. Morals, ethics, history, art, music, literature, philosophy and other such pursuits have been abandoned. A semblance of these is occasionally glanced at on television or the movie screen or in the glossy magazines but their effects are fleeting. Bereft of culture, we are losing our ability to place ourselves in the position of our patients, worry about their sufferings and where they are to find the increasing sums needed for their medical care. We are also losing our respect for our fellow-professionals. Worst of all, we have forgotten our duties as professionals. These were defined admirably by Judge Elbert P. Tuttle (1897-1996). I reproduce his answer to the question 'Who is a professional?' below and ask you to decide how many of us meet the conditions and recommendations listed by him.

The professional man, in essence, is one who provides service. But the service he renders is something more than that of the labourer. It is a service that wells up from the entire complex of his personality. True, some specialised and highly developed techniques may be included, but their mode of expression is given its deepest meaning by the personality of the practitioner. In a very real sense, his professional service cannot be separate from his personal being. He has no goods to sell,

no land to till. His only asset is himself.

It turns out that there is no right price for service, for what is a share of a man worth? If he does not contain the quality of integrity, he is worthless. If he does, he is priceless. The value is either nothing, or it is infinite.

So do not try to set a price on yourselves. Do not measure out your professional service on an apothecary's scale and say, `Only this for so much.' Do not debase yourselves by hoarding your talents and abilities and knowledge, either among yourselves or in your dealings with your clients, patients or flocks. Rather be reckless and spendthrift, pouring out your talent to all to whom it can be of service. Throw it away, waste it and in the spending it can be of service. Do not keep a watchful eye lest you slip and give away a little bit of what you might have sold. Do not censor your thoughts to gain a wider audience. Like love, talent is useful only in its expenditure and it is never exhausted. Certain it is that man must eat, so set what price you must on your service. But never confuse the performance, which is great, with its compensation, be it money, power or fame, which is trivial.[5]

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