My experiments with research as a medical student

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In this paper I narrate my experiments with research as an undergraduate medical student and then as an intern when studying medicine. After experiencing the highs and lows of a novice researcher, I have reflected on my thoughts regarding the attributes which a junior researcher needs to develop. Foremost amongst these are high ethical standards and belief in one's mentor. Going ahead, one needs to develop qualities of patience, perseverance and the ability to share success as well as failures with co-workers. Finally, one should be able to reach the point where one's vision as a researcher is totally focussed only on the benefits to the society.

My Experiments with Research as A Medical Student

This communication narrates my experiences in the field of research as a medical student and then as an intern. I believe that these could help other medical students who are beginning to step into the shoes of a junior researcher. That the research work done by medical students may be truly significant is exemplified in the story of Charles Best. He was an assistant to Fredrick Banting and his professor of physiology, J.J. Macleod, who received the Nobel Prize for isolating insulin in 1923. Charles who had worked equally hard on the same study with Fredrick Banting was not nominated for the Prize. However, Banting famously shared his prize money with him.

Although it may be difficult to trace the origin of an idea, research begins when an idea arises in an idle mind. Sometimes it may be the supervisor’s area of interest or sometimes a personal interest of the researcher. Students also take up research positions in order to get adequate work experience and good recommendations from their supervisors. The aura and the charisma of a supervisor along with the reputation of the institute can attract students to the field of research. Peer pressure, which also drives a number of junior researchers, definitely deserves a mention. Sometimes as in my case; the beginning of research work is slightly off the conventional track. Initially, I began working under a supervisor on a planned study related to a plant, Tinospora cordifolia. My intention for doing research was surely to win an award.

I began my research career as the most junior member of a large team of researchers. From the very beginning, I felt that the key issue in any research was the management of the study. I accepted all the tasks assigned to me and pestered all the senior research fellows to get my work done. On successful completion, I was awarded the studentship which I desired. Continuing with efforts to get this study published, I started work on another study which got published even before the first one. In the midst of this, my first paper was rejected. I was convinced about the authenticity of our work and continued to strive on that paper which was accepted later by another journal.

I now feel that the tremendous faith I had in my supervisor and my work helped me throughout this period. Though I had learnt various aspects of research from drafting the protocol to writing the paper, I felt the need to do more. Somewhere down the line I started feeling that I needed to put more academic input into my studies.

It was when I had worked on three studies in the specialities of clinical pharmacology, Indian traditional medicine and critical care, that I started to get a real feel for what research actually means to us in our lives. I realized that the formulation of a research question is a process which has to be nurtured. I then started reading various scientific communications in my free time to get an idea of how researchers can think differently on the same topic. I read up the various studies published on a selected clinical topic ranging from randomized controlled trials to case reports. The aim of this exercise was to understand how various research questions were formulated. I concluded that the basis of formulation of a research question is observation, ability to question and the desire to take the treatment standard to another high so as to finally provide better care to the patient. For example, it was an observation by Dr. Alexander Fleming that bacterial colonies failed to grow in media containing fungal growths which later lead him to the discovery of penicillin, which found a cure to a number of bacterial infections.

I then came back to the same point from where I had started... the same supervisor, the same department and the same study plant (Tinospora cordifolia).

Though this work culminated in a well accepted systematic review, its ramifications for me went beyond the importance of a publication for the first time in my
life. Today, I have been successful to some extent as a medical student doing research and there have been some fundamental changes in my attitudes compared to when I first began working in this field. For example, when I started working as a research student, working at a fast pace was always my aim. I have now realized that the ‘thought process’ behind any idea has to ‘run’ a number of times before executing the study. With quick and hasty decisions, finer observations in the study may be missed. I have also realized that one must have a group of trusted colleagues who are ready to critically review one’s work, and that there always remains the possibility that someone may come up with an idea better than one’s own. The line of thought generated in the very beginning needs to be trimmed time and again in order to incorporate the researcher’s observations (expected or incidental) and to present the right conclusion.

I will now attempt the difficult task of trying to sum up the beliefs which I have developed from this experience and from my interactions with my mentors. The first and most important thing for beginners in research is to have an experienced mentor whom one can trust. Also, it is important for a medical student to master not only the techniques, but also the ethical considerations. It is natural for young minds to wander in search of awards and rewards, and when in normal limits these can act as good reinforcements. An error in methodology may be pardonable to some extent, but an error in ethics may not always be amenable to correction. The ethics that I talk about in this paper are not limited to study subjects but also extend to other domains. For example, in a hypothetical study, if an error has occurred throughout the study process, one must be able to justify one’s findings in the light of that error. Being ethical about reporting the actual results or discussing the errors committed during a certain procedure always has a positive bearing, initially on the study, and then on one’s character as a researcher. Being true to oneself provides the strength to fight for the completion of work which might ultimately benefit society.

Initially one may conduct research for an award or a studentship. But in the long term, research can be sustained only if one has developed a liking for the process of asking and answering questions methodically. Success in research may not be immediate; hence it is important to be patient and to just enjoy the research process.

Once the ground for sound research is laid, research for an undergraduate student, no longer remains complicated. Though disagreements with co-workers and unfriendly supervisors can make one think otherwise, patience and perseverance can counter these situations. A positive approach can help overcome this problem. In one of my assignments, our team of researchers completed the study, but the report and paper-writing were left to me and my supervisor. Initially, I was disheartened because I was doing all the work. But I did not give up. The opportunity turned out instead to be a blessing in disguise and I was successful in pleasing both by supervisor as well as the entire team. Management skills with respect to time, setting deadlines and amicable co-worker relationships are added assets in such situations, especially when medical students also have to concentrate on developing their clinical acumen. The key is to acknowledge others and to work together to accomplish something which is rarely possible for an individual student to manage.

Why does it always happen that your mentor tries to have a cautious approach when you want to race ahead? Well, I attempt to answer this question as follows: growing in this field is not really difficult but it is the direction that matters. As experience increases and memories accumulate, like the sight of a patient in distress which brought you to the research question, the realisation dawns that the seemingly unexpected results have opened up a new line of thought. All together, these experiences help one to grow as a researcher, but it is the steady pace maintained with your mentor’s help which helps a researcher to garner the requisite virtues. Finally one reaches a point in time when one has to choose to step into the shoes of either a clinician who is also a researcher or a researcher who once was a clinician. When we do research because it is really needed to answer important questions, then the rich panoply of the research world will be open to us. At such a time one should be able to sacrifice personal credit for the study outcome. It is possible that only then will one realize why one’s mentors were keen on going at steady pace on a particular path. Though I have embarked on my journey, I am fully aware that I am far from my destination. At the moment, I am enjoying the journey and learning a lot.

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References


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