

In consideration of a career in research

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Research is to see what everybody else has seen and to think what nobody else has thought.

-Albert Szent-Györgyi

Research is creating new knowledge. If you have a thirst for knowledge, an inquiring mind, and the skill to seek answers, then a research career may be for you. Research professionals are on the cutting edge of scientific and technological developments, and their work leads to new medicines, consumer products, industrial processes, and numerous other developments. Research careers span virtually all areas of life, from business and economics to computer science and biotechnology.

Careers in research are evolving at a rapid pace globally. During recent times, there has been remarkable progress in the medical and dental field sowing to the development of newer technologies with regard to materials, pharmacological products, and diagnostic materials. However, the status of research in developing countries, when compared with many western countries, remains restricted to paper and publications. Research that is limited to the laboratory is not beneficial to the general public or patients, in particular. This kind of research has no clinical significance.

If you steal from one author, it's plagiarism; if you steal from many, it's research.

-Wilson Mizner

Despite the fact that there are sufficient sponsors and funding agencies available, only a small number of medical and dental professionals opt for a full-time research career, especially in India.

Many researchers work for pharmaceutical or biotechnology companies, while others work in universities or government research laboratories. University researchers may also work as professors in their academic discipline. Researchers working in applied research and development often work for a specific company's R and D division, conducting research for new products and conducting development activities for existing ones.

Most research positions require the postholder to have a doctoral degree, especially for research jobs in universities or in the biological and medical sciences. In addition, research professionals must continually update their knowledge so as to remain on the cutting edge of their research area or specialism.

In postgraduate programs, a dissertation is a required, the main purpose of which is to expose students to the research environment. Occasionally, the subject or area of study selected by a student may not be practically possible to carry out in their parent institution – even though many colleges delivering postgraduate programs include “research center” or “research institute” as part of their institution's name. These postgraduate students then have to run from pillar to post to seek permission to undertake their study in other places, or otherwise spend huge amounts of money to finish their research work.

Undergraduate (or graduate) researchers learn tolerance for obstacles faced in the research process, how knowledge is constructed, independence, increased self-confidence, and readiness for more demanding research.^[1]

As noted above, there are nonetheless numerous benefits for students who get involved in research. Research experience allows graduate students to better understand published works, learn to balance collaborative and individual work, determine an area of interest, and ultimately, jump-start their careers as researchers. Through exposure to research as undergraduates or graduates, many students discover their passion for research and continue on to graduate studies and faculty positions.

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First and foremost, a direct benefit of research starts in the classroom. When investigating any phenomenon in class, it is useful to know how the original study was performed. By engaging in research first hand, students find it easier to understand the rationale underlying others' research. For example, only after forming your own hypotheses do you truly understand the nuances of research designs and better conceptualize course material. In addition, undergraduate research can provide students with an ongoing source of one-on-one mentorship that is otherwise unheard of in the broader undergraduate curriculum.

Exposure to an area of research undoubtedly also helps students explore career fields. If you are considering research as a career path, experience in a research setting is invaluable. Exposure to research guides some students toward research after graduation, as well as allowing other students to make informed decisions not to pursue careers in research. In addition, the earlier that students become involved more experience they attain, which, in turn, enhances their career choices. For example, students considering careers in medicine will also benefit greatly from exposure to research. Many medical schools value research experience for admissions. Perhaps more importantly, a solid basis in hypothesis-driven research is what evidence-based medical practice is built upon. Experience in this area can enhance an understanding of both the medical curriculum and the medical literature.

Exposure to research as graduates can also increase the likelihood of becoming successful researchers in the future. Some undergraduates, unsure what to do upon degree completion, proceed to graduate school with the ill-fated idea that it is the next logical step after undergraduate studies. If they have undergraduate experience in research, they are more likely to know if they actually enjoy research. Usually, however, undergraduate students discover a passion for research they did not know existed. Institutions of higher education have a way of attracting

the most curious minds, but asking questions and finding answers is a calling that many discover only after they first test the research waters.

Due to focus and importance of research at PhD level, it is often believed that creating new knowledge is the main goal of postgraduate academic degrees. The main objective of completing a doctoral degree is to become a competent researcher who can conduct independent research in his or her chosen area. If we accept the premise that the purpose of a PhD program is to produce competent researchers, then the research completed during such programs is primarily undertaken as a contribution toward this goal, and the nature and sophistication of the research output is less important.

What is important is to learn to properly formulate a problem and apply suitable techniques to produce results that further the state of understanding about that problem. Hence, while doing a PhD, the scholar should be self-motivated and committed to working hard and over extended periods of time on problems. Research is often a lonely business (except, of course, in disciplines where group activity is more common), and a PhD program is an incisive preparation for a career in it. Research is a tough career; but, with the development of these skills by doing a PhD, it can become easier and more satisfying.

Learn from yesterday, live for today, hope for tomorrow. The important thing is to not stop questioning.

-Albert Einstein

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