Drying Technology, 32: 247–248, 2014

ISSN: 0737-3937 print/1532-2300 online
DOI: 10.1080/07373937.2013.813220

Taylor & Francis
Taylor & Francis Group

Editorial: Role of Insight, Oversight, and Foresight in Successful R&D

Keywords Academia; Hindsight; Industrial R&D; Innovation; R&D; Research; Vision

This catchy title of my editorial will no doubt raise the expectations of readers. It is indeed a theme fit for a scholarly book to do true justice to it. My objective here, however, is very simple. It is just to bring up some issues in R&D space that policymakers, administrators, supervisors, mentors, and researchers in any area should consider seriously at all times. The mission of any R&D should be to innovate. R&D does not imply innovation, which has been demonstrated adequately by many studies reported in recent years. Instead, innovation must be embedded into R&D. In fact, the new term "RID" shows that the "I" must link research and development teams in an R&D organization. Special effort is needed to accomplish this. Otherwise, we may have "R" and then "D," which are unrelated and yield little if any innovation. All the "sights" mentioned above are dynamic in nature, so they should be revisited at frequent but different intervals. It is not obvious that this actually occurs in practice. Probably it does in many cases, but from my observation this occurs typically when a project is initiated and not during the various phases of R&D where mid-course corrections may be needed if only these "sights" are revisited. In my own case, I must confess I have not been as vigilant in this respect as I should have been to raise my own R&D productivity level using my own biased but not too lenient yardstick (or bar) to measure success. Had I used hindsight more effectively, 20:20 is just normal vision and it is not good enough to excel; I would have tried to seek greater insight into the research areas and whether they are consistent with my objectives, passion, and expertise to allow excellence in time available for completion of the projects. Weaknesses in any of these important aspects of any R&D can lead to less than the stellar performance that we all seek.

Lack of insight into whatever we do can cause severe and unexpected difficulties in reaching one's goals. Following someone else's insight, even if it is one's mentor's, can lead to unanticipated impediments in accomplishing excellence. One cannot follow someone else's passion and objectives with the same dedication as one's own. Of course, a young researcher often has to make his advisor's objectives his own, which can take some time and effort. This is possible when both parties have common goals and the latter can develop important research capability, thanks to interactions with his/her mentor. This cannot be rushed. This is also not easy to achieve in practice.

Once the insight is clear, it needs to be nurtured and regularly evaluated and modified as needed. It is a time-varying function when it comes to research and is affected by internal as well as external factors, some of which are beyond the control of both the mentee and the mentor, and even the institution in many instances. The mentor and the institutions need to provide oversight on all research under their wings as ultimately they must bear responsibility for the execution of the project, which must produce useful contribution to knowledge, while the mentee is also converted into a better researcher. Production of an accomplished researcher should be a clear, prime outcome of academic research, unlike industrial R&D. Production of quality research papers should be a valuable by-product that follows naturally out of successful mentoring of researchers. This research should also have an innovative element, especially in engineering disciplines, so that it can provide guidance to developers of new products and processes.

Finally, research is all about vision and hence the ability to "see" future trends and ability to address problems in one's discipline that will appear on the horizon before the layman can see them; foresight will separate the chaff from the wheat, as the adage goes. This requires breadth as well as depth of knowledge in one's research area as well as allied areas, which may overlap in future. This requires regular and frequent survey of the literature and exchange of ideas with colleagues all over the globe, not just in one's institution. One must develop the uncanny ability to critically evaluate what is published and not accept whatever one reads at face value. Critical thinking is a prerequisite to innovation, in my opinion. Foresight will also determine how long one can remain "excellent," or even relevant, in one's chosen field and continue to make impactful contribution to knowledge. As emerging nations are making noticeable effort in R&D, the playing field is becoming crowded and, to be noticed in a huge crowd, the bar of excellence will continue to rise. What was an acceptable level of accomplishment a decade ago is now not good enough. Foresight must be guided by this one singular message.

What I have stated in this editorial piece is generic; it is applicable to all fields. Thus, this applies to R&D in drying

just as well as it does to other disciplines. I am sure each reader will interpret the ideas here in her/his own way. I hope it will trigger new ideas in planning and carrying out R&D in academia as well as industry.

Arun S. Mujumdar
National University of Singapore
Institute of Chemical Technology
Mumbai, India