

## Outsourcing in scientific research: a boon or a curse

Outsourcing is generally defined as the process to obtain goods or services from an external source. This practice is normally used by the private sector to reduce the costs of their products. In it, a significant portion of work is carried out by outside suppliers rather than being done internally. This can be advantageous as it reduces the time of completion of the project to a significant extent. In many businesses, this strategy has brought economic boom, where the best examples can be seen in the IT industry.

As a result of the positive impact of outsourcing, the practice has also been adapted in scientific research. As scientific research becomes more competitive globally and the thirst for new knowledge and discovery gathers momentum, more and more researchers are turning towards outsourcing part of their work to facilitate and quicken the acquisition of results that would otherwise take a longer time. As funding agencies become less generous with regard to purchase of equipments, outsourcing has become an attractive alternative to researchers. These include work such as determining gene sequences and chemical profiling of samples and many others. Outsourcing in science started in the West, but has now become a routine practice in the East as well. Although it can be considered an advantageous route to take by many scientists, it has many drawbacks and raises the question whether outsourcing in science would lead to more harm than good in the time to come. We would like to share some of our thoughts regarding this dilemma.

Seeing the opportunities many companies have emerged over the last decade to offer scientific services on a financial basis. However, one of the questions that come to mind with regard to outsourcing is how accurate or authentic are the results, as the analyses are carried out by a third party? Although some of the service providers offer proofs for their results, there is a strong need of an agency and procedure in place to validate the correctness of the outsourced results. Since the outsourcing market is an open market, there will be competitiveness amongst the companies on the cost of their services. Although this may become

attractive on the one hand, it can lend to questionable practices that put the authenticity of results at risk, as the customer (scientist/researcher) opts to outsource his/her research to a lower-priced company in order to collect more data at a lower cost. As research budgets for the purchase of expensive equipments and their maintenance will become less available in the future, researchers will remain dependent on the outsourcing alternative as they do not have the facilities in their laboratories or organizations to carry out the necessary determination. This can lead to an undesirable trend as the research published based on these results becomes the foundation for others to follow. Considering the element of doubt in the outsourced data, the whole scientific work can become blighted with inaccurate information which can retard scientific growth, leading to little or no advancement.

As a result of outsourcing research postgraduate students do fewer experiments and less benchwork and invariably can become less knowledgeable in their field as they do not feel the need to understand the methodology and data analysis of the results provided by the outsourcing companies. They feel it is unnecessary to know these details to a greater depth as they can publish the data obtained with little input from their side and enjoy the escalatory benefits. This can hinder the path of more committed and dedicated graduates to find a better placement. In addition, these graduates get recognition as specialist in areas of research that were outsourced and are not necessarily their own. With regard to employment, it can hinder the success of dedicated scientists/researchers to find a better position. In our view, a person can be a specialist in any one subject, but such multi-specialized researchers are in fact those at the periphery of their field, jack of all trades and master of none, and are not suitably trained for research which would lead to a thoughtful science discovery. Academic organizations need to look into these practices in order to produce quality graduates and uphold scientific discovery.

Outsourcing has increased the financial pressure on funding agencies, as out-

sourcing companies make huge profits out of their work. Research scientists demand more funds from funding agencies to outsource and complete their projects. Governments will find it difficult to control the funds for science and technology development, as scientific research has become an important and integral part of nation development. Therefore, the taxpayer will not get true value for money, as most of the scientific expenditure in universities and research institutions becomes the financial source for outsourcing companies. Ideally, if the host institution utilizes the research funds internally, rather than allowing researchers to outsource their work, by setting up the necessary facilities within the institution and making them available to all, it will in the long run be better for the advancement of research in the institution.

Outsourcing research if unchecked will lead towards the creation of a mindset that will be dependent on these companies, and will consider itself as the master of everything. Such an attitude will eventually decelerate intellectual growth and create a lack of depth in knowledge amongst students. Producing such students will be a nation's loss, as they can be considered as any nation's future. There is an old saying that 'a second-rate graduate will take up an administrative position sometime in his/her life and he/she will never employ a second-rate graduate, but instead will select a third-rate graduate in order to maintain his/her dominance'. This will gradually lead to deterioration in an organization.

In view of the above points, outsourcing may lead us towards a gloomy future, which will be difficult to remedy. Is outsourcing here to stay? There is a strong need to debate and scrutinize outsourcing in scientific research.

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