

The power of academic collaboration

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We have seen how the development of technology during recent years has provided us with the opportunity to communicate rapidly and how networks have been created which have enabled promoting the dissemination of a lot of information that is sometimes very assertive and sometimes not so much so. Such phenomenon has had a tremendous impact on the scientific community; scientific work is now no longer the same as it was in the 1950s when solitary/isolated scientists were carrying out their work alone and, likewise, circulating/publishing their results alone. Many factors are currently promoting multidisciplinary research, being justified by the fact that scientific collaboration is an essential aspect for the progress and advancement of knowledge, as well as ensuring that the necessary resources can be provided for addressing large-scale problems.

We can definitively say that this is true. However, we could also say that academic collaboration involves two sides of the same coin. One of them encompasses researchers from different areas of knowledge combining their efforts to resolve a common problem. This involves cooperation creating synergy going well beyond what each member can contribute individually; this results in potentially very powerful cooperation since it may involve economic, social, ethical and political dimensions. Many results from such multidisciplinary collaborations have been reflected during the last few years in publications arising from the birth of multi-authored articles/papers. Unlike 60 years ago, the amount of authors credited in a paper nowadays has risen exponentially (giving a rate of ~5 authors per article), though some publications have even been known to include >2,000 authors, the Large Hadron Collider (the world's largest, most powerful particle accelerator) project being responsible for many articles having such an amount of authors (Aboukhalil, 2015).

An interesting question has emerged regarding whether collaborative academic work can really be associated with scientific impact (this being measured as the amount of citations). It was found that citations have a major impact on certain fields of science, such as physics, medicine, engineering and health sciences, whilst this has not been so strong concerning other fields, such as computational sciences, infectious diseases, chemistry or brain-related/cognitive sciences. Such significant association between collaboration and citations in the aforementioned areas makes sense given the increasing amount of large-scale projects having a great impact and involving intense collaboration regarding experimental physics (Parish *et al.*, 2018).

Academic collaboration, specifically in Latin America, represents a powerful way of increasing knowledge, healthy competition and scientific and technological development since few funds are destined for research and development (R&D) in our countries and the amount of researchers is low compared to first-world countries' figures. How much budget do our countries allocate for R&D? UNESCO indicates that Bolivia, Colombia, Chile, Ecuador, Mexico and Venezuela allocate less than 0.5% of their budgets to this activity. Only Brazil (1.3%) and Costa Rica (0.6%) allocate slightly larger budgets. Israel and South Korea (>4%) invest more in R&D and they also have more researchers (Israel has around 8,000 per million inhabitants and South Korea 6,000 per million inhabitants), whilst the figure for people engaged in R&D in Latin American countries is only around 118 to 900 people per million inhabitants.

Strategies must thus be developed for boosting joint scientific and technological development to benefit and have a positive impact on all Latin American countries' development. Some of the activities that would help greatly in reducing the scientific development gap would involve promoting students and researchers' mobility/study programmes, promoting distance learning courses and developing thematic networks for organising regional collaboration projects aimed at resolving common problems. As mentioned beforehand, increased collaboration would likewise lead to increasing the dissemination of on-going research, which would be reflected in an increased amount of publications and in their quality.

The other side of the coin (which must be mentioned) concerns collaborations where some researchers have not contributed knowledge to research but whom have been and included in the work for other reasons having nothing to do with the stated objectives of real academic collaboration. Consequently, multi-authored publications listing honorary co-authors who have contributed nothing to any such publication will also emerge. This point has been the subject of heated debate as it is supposed that new scientific knowledge will be developed in line with high ethical standards. What can be done to avoid such negative aspect regarding academic collaboration? The answer definitively comes back to each of us; our work must always reflect our own ethics and morals. Furthermore, we must foster the culture of scientific ethics in our students and our editorial committees must insist on thorough pair-review and establish mechanisms for finding/identifying scientific misconduct regarding material submitted to our journals (and how they are run), thereby constituting a means of resolving this problem.

References

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