

Peer and non-peer evaluation

Neither peer evaluation nor democracy is perfect, but no other evaluation system or society organization has been found to replace them! Those who are happy with the current evaluation systems keep silent, but those, peer and non-peer, who, for different reasons, are not satisfied, frequently put them in discussion and under suspicion.

Researchers complain that their projects have not been well evaluated by Funding Agencies or that their scientific papers have not received the deserved treatment by the editorial staff of journals. Directors of graduate programs generally complain about the evaluation criteria and their course placement in the CAPES (Brazilian Federal Agency for Support and Evaluation of Graduate Education) ranking. One of the most frequent complaints is that evaluation is getting more and more quantitative instead of qualitative. Is this so?

The creation of the graduate program evaluation systems by CAPES and of the Consultant Committees by CNPq (National Counsel for Technological and Scientific Development), both in the 70's, were as important for the development and consolidation of science in Brazil as the funding allocated by the Development Agencies. Two evaluation systems resulted: an individual one, by CNPq, which focused on the scientist him/herself and an institutional one, which evaluated the graduate program.

In the 80's and 90's, the PADCT (Support Program for Scientific and Technological Development) consolidated the peer evaluation system by applying it in a broad way and to different levels. Two other actions enhanced both the visibility and the credibility of the evaluation process: the Lattes Plataforma, by CNPq, which made the researchers' *curricula vitarum* available for the public access and the establishment of Brazil's CAPES Agency Periodical Portal, which made it easier to access the information about the publications mentioned in the Lattes Plataforma. As a result, several aspects related to evaluation are available to the public and can be both quantified and checked.

What can be expected when evaluating a scientist and his project or research line? Competence plus good ideas. A scientist's competence may be checked by different means: his/her most relevant publications and/or patents; the formation of qualified human resources in the scientific initiation, Master's, PhD and/or Post Doctoral levels; the scientific leadership expressed by his/her performance in academic institutions, scientific societies, journal editorial boards, by the invitations to teach courses, give conferences, etc. and by his/her participation in the establishment of the policies for the sector. Thus, a scientist's competence may be easily evaluated, measured and checked.

A project is supposed to have intellectual value, to go beyond the knowledge frontier, to cause a great impact, to integrate research with education and to be presented by a scientist with recognized experience on the subject. The quality of a project may be evaluated *a priori*, but can only be measured and checked *a posteriori*.

A group of scientists with relevant projects may create a graduate program. If so, besides the requisites mentioned previously, a well-defined course project and a focus on learning are fundamental. The latter being the core of the graduate program.

In Brazil, the Chemistry area sector profited US\$103.5 billions in 2007. Its academic sector comprises 46 graduate programs, which, according to CAPES latest triennial evaluation, graduated 1,726 Masters, 1,055 PhDs and published 8,128 scientific papers in indexed journals, 63% of which with students' participation. The adherence and convergence of the sector with the evaluation process is expressed by *SBQ* (Brazilian Society of Chemistry) by the careful attention given to the evaluation process and the quality of the manuscripts submitted to its annual meetings and conferences, and, especially by the work of the editorial staff of its journals.¹

According to ISI (Institute for Scientific Information), the ranking of *Química Nova (QN)* (Impact Factor - IF=0.91)² is among the world's top three journals, published in languages other than English. In addition to publishing highly relevant scientific articles, *Química Nova* has played the role as a school for young scientists. A large number of young scientists have learned to write and to evaluate scientific papers through *Química Nova*.

The *Journal of the Brazilian Chemical Society*,³⁻⁵ *JBCS* (IF=1.54), the most prominent journal of Latin America, regardless of area, also contributes to the improvement and evaluation by international peers, while the journal *Química Nova na Escola – QNE*, which is focused on primary and high school education, is currently introducing peer review at these educational levels.

In short, when properly carried out, evaluation is highly beneficial to the academic and scientific systems. Under this viewpoint, what can one expect from a scientist that is playing a role of an evaluator in addition to IQ and competence? It is also expected that he/she shows motivation, good sense and emotional intelligence by means of his/her self-conscience and self-regulation, but, most of all, by an ETHICAL attitude; otherwise, the evaluation will not be done by a peer; it will be done by a *non-peer*!

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Editor JBCS

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