From the Editor

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Now more frequently than ever before, we're talking about "quantity versus quality."

It truly is a sensitive topic that would provoke discussion and argument, and might even evoke frustration and complaint. Clearly, "quantity" and "quality" are two related but different words describing two distinguishable concepts; otherwise, they would have already morphed into one term in the dictionary by now—perhaps "quantality" or "qualantity." How so?

On the one hand, we often question if quality is built upon quantity. The answer can only be *yes* and *no*. An empty cup does not serve any sweet water, so zero quantity produces zero quality; but mixing together two small cups of 50°C water does not produce a bigger cup of 100°C boiling water *per se*.

On the other hand, we equally often question whether or not quality is more important than quantity. And still, the answer is *yes* and *no*. With regard to one's health, drinking one cup of pure sterilized water is better than drinking two cups of somewhat contaminated water, and yet the latter might suffice for more people who happen to be severely dehydrated.

It seems to be just common sense that quantity does not invariably lead to quality and likewise that quality does not necessarily supersede quantity. The correct answer really is: *it depends*. I frankly wonder then why so many people seem so keen to debate the issue of "quantity versus quality" today?

In retrospect, the two concepts of quantity and quality have a long history of discussion and debate dating back to ancient literature. The distinction between these two notions can be traced back at least to Aristotle (384–322 BC). In his manuscripts *Categories* and *Metaphysics*, he referred to "qualitas" (quality) as naturally inherent characteristics of objects that might be used to describe their very essence such as color, happiness, and beauty. Aristotle referred to "quantum" (quantity) as some measures of objects that could be used to make computable comparisons, using such terms as "many" or "few" (countable measure) and "much" or "less" (uncountable measure).

Thereafter, especially in the thirteenth and fourteenth centuries when modern mathematics and physics started to develop, there was already a strong desire to quantify quality among European scholastic philosophers. They tried to precisely measure and compute a variety of quality concepts such as motion, color, beauty, courage, morale and even love and guilt. Their endeavors were successful to a large extent. By introducing some new scales and degrees as sensible measures, they were able to tell if a certain quality is increased (augmentatio) or decreased (diminutio), strengthened (intensio) or weakened (remissio), in some fairly formal manner. They were also able to describe possible transitions from a quantitative change to a qualitative change in an evolutionary process. For example, the accumulation of heat in a glass of cold water, hence the increase of its temperature, will eventually lead it to boil.

Successful attempts notwithstanding, in the end it appeared that quality by its very nature could not be precisely and completely quantified in any sensible way. The pursuit thus gradually died out.

It is thus amazing to see an overwhelming renewal of interest within academia attempting to quantify quality again, after more than half a millennium since the glorious time of the European scholastic philosophers. The attempt has been spurred on by today's ubiquitous availability of supercomputing power and of the Internet, which is saturated with different kinds of large databases. When used as yardsticks for academic performance evaluation however, measures of quality and quantity don't seem compatible. "More means better" is generally unacceptable not only in academia but also in industry for various reasons – many examples are easily found. And yet for evaluation purposes a computable comparison metric is badly needed by those in senior management positions, to whom quantification often translates to expediency of operations.

As for how to judge and compare faculty's performances in an academic institution, ranking is the best possible way to go if it is accompanied by a reasonable and appropriate data quantization, since everything that

can be quantified can be ranked. Today, we read more and more headlines about different sorts of rankings and comparisons in academia, from degree program rankings to graduate school rankings, and from faculty rankings to university rankings, to name just some typical ones.

Regarding ground-level management however, to quantify an individual's academic quality for performance evaluation is much more difficult, albeit many measures have been proposed using primarily some data-based numerical indexes. No doubt faculty performance evaluation is very important, indeed necessary in order to maintain the health and promise of our academic institutions. Yet, assessment has been difficult and is becoming increasingly tedious, even grueling for many faculty members. Ironically, as I was told, "everything you did will come back to haunt you." I used to evaluate my students' course performance mainly by their homework and exam scores. Now I myself am being evaluated by university authorities in almost exactly the same manner. Although these two might be considered different issues, should I complain about being "studentized"?

Here, of course, the key is how a professor scores his/her students; likewise, it merely is a question of how university administrators implement the calculations and rankings to evaluate their professors. In practice, the challenge for senior management is to maintain a good balance among the different measures used for academic quality assurance in order to address the hurdle that many aspects of academic quality are incomparable and unquantifiable – sometimes, *non multa sed multum*, but other times, *non multum sed multa*.