

Aspects Regarding the Scientific Production of a University

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The analysis of the scientific production of a university is a very complex process and it usually refers to the number of articles published in scientific journals. For most analyses, only a small number of journals is taken into consideration. Usually, there are considered the journals indexed in databases like Science Citation Index (Thompson ISI). However, we consider that for a more complex image of the scientific production of a university, we need to take into consideration several aspects: the development of the scientific production is a fundamental part of the mission of a university; the scientific production represents an integration of knowledge at both tangible and intangible level; at the moment, the evaluation and analysis of the scientific production is made only at the tangible level, the scientific production differs from one domain to another; all the university rankings based on the scientific production are relative.

Keywords: *Scientific production, evaluation, university mission.*

The scientific production is an important indicator of the development level in any country, being at the present moment quantified by the Institute for Scientific Information. It is a difficult and complex mission, and therefore cannot be complete (Haiduc, 2001). The explanation appears on the site of the above mentioned institution. In order to be complete, such an analysis needs to include all the scientific journals. Such an approach would not only be ineffective, but also useless. It was demonstrated that a relatively small number of journals publish the most relevant scientific contributions (the so called Bradford law). Therefore, from the large number of scientific journals, only few are taken into consideration. They are those that present a certain guarantee of quality through peer review and the number of citations. Therefore, it is not evaluated the entire scientific production of a country or institution (for example a university), but only that part that is considered significant (Haiduc, 2001).

However, there are also limitations of this approach. One of the major limitations is that most of the journals included in indexes such as Science Citation Index (Thomson ISI) are in English, thus limiting the access on non-English speakers. Moreover, there are fields where the authors publish their research in

books that are not included in such indexes (UNESCO Institute for Statistics, 2005).

In United States of America, there is a saying in the academic world "Publish or perish", which means that researchers need to publish their work in the best ranked journals in order to promote and obtain tenure. The publication of their work in other journals is almost equal to zero. However, in order to have a complex image of the scientific production of a university, we need to take into consideration several aspects:

1. The scientific production of a university represents a fundamental component of the university mission.

Mission reflects basically the existence purpose of the university. It determines the development of the organization by translating the vision into reality. While the vision reflects an ideal, the mission expresses a more pragmatic perspective. Vision concentrates on the internal image of the organization and on the aims of the top management, while mission concentrates on the external image of the organization (Brătianu, 2003).

The Humboldt style university implies that university scientific research contributes to new knowledge generation and to the development of thinking models. Moreover, scientific research contributes to the development

of a value system which goes beyond higher education institutions. The German style university model, which was generalized throughout Europe, is based on the unity and complementarity of research and teaching.

2. The scientific production has an intangible and a tangible nature.

Knowledge can be either tacit or explicit. Tacit knowledge can be obtained from the direct individual experience and it is stored within the unconscious zone of the brain (Bratianu, Vasilache, Jianu, 2006). Due to this exactly tacit dimension of knowledge Polanyi considers that we know much more than we think we know (Polanyi, 1983, p.4): *“I shall reconsider human knowledge by starting from the fact that we can know more than we can tell. This fact seems obvious enough; but it is not easy to say exactly what it means. Take an example. We know a person’s face, and can recognize it among a thousand, indeed among a million. Yet we usually cannot tell how we recognize a face we know. So most of this knowledge cannot be put into words”*.

If we take into consideration the two dimensions of knowledge that we presented above, then we have the following knowledge conversion processes: tacit-tacit, tacit-explicit, explicit-tacit and explicit-explicit (Nonaka and Takeuchi, 1995).

When the results of the research obtained by the academic staff are transmitted to students, we deal with internalization at the individual level. Knowledge generated and transmitted this way has an intangible nature (Bratianu, 2006ab). The transfer to the tangible level is made by publishing the results of the research in specialized journals, conference proceedings or books. The scientific production has an intangible and a tangible nature.

3. The evaluation of the scientific production is made at the present moment only at the tangible level.

At the tangible level we deal with objects that can be seen, touched and measured. At the intangible level we deal with things that cannot be seen, touched and measured direct-

ly, at least at the present moment. They can be evaluated indirectly, by their consequences. This reflects our limitation to measuring only tangibles. As a corollary to Polanyi statement above: The scientific production is greater than what we can currently measure.

4. The scientific production differs from one field to another.

Therefore, the evaluation criteria, in order to be realistic and as rigorous as possible need to take into consideration the differences.

5. Any university ranking based on the scientific production is relative.

The relativity derives from the reference system used and the evaluation models. Different systems and different models (therefore different indicators) lead to different results. It is therefore a mistake to generalize these rankings

Conclusions

The analysis of the scientific production of a university is a difficult process and is done only at tangible level, at least for now. The most used methods imply the number of scientific articles published in journals indexed in different databases (for example Science Citation Index Thomson Scientific ISI).

However, there are different fields and the scientific production in each of those fields has some particularities, which need to be taken into consideration, in order to be realistic and as rigorous as possible. Any ranking based on the scientific production is relative and its analysis makes sense only in the reference system defined from the beginning.

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