THE SOCIO-COGNITIVE FRAMEWORKS OF SCIENTIFIC PRODUCTIVITY

KATARINA PRPIĆ

Institute for Social Research Zagreb, Amruševa 11, 41000 Zagreb (Croatia)

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Empirical research carried out on a representative sample of 921 scientists from Croatia has shown that scientific fields are important socio-cognitive productivity framework. First, this can be seen in significantly different patterns of the average scientific productivity of researchers in different fields. Second, significant are the differences in the social organization of scientific fields, especially in the fragmentation and organization of the research process, which manifest themselves with a different engagement intensity of the respondents in each stage of the project. Finally, scientific productivity predictors are structured, ranging from significant ones in some fields, to those significant everywhere (qualifications and project roles).

Introduction

A large number of sociological and scientometrical research into scientific productivity may, inspected superficially, give the impression of particular attention being given to disciplinary scientific context. This is because the consideration of disciplinary peculiarities is usually reduced to sampling the scientists or/and their publications from certain, most commonly natural (sub)disciplines.

The monodisciplinarity of samples of physicists, chemists, biochemists and more rarely mathematicians, geologists or astronomers, will sometimes not confuse the authors when doing some generalizations of conclusions, if the research problem focuses only on the scientific productivity, or/and on the process of social stratification. Sometimes such samples are used for the purpose of research into (sub)disciplinary scientific communities.1–10

There has been research into general transdisciplinary features of production, stratification and communication in science, and in some narrower scientific communities by comparing two or more disciplines, and on samples or sub-samples of scientists.11–16 It is usually a question of choice among a few natural and socio-humanistic disciplines. Some of these studies have discovered significant differences.
among the compared disciplines regarding average scientific productivity and share of the co-authored publications.

Recently, there have been comparisons of scientific productivity within some broader research areas\(^17\) or among a number of scientific disciplines.\(^18\) These comparisons seem to stop at the level of some basic data on average production or at the level of differences in the productivity between the young and older researchers.\(^19\)

In (sociological) empirical studies, disciplinary comparisons hardly ever encroach on the problem of socio-cognitive conditions and/or production characteristics of some particular scientific fields\(^20\)–\(^22\) or they just touch on them when dealing with so-called cognitive migrations, i.e. with the transfer of scientists into some other field or discipline.\(^23\)–\(^24\)

A more complex framework of studying the intellectual and social organization of sciences results from the assumption that the differences in the nature of cognitional objects also imply some differences in the work organization which, once established, is not applicable to the production of other cognitions. The distinction between the restricted and unrestricted sciences is thereby primarily an ideal type one.\(^25\) Later in his work the same author develops a more elaborate typological system of scientific fields, based on the configuration of tasks and problem areas, and on the coordination and control processes existing within sciences.\(^26\)

This research could not possibly have been directed towards the verification of the mentioned – heuristically very fruitful – theoretical typology of scientific fields. From its basic idea concerning the interdependence of the intellectual and social organization of sciences, it is possible to come to the assumption that there are also some significant differences among different scientific fields concerning the intellectual – scientific – output, its organization and production, and its predictors. Such differences ought to occur when there are some important cognitive distinctions among various groups of related scientific disciplines. In brief, sociological studies cannot give relevant answers to the question regarding the production of scientists if they continue to avoid the socio-cognitive level of analysis.