

Title:

Taking a leap of faith: How young scholars all over the world forge ahead for successful research careers.

Outline of the research paper (1000/1000 words)

The paper results from an empirical global study named “The global state of young scientists” (GloSYS) which was launched by the Global Young Academy (GYA). The study examines the career paths of young scientists and researchers in typical developed, emerging and developing countries on all continents focusing on different conditions and obstacles, including career development in an era of increasing global demands such as international mobility in science and its effect on the lives and ambitions of scientists, national science systems and their different support mechanisms, productivity and success, and young scientists’ views perceptions of their situation as well as personal motivation to pursue an academic career. Available knowledge focuses only on the challenges and opportunities of young scientists in a fraction of countries neglecting the situation in the research systems of developing and emerging nations. The GloSYS study hence includes insights into these under-researched parts of the world.

The paper discusses North-South disparities as a line of differentiation in science, but within this context factors such as age and gender are also considered. In the sociological studies of science, age has long been an important issue with regard to productivity. Lehman (1953) demonstrated that major contributions are likely to occur when scientists are in their late 30s or early 40s, and thereafter decline rapidly. He also found out that there are disciplinary differences in scientists’ productivity peak. In abstract and theoretical disciplines such as theoretical physics scientists are most productive at an earlier age and in more empirically based fields such as biology their peak tends to be later. Pelz and Andrews (1966) found two productivity peaks: the first peak is in their late 30s and early 40s and the second one when they are about 50 years old. Levin and Stephan (1991) showed in their study of natural scientists that, on average, scientists become less productive as they age. Considering the working and living conditions of young scholars their potential does not seem to be supported optimally when they are most productive.

Furthermore, taking gender into consideration, studies show a productivity difference between men and women over time, with men producing more research output than women (Cole and

Zuckerman 1984; Long 1992; Nakhaie 2002; Symonds et al. 2006; Taylor et al. 2006; Ledin et al. 2007; Abramo et al. 2009). However, evidence shows that gender differences do not have a bearing on citations per publication (Penas and Willett 2006; Ledin et al. 2007; Tower et al. 2007), or the differences have a reverse effect; women having higher citation rates than men (Long 1992; Powell et al. 2009). Symonds et al (2006) suggest that especially the careers of young scientists are affected by a productivity gap and gender differences in performances. The impact of age and gender are therefore considered in all cultural contexts of the study.

A structural challenge in discussing and analysing *the global state of young scientists* is the duality between an international system of science and national higher education systems. This paper reflects on the increasingly mobile and international careers of young scientists, working in a profession where knowledge is produced in a global competitive context but also in environments strongly shaped by local and national institutions. The paper hence proposes a number of ideas which consider contemporary, global challenges and opportunities young scientists face when pursuing career advancement in different parts of the world.

One of the central goals of most young scholars is becoming fully established in their disciplines. In higher education this is usually accompanied by pursuing access to a permanent position, considering that this allows candidates to leave behind the insecurity of temporary contracts. This qualification phase is characterized by a high level of flexibility with regard to career options, geographical mobility, uncertainty and the need for high efficiency. However, moving into the security of a stable position and becoming an accepted member of the profession is a challenge. Opportunities for career advancement increasingly preoccupy highly trained young scientists. The gap between expectation and reality is growing as the Annual Postdoc Survey 2012 conducted by Science Careers shows: 56% of current postdocs in different world regions expected a tenure-track position in 2012, whereas only 21% achieved this goal – 16% less than in 2010. Yet, a career in academia is still an appealing career path.

The paper presents findings from the GloSYS project, which were gathered from 50 qualitative interviews and an international survey in selected countries (Canada, Chile, Germany, Philippines and South Africa). The most important points affecting the career development of young scholars is discussed. The paper considers North-South disparities and highlights the differences in opportunities and possible hazards that academic career trajectories hold in developed, emerging and developing economies, but also focuses on the

shared concerns young scholars experience about their career paths with regard to their national contexts.

Career path and assessment criteria along the way appear ambiguous and vague to many young scholars. An increase in transparency and fairness of the assessment process is therefore perceived as necessary conditions for the career development of young scholars and are also regarded pre-requisites for diversity and sustainability in science. The importance of mentoring and guidance is also highlighted in this context.

The paper also examines the training of young scientists, which often leaves them poorly equipped for specific duties and responsibilities. Apart from conducting research, young scientists lack formal training in teaching, preparing grant applications, group management and science communication. Furthermore they are often short of opportunities to contribute meaningfully in projects and collaborate with relevant partners. This strongly relates to the availability of adequate support structures young scholars can rely on.

A good work-life balance, fair payment and an acceptable workload are the pre-conditions for job satisfaction. Other factors such as an adequate infrastructure and the availability of start-up grants, an increase in job stability and family-friendly policies allow young scientists the freedom to be creative and productive while balancing professional and personal duties, but they also enhance the progress of the national science and innovation systems.

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