

# TRANSLATIONAL TWISTS AND TURNS: SCIENCE AS A SOCIO-ECONOMIC ENDEAVOR

PROCEEDINGS OF **STI 2013 BERLIN**

18<sup>TH</sup> INTERNATIONAL CONFERENCE ON  
SCIENCE AND TECHNOLOGY INDICATORS



Institute for  
Research Information  
and Quality Assurance

**ENID**  
European Network of  
Indicators Designers

**Published for the 18<sup>th</sup> International Conference on Science and Technology Indicators**  
**“Translational twists and turns: Science as a socio-economic endeavor”**

organized under the auspice of the European Network of Indicator Designers (ENID)  
hosted by the Institute for Research Information and Quality Assurance (iFQ)  
Schützenstraße 6a  
10117 Berlin  
Germany

Phone +49(0)30-206 41 77-0

Fax +49(0)30-206 41 77-99

E-Mail [info@forschungsinfo.de](mailto:info@forschungsinfo.de)

Web [www.forschungsinfo.de](http://www.forschungsinfo.de) (German)  
[www.research-information.de](http://www.research-information.de) (English)

ISSN 1864-2799

September 2013

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted any form or by any means, electronic, mechanical or photocopying, recording, or otherwise without the prior permission of the authors.

# **Translational twists and turns: Science as a socio-economic endeavor**

## **Proceedings of STI 2013 Berlin**

18<sup>th</sup> International Conference on Science  
and Technology Indicators

Berlin, Germany | September 4 – 6, 2013

Edited by Sybille Hinze / André Lottmann



# The notion of talent: What are the talents we are looking for in science?

Pleun van Arensbergen    p.vanarensbergen@rathenau.nl / Science System Assessment, Rathenau Institute, Den Haag (the Netherlands)

Inge van der Weijden    i.c.m.van.der.weijden@cwts.leidenuniv.nl / Centre for Science and Technology studies CWTS, Leiden University, Leiden (the Netherlands)

Peter van den Besselaar    p.a.a.vanden.besselaar@vu.nl / Network Institute & Department of Organization Science, VU University, Amsterdam (the Netherlands)

## Abstract

In this paper we study the process of scientific talent evaluation in more detail. By analysing the grant allocation process on both the individual and panel level, we will give more insight in the predominant notion of talent in external talent selection. We will compare this to the notion of talent that prevails when researchers identify talent in their own academic work environment. We interviewed 29 panel members involved in grant allocation. For improving the transparency, quality and legitimacy of grant allocation practices, we furthermore aim to uncover the details of the de facto (implicit and explicit) criteria applied in grant allocation.

## Introduction

The quality of education and research is strongly connected to the quality of the people working in the academic sector. For excellent science, excellent scientists are needed. Therefore government and universities specifically aim at investing in the best people when investing public resources in education and research. This has led to an increased focus on talent and talent policy. In the staff policy of universities in the Netherlands the notion of talent has nowadays taken a central position. Several programmes and policy initiatives are currently implemented to attract and stimulate academic talent. However, due to restricted university resources, researchers depend to an increasing extent on external funding. Acquiring external funding forms a prominent criterion in academic recruitment and evaluation processes.

In the Netherlands personal career grants are strongly considered as necessary resource in order to be able to have an academic career. This leads to huge application pressure for this type of personal grants and – because of a fixed budget – to a relatively low success rate. The importance for researchers to acquire these grants combined with the low success rate, asks for clarity and transparency of how the funding decisions are made.

A recent quantitative study of talent selection through the allocation of career grants showed that the evaluation and selection of talent is highly contextual (Van Arensbergen & Van den Besselaar, 2012). The extent to which an applicant was considered to be talented varied during the selection process and there was moderate agreement between the reviewers. Unlike the face-to-face panel interviews with the applicants, the external peer reviews hardly influenced the final grant allocation decisions. While panel members have to review a broad range of proposals, therefore being no expert on most of the topics, external reviewers are considered to be the experts on the specific topic. Except for a few positive outliers (top talents), no evident pool of talents could be identified based on the various review scores. The differences in scores between just selected and rejected applicants are very small, while the consequences of these funding decisions are of great importance for the careers of (especially) young researchers. For improving the transparency, quality and legitimacy of grant allocation practices, it would therefore be important to uncover more deeply the details of the de facto (implicit and explicit) applied criteria.

In this study we will look at the process of talent evaluation in more detail. We will analyse how reviewers individually evaluate talented researchers in the context of grant allocation and how talent is reviewed and discussed within the decision-making panel. Which characteristics of the applicants do they value the most and how do they reach agreement on this within a group? This will give more insight in the predominant notion of talent in external talent selection. Furthermore we will investigate the notion of talent that prevails in a more general academic setting: how do (associate) professors recognize talents in their own department? By comparing these different contexts of talent evaluation we will clarify the notion of talent in science.

## **Theoretical background**

The word 'talent' clearly has a positive connotation, but there is no general consensus on the exact meaning of it. A highly debated issue, for example, is the origin of talent: is talent innate or acquired (e.g. Baron-Cohen, 1998; versus Howe, Davidson & Sloboda, 1998)? In order to get a better grip on the term 'talent', Tansley (2011) studied the historical and linguistic development of the notion of talent over the years. The first dictionary definition of talent refers to a unit of weight, used by the Greek and Romans. Later in the bible it acquired in English the meaning of a monetary unit, which the Greek thereafter translated in terms of 'capital'. In a way this meaning of talent is currently still used in HR practices, as they often use the term 'human capital'. From the thirteenth century onwards the meaning of 'talent' changed relating more to a disposition, special ability or aptitude.

In this paper we consider talent as a form of 'symbolic capital', according to the concept of Bourdieu (1986). He discerned several forms of capital, most importantly economic (financial resources), cultural (education and upbringing) and social (relations and networks). In every societal field there is competition for accumulating as many of these types of capital as possible. Also within science. The position someone holds within the academic field depends on the types

of capital one can obtain and subsequently converse into symbolic capital. Symbolic capital involves reputation and prestige, the way one is valued by others. In science this is mainly determined by the judgement of peers. Scientific quality is what peers qualify as such. This also holds for the identification of talent: it is all about which qualities the scientific community value the most.

Following the example of Van den Brink (2009), who applied the concept of symbolic capital to academic careers, we will in this paper differentiate between professional, individual and social capital. In short, professional capital involves the track record in terms of education and publications. Individual capital is about personal traits and social capital about networks.

Evaluation of scientific quality is often carried out in panels, e.g. in the context of grant allocation. To understand how talent is evaluated and selected in these panels, it is not enough to only study the characteristics of the talents and the reviewers. The panel decisions are influenced by and the result of group interaction, making group and context variables important to include. From literature reviews on this type of panel reviewing, we learn that, for example, group composition, group dynamics (e.g. discussion, sharing of information, power relations), characteristics of the procedure and contextual factors (e.g. budget, time pressure, accountability) can strongly affect the decision outcomes (Olbrecht & Bornmann, 2010; Van Arensbergen et al., *forthcoming*).

These factors impede the transparency and predictability of the decision-making process. However, as this type of panel evaluations involves interaction between human beings, it needs to be considered as a social and emotional process. Therefore, it is impossible to completely rule out any form of subjectivity (Lamont, 2009).

In this paper, we approach the process of talent selection as a strongly subjective process. We aim to study the process of talent selection as fully as possible by investigating the decision-making process on both the individual and on the group level. We look at how reviewers use the formal procedures and interpret the formal criteria in their own way when evaluating grant applications. Furthermore, we analyse the panel discussions and the way the panels reach their final allocation decisions. By studying the process of personal grant allocation, we aim to get a better understanding of the notion of talent that prevails within the scientific community.

## Data and methods

We conducted 29 semi-structured interviews with members of grant committees within the Talent Scheme of the Dutch Research Council. They were involved in reviewing and allocating personal career grants within two funding programs:

- The early career grant scheme (ECG) for researchers who received a Ph.D. within the previous three years. The grant offers them the opportunity to develop their ideas further.

- The intermediate career grant scheme (ICG) for researchers who completed their doctorates within a maximum of 8 years and who have already spent some years conducting post-doctoral research. The grant allows them to develop their own innovative research line and to appoint one or more researchers to assist them.

The interviewees (16 males, 13 females) are predominantly associate or full professor and come from various scientific domains, from social sciences to life sciences (see table 1 for more details on the interviewees). Most of the interviewees have been involved in this type of grant allocation for several years, have experience in internal selection processes at the university, and have been active as (national and international) peer reviewers.

*Table 1. Overview of the interviewees per program, domain and gender*

	ECG		ICG		Total
	Male	Female	Male	Female	
Social sciences, humanities	4	5	2	3	14
Science, life sciences	7	3	2	2	14
<b>Total</b>	<b>11</b>	<b>8</b>	<b>5*</b>	<b>5</b>	<b>29*</b>

\* including one panel member for cross disciplinary applications

The interview mainly involved questions on the selection of talent within the personal career grant scheme. E.g. how do they review the grant applications; which criteria do they use in the different phases of the selection process; how do they recognize the top talents; how are the applicants discussed within the panel; how does the panel reach the final allocation decisions? Part of the interview also focused on talent selection in their own academic environment.

All interviews were transcribed and coded using the software programme Atlas.ti.

## Results

Because of the high numbers of applications in relation to the councils budget, the grant allocation procedure often involves a preselection. In some cases panel members have to reject almost half of the applications in this first round. In this stage the applications are not sent to external reviewers who are considered to be the experts on the specific topic. Because the panel members are responsible for reviewing a large and broad set of applications, they tend to primarily focus on the curriculum vitae and to a smaller extent on the abstract of the research proposal. The curriculum vitae, a form of professional capital, is found to be generally easy to review for all the applicants, regardless of disciplinary proximity.



In the next round when the panel has to select which applicants to invite for the interview, external reviewers are involved. In an earlier study the external reviews were found to play a modest role in the selection process, correlating moderately ( $\tau = 0.52$ ) with the panel reviews, which are eventually decisive (Van Arensbergen & Van den Besselaar, 2012). This can be explained by the finding that the panel members don't automatically take over these expert reviews, but evaluate and weigh them. They primarily want to understand how the external reviewers arrived at their given score. When the external review lacks a clear motivation or when the panel members disagree, they can decide not to take it into account when formulating their own score.

The most important criteria the individual panel members apply in evaluating the quality of the applicant are: number and type of publications (first author or other), international experience, acquired funding and awards, all forms of professional capital. These last two criteria serve as an indicator for talent. It shows that others have recognized them as talent in the past, *so it has to be a very talented applicant*.

When evaluating the quality of the research proposal the focus predominantly is on originality and innovativeness of the research topic, and on the elaboration and feasibility of the proposal. Furthermore panel members want to be convinced that the proposal is really the applicants work. It should be part (or the beginning) of his or hers own line of research, not of their promoter. However, the most important criteria panel members use is: do I understand the proposal? It should be written in a very clear way, generally understandable for everyone in the panel, not just for the experts on the topic. The skills related to these criteria can all be considered types of individual capital.

In the next stage a selection of the applicants is reviewed in a face to face interview. This is found to be a very decisive phase in the selection process (see also Van Arensbergen & Van den Besselaar, 2012). It serves as an opportunity to test several of the criteria earlier applied to the written application. Mainly the authenticity of the proposal is tested. The way applicants answer the questions posed by the panel, better reflects their personal skills and ideas. Other more subjective criteria of great importance used during the interview are enthusiasm, ambition, perseverance and persuasiveness, all forms of individual capital.

After the reviewing process on the individual level, we now turn to decision-making process on the group level. The panel discussion gives reviewers the opportunity to explain criteria specific to their discipline, e.g. publication practises or research methods. In general the panel goes along with the opinion of the expert within the panel. However, the influence of the level of expertise on the evaluation varies. On the one hand experts generally have affinity with the topic, which can make them put extra effort in convincing the other panel members of the strengths of that application. On the other hand their knowledge can make them more critical, identifying more easily the weaknesses of the application. Panel members are also found to be quicker enthused by topics they don't know much about.

The panel spends most of its deliberation time on the large middle area in between the few applicants at the top and bottom. Quality differences within this group are very small, leading to a rather arbitrary boundary between just selected and just rejected applicants. On average their scores are almost the same, but they generally vary on different criteria. Therefore it is very important which criteria the panel members emphasize. Random factors are found to play a decisive role in this. For example, the strong or weak points of the applicant the first speaker mentions to start the discussion, is strongly supported by the other panel members. The composition of the panel is also found to be very decisive, as this determines the available expertise. Personal preferences and atmosphere within the panel too determine final selection decisions.

Although the panel members are convinced the top talents are granted, they indicate to have strong doubts about part of the allocation decisions. Since the quality differences are small and random factors influence decisions in the middle group, many rejected applicants could have been granted as well.

Turning to the identification of talent by experienced researchers in their own academic work environment, we found that they use a rather broad concept of talent. Talents excel on various dimensions, combining all forms of symbolic capital. They have a broad expertise, excellent writing skills and a high productivity. Furthermore, they can work really hard, have a strong ambition, enthusiasm and perseverance. Social skills are also highly valued: communication skills, a proactive and social attitude and team spirit. Finally, talents are not always recognized as such immediately. Some time is needed for talent to develop and become visible.

## **Conclusion**

In the context of grant allocation, the notion of talent is narrowed down to mainly professional capital. Number of publications and acquired grants are key criteria used in the selection process, especially in the first phase of the procedure. In a later phase where a selection of applicants is interviewed face to face, elements of individual capital come in. Besides testing the applicant's scientific expertise, reviewers now evaluate motivation, enthusiasm, ambition and uniqueness. The notion of talent is narrower in formal talent selection compared to informal talent selection, in which all three forms of symbolic capital are highly valued.

Within the panels a lot of time is spent on discussing the applicants in the so called 'grey area', in which there are minimal differences between the applicants. Despite of the thoroughness of the procedure and the sincere efforts of the panel members, random factors play an important role in part of the allocation decisions. Because of the nature of the selection process, involving human interaction, these factors can never completely be excluded. But it is important to be aware of the subjectivity and extent of randomness of these allocation decisions, since they have important consequences for the careers of many young researchers. Not only because they directly provide

researchers with resources to conduct research, but also because they are indirectly provide career opportunities as indicators of talent.

## References

- Arensbergen, P. van, Besselaar, P. van den & Weijden, I. van der (*forthcoming*). The Selection of Talent as a Group Process. Den Haag: Rathenau Instituut.
- Arensbergen, P. van & Besselaar, P. van den (2012). The selection of scientific talent in the allocation of research grants. *Higher Education Policy*, 25, 381–405.
- Baron-Cohen, S. (1998) 'Superiority on the embedded figures test in autism and in normal males: evidence of an "innate talent"?' *Behavioral and Brain Sciences* 21(3): 408–409.
- Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.) *Handbook of Theory and Research for the Sociology of Education* (Vol. 1<sup>st</sup> edition, p 241–258). New York: Greenwood.
- Brink, M. van den (2009). *Behind the scenes of science. Gender practices in the recruitment and selection of professors in the Netherlands*. PhD thesis, Radboud Universiteit Nijmegen.
- Howe, M.J.A., Davidson, J.W. and Sloboda, J.A. (1998) 'Innate talents: reality or myth?' *Behavioral and Brain Sciences* 21(3): 399–407.
- Lamont, M. (2009). *How professors think. Inside the curious world of academic judgment*. Cambridge: Harvard University Press.
- Olbrecht, M. and Bornmann, L. (2010) 'Panel peer review of grant applications: what do we know from research in social psychology on judgment and decision-making in groups?' *Research Evaluation* 19(4): 293–304.