

Evaluation of the Research Award Programmes of the Alexander von Humboldt Foundation

Short version

Introduction

In May 2008, Technopolis was commissioned to evaluate the Humboldt Foundation's research award programmes. The awards are granted in recognition of a researcher's entire achievements to date and award winners are invited to spend a period of up to one year cooperating on a research project of their own choosing with specialist colleagues in Germany. The stay may be divided up into segments. Granting research awards to distinguished academics from abroad goes back to an initiative launched by the German government under Willy Brandt in 1972. It commemorated the 25th anniversary of the announcement of a European Recovery Plan by US Secretary of State George Marshall and was a symbolic gesture of gratitude to the American people. The programme, originally only intended for natural scientists, engineers and medical doctors from the United States, has gradually developed into the present research award programme which has no restrictions with regard to discipline or nationality. Since 2001, the programme has been complemented by the Friedrich Wilhelm Bessel Research Award targeted at the younger generation of academics. Scientists and scholars are eligible to be nominated for this award if they are internationally renowned in their field, completed their doctorates less than 12 years ago, and are expected to continue producing cutting-edge achievements in future which will have a seminal influence on their discipline beyond their immediate specialist field. In the period 1972–2006, a total of 2,661 academics received research awards from the Humboldt Foundation. Around 60 Humboldt Research Awards¹ and 20 Wilhelm Bessel Research Awards are granted annually.

This evaluation encompasses all the Humboldt Foundation's research award programmes. It evaluates their success and their impact in compliance with the Humboldt Foundation's general evaluation concept according to the following three programme targets:

- Target 1: To stimulate the German research landscape through collaboration with scientists and scholars from the leading scientific communities in the world (selection of the best nominees) with the purpose of benefiting individual researchers and institutions, as well as German science in general.
- Target 2: Networking: To promote a network (scientific friendships) to facilitate scientific (initially trans-Atlantic) dialogue and, in so doing, build up lifelong personal relationships based on trust.
- Target 3: To mediate a (positive) image of Germany by establishing personal and cultural links, reducing prejudices and acquiring knowledge on the science system.

These targets show that not only the award winners themselves but especially the positive repercussions for the German research landscape and the networking of scientists in and from Germany are at the centre of activities. For each of the targets, the Humboldt Foundation defined indicators which, as part of the evaluation, were rated through a combination of the following qualitative and quantitative methods:

- interviews with representatives of the Humboldt Foundation's headquarters, documentation and data analysis
- expert interviews on the positioning of the research award programmes
- bibliometric investigations in selected areas of physics and chemistry
- network analyses with graphic representation of networks

¹ In the years 2004-2008, 2-5 "Helmholtz Humboldt Research Awards", supported by the Helmholtz Association, were granted annually, where award winners were invited to conduct a research stay at one of the Helmholtz Association's research institutes. In addition, since 2006, the "Fraunhofer-Bessel Research Awards" have also been granted, inviting award winners to institutes belonging to the Fraunhofer-Gesellschaft.

- written surveys of award winners², hosts and fellows from Germany who have carried out a research stay with an award winner in the framework of the Humboldt Foundation's Feodor Lynen Fellowship Programme.
- ten case studies illustrating how the research award programmes operate.

Results

1. As the survey results show, the Humboldt Foundation's research programmes have developed into a highly valued instrument, respected worldwide, for promoting excellence, which recognises the entire achievements of internationally renowned academics from countries all over the world. Award winners are invited, in addition, to carry out research projects of their own choosing in Germany. This results in continuing contacts, collaboration and mutual visits by colleagues close to the award winner. The addition of the Friedrich Wilhelm Bessel Research Fellowship has also opened up the research award to younger, similarly outstanding scientists and scholars.
2. The success of the research award programmes is attributed to (i) the recognition of academic achievement with (ii) an additional invitation which is very attractive to the award winners, not least due to its high degree of flexibility in designing the research stay whilst keeping the administrative burden low, (iii) the clear commitment of the hosts already expressed in the Laudation promoting the nomination of the award winner, (iv) a network of Humboldtians which has grown over decades and which, with the support of the Humboldt Foundation, links scientists and scholars not just across national boundaries but particularly across the generations. This is summarised in the following brief analyses.
3. The interviews conducted at the commencement of the evaluation process with experts around the Humboldt Foundation and with representatives at its headquarters signalled the fundamental results in important points: building on an attentive and stringent selection process that not only considers the excellent qualifications of the award winner but also the expected stimulus for German colleagues at the host institute, a large number of research collaborations is triggered which carry over into the generation of junior scientists and scholars.
4. The basis for stimulating the German research landscape through the award winners' programmes are the award winners' research stays in Germany. Award winners are invited to conduct these research stays in addition to the award and are free to plan them as they wish. 97% of award winners actually take up this invitation³. On average, research stays last a total of 9 to 12 months. Around one third of award winners arrange their stay in one block; one in four divide it into two blocks, one in five into three blocks. One in four award winners divide their stay into four or more blocks.
5. Award winners do not use their research stay for a personal retreat from their usual daily lives (working lives); on the contrary, 99% maintain a presence at the host institutes through conversations and discussions with colleagues and, according to 86% of hosts, are involved in the daily life of the institute. In this way 80% of award winners introduce new research themes, almost 60% introduce new research methods and, more rarely, new research technologies. As the following results show, the research award programmes are very successful with respect to networking, as well as stimulating the German research landscape.
6. For the vast majority (over 80%) of award winners, joint research projects develop which frequently involve colleagues not only from the host institute in Germany but also from the award winners' own institute.
7. Almost without exception, collaborating with colleagues at the host institute leads to joint publications in renowned specialist journals, in one third of cases to more than five. In addition, 40% of award winners write joint contributions to scientific books with colleagues from the host institute. Indeed amongst humanities scholars this kind of joint contributions to scientific

² Written survey of all award winners who were under the age of 70 in summer 2008 and who had spent at least three months in Germany in connection with the research award.

³ Reporting from Humboldt Foundation database.

books is the main focus. Bibliometric analyses⁴ show that, amongst award winners, the share of co-publications with colleagues from Germany in all their publications during the five years after starting their research stay in Germany, compared with the five preceding years, almost doubles from 7% to 13%. Amongst Lynen Fellows, the share of publications with US participation increases from 8% to 38%⁵. By contrast, the base level for hosts already tends to be quite high and increases only a little.⁶

8. Award winners' collaborative work is not restricted to the host institute. Every third award winner also conducts research projects with scientists and scholars from other German research institutes. Nonetheless, the close personal bond between award winner and host which, in two out of three cases continues in close and friendly contact, is the core of most collaborative relationships.
9. Although the academic activities of most award winners had brought them to Germany before the research stay linked to the Humboldt research award, their awareness of developments in Germany in their area of research increases. Most of them refer more than previously to the work of Germans and publish more with them, as the bibliometric analyses also show.
10. Later, more than one in four award winners⁷ take on the role of host for a Feodor Lynen Research Fellow. Here, the personal contact with the award winner is not always as close, but for more than half the fellows the contact with the award winner has a very positive, if not decisive influence on their later careers.
11. The third objective of the programme, mediating a (positive) image of Germany, reducing prejudices and acquiring knowledge on the science system, is also promoted effectively by the programme. Most award winners already bring a positive image of Germany with them when they come to Germany, yet, in numerous areas, 15-20% of award winners acquired a positive image of Germany which they had not expected, for example with respect to people's openness, the range of cultural activities on offer, awareness of current events, or the quality of public infrastructure. In particular, many award winners (29%) were won over by the high level of environmental awareness in Germany. In some areas, award winners gained a negative image, most notably the administrative burden and bureaucracy, the lack of childcare facilities and opportunity for dual careers, as well as hostility towards foreigners in public. In the world of research, award winners were surprised above all by the quality of junior scientists and scholars and the degree of internationalisation amongst colleagues, as well as the quality of organisation at symposia and conferences and of support staff, whilst every fourth award winner acquired a negative image with regard to the transparency of decision making processes in the science system. With a positive assessment of 90% and more in all other aspects, Germany is certainly regarded as a highly attractive research location.
12. Both the survey and bibliometric analyses show that the hosts themselves are already actively involved in international networking. The degree of internationalisation at the host institute is also one of the aspects which exceeded 21% of award winners' expectations. One of the achievements of the research award programmes is to promote close contacts between high-profile scientists so that other colleagues working closely with them in Germany and at the award winner's own institute are integrated in transnational, collaborative exchange.
13. With regard to the impact of the programmes, one aspect deserves particular attention, namely, the differences between forms of collaboration and working methods employed by researchers from differing areas of science and, in connection with this, the different results and effects attributable to award winners' research stays in Germany.

⁴ In selected areas of Physics and Chemistry, publication data from the IS Web of Science on a total of 144 award winners, 103 hosts who hosted award winners from the USA, and 158 Feodor Lynen Fellows were analysed.

⁵ Here, for any one award winner, the five years starting from the year following the commencement of the fellowship are compared with the five years before its commencement.

⁶ Here, the publications of award winners' hosts from the USA and from the selected specialist areas were investigated: the share of co-publications with colleagues from the USA increased after an award winner's first stay at their institute from 11% to 13% of all their publications.

⁷ Calculations based on Humboldt Foundation database.

Although the research award programmes are open to all disciplines, the natural sciences still dominate with 75% of award winners⁸. 16% of award winners are from the humanities and 9% from engineering.

The highest number of academics who have hosted several award winners are found in the natural sciences. Humanities scholars rarely tend to repeatedly nominate colleagues from abroad for a research award. In engineering, supervision of doctoral students plays a large role; more time is spent with junior scientists than is the case in the humanities (though four out of five also do so!). Award winners from the natural sciences invite postdocs to their institutes most frequently⁹. On the other hand, Lynen Fellows from the humanities tend to profit somewhat more frequently from the contact with the award winner than their colleagues as personal cooperation is more often possible. As for the host institutes: whilst award winners introduce new methods to considerably more natural scientists and engineering scientists, in the humanities award winners are more inclined to introduce new stimuli through new topics. The differences are also revealed in the joint publications: humanities scholars (co-)publish articles more rarely than their colleagues, but co-publish books with their hosts and their colleagues more frequently. Natural scientists co-publish most frequently: over 90% of them have published joint articles, and at over 40% of host institutes more than 5 articles have been co-published. With regard to the host institute, natural and engineering scientists are largely satisfied with their equipment at the institutes, whilst in the humanities 29% are not satisfied with their personal workplace, and slightly more are not satisfied with their own PC work station.

Recommendations

In view of the stated success, we wish to introduce these recommendations with a quotation from one interviewee about the Humboldt Foundation:

"An organisation in a position not to change its portfolio continually, but to refine and to optimise what it has, and change its framework in the light of new considerations"

1. The results of the evaluation confirm the programme in its present design; an approval quota of around 40% allows selection of the best nominees and in this way supports the reputation of the programme. This leads to the first recommendation to continue the present orientation of the Humboldt Foundation's research award programmes.

All further recommendations function as critical feedback in order to give detailed indications on the continued development of the programmes. In doing so, four levels of intervention are addressed. The first concerns involving the humanities more strongly in the programme; the second concerns the provision of information on alumni funding; the third addresses transparency in the selection process and finally, we make suggestions for the further evaluation and monitoring of the programme.

2. The results of the survey illustrate that collaboration and networking function differently in the humanities and are perhaps less explicitly and organisationally supported than is the case in the natural and engineering sciences. In programmes based on networking and personal recommendation (i.e. nomination in the award winner programmes), there is a tendency to give emphasis to groups already well represented. Minority groups find accessing them more difficult. Our suggestion is to make a greater investment in communicating information on the research award programmes to researchers in the humanities and social sciences and generally in those areas of research which are under-represented in the group of award winners.

Not least of all, a great challenge also lies in attracting interested women, who make up less than 10% of award winners, in the programmes.

3. This recommendation is again concerned with the presentation of information on funding opportunities, this time for alumni. Not all award winners are fully informed about the Humboldt

⁸ Award winners in the years 2001-2006.

⁹ 38% of award winners amongst natural scientists, 25% amongst engineering scientists and 5% amongst humanities scholars.

Foundation's range of funding opportunities which has expanded in recent years. Efforts should be increased to make both hosts and award winners more fully aware of funding and other opportunities.

4. A further recommendation concerns the transparency of decisions made by the Humboldt Foundation which reserves the right not to give reasons for rejecting nominations vis-à-vis the nominating academic in Germany. Undoubtedly, not all excellent candidates can be granted an award. The more convinced the prospective host is about the merits of his/her nominee, the more difficult it is as a nominator to accept that one cannot now invite the nominee without being given a reason. So, disappointment also plays a role. However, since the programme grants an award rather than funding, the Foundation is not required to explain its rejection. It is therefore all the more important to communicate clearly the decision-making process from the outset, including the fact that no reason will be provided in the event of a rejection. A few award winners also noted the lack of transparency in the decision-making process, namely when a German scientist or scholar they wished to host as a Lynen Fellow is not awarded a fellowship. As the Feodor Lynen Research Fellowship, in contrast to the research award programmes, grants sponsorship and, since the award winner would have taken on part of the funding, we recommend here that the candidate be provided with the reasons for a rejection¹⁰ to enable him/her to learn from the experience. It is then up to the candidate whether he/she communicates the reasons to the award winner.
5. The fifth recommendation outlines perspectives for monitoring and evaluating the activities of the Foundation. Databases of funding institutions are usually designed primarily for the day-to-day operation of their funding programmes. Accompanying monitoring and ex-post analyses are not considered sufficiently in their design. We therefore suggest that the database should be thoroughly inspected according to appropriate criteria in the course of a future evaluation project to arrive at simple ways in which the data, once evaluated, could be used to better effect for the growing needs of the Foundation.
6. Network analyses and bibliometric analyses were carried out as a pilot project in the framework this evaluation. In doing so, our feeling is that portraying the Humboldt Foundation Network on the strength of only two programme lines does not sufficiently take into consideration the dimensions of the Humboldt network in its entirety. We therefore recommend, independent of programme-specific evaluations, carrying out a network analysis of the links of all Humboldtians and, within this framework, also devoting time to rework the database. Even the results of the bibliometric analysis are of more interest when they are put into a larger overall context.

Finally, it should be noted that not only empirical analyses, interviews, bibliometric and network analyses communicate information on the Humboldt Foundation and its award programme, but also the immediate contact of the evaluator with the Foundation as client. In an evaluation intended to record general effects and trends, it is not possible to comply with the Foundation's declared policy of doing justice to every award winner as an individual - from a discussion of his/her nomination through to an application for funding for a lecture tour received possibly years later - manifest in numerous documents of communication with award winners; its task is to present average values and standardised indicators. And yet this evaluation ends with the conviction that the greatest challenge for shaping the research award programmes lies in continuing to maintain a combination of equal opportunities and transparency in processing the allocation of awards on the one hand, and networking through people and their personal motivation on the other.

¹⁰ Since the Feodor Lynen Programme is not the subject of this evaluation, the actual modalities in the communication of rejections are not known.